Calaveras County Water District
Ebbetts Pass Water System
Reach 3A Pipeline Replacement Project

ADDENDUM No. 3

Date Issued: December 29, 2015

***** Receipt of addenda must be acknowledged by Bidders on the BID FORM, Section 00410, Page 410-1; failure to acknowledge receipt may cause rejection of bid. *****

Bid Date Change: Bids will be accepted at the office of the Calaveras County Water District at 120 Toma Ct., San Andreas, CA 95249 until 2:00 PM local time on Thursday, January 21, 2016, at which time all bids received will be publically opened and read aloud.

PART A. BID PACKAGE / SPECIFICATIONS

1. Section 00410 "Bid Form" delete and replace in its entirety with attached revised version.

2. Section 02110 "Sequence of Construction" delete and replace in its entirety with the attached revised version.

3. Section 15113 "Air and Vacuum Valve Assemblies" delete and replace with the attached revised version. The air valve size and type of connection has been changed to from 2-inch threaded to 3-inch Class 300 flanged; see revised detail.

4. Section 15114 "Pressure Reducing and Relief Control Valves" delete and replace with the attached version. Existing pressure regulating valve stations PRV26, PRV55, PRV86 and PRV90 will be reused; added 4" valve for temporary bypass.

5. Caltrans encroachment permits (115-NUJ-0490, 115-NUJ-0494 & 115-NUJ-0495) are posted on the District's website:

   http://ccwd.org/wp-content/uploads/2013/12/Reach_3A_Caltrans_Encroachment_Permits.pdf

PART B. DRAWINGS

1. Drawing G-004: The work "Meadowmont Branch Line" is not included in contract. Delete Note 26 reference to Wetlands 2 and 3, and delete Note 27 reference to Stream C.

2. Drawing C-1: Tap saddle/tap location for 2" service for Cal-Fire has changed. Tap will be made on fire hydrant lateral just downstream of existing PRV26 resulting in first 20' of trench for service turning south; otherwise, trench follows same uphill route to existing meter box.

3. Drawings C-1, C-5, C-23 & C-33: Do not demolish existing pressure regulating stations PRV26 (STA13+98), PRV86 (STA28+62), PRV90 (STA 110+83) or PRV55 (STA 156+98); these stations to be reused and reconnected to new 12" main. Delete Details 26R and 86R on Sheet C-301 and Detail 55R on Sheet C-303; use attached revised details for PRV26, PRV86 and PRV55 and PRV90.

4. Drawings C-4, C-17, C-23 & C-24: Delete existing valves shown on existing 10"/12" steel main at STA 25+60, 110+75 and 115+05 (15' Right); valves do not exist and shown in error.

5. Drawing C-11 (Grid A3 & B3): On exiting 12" steel main at STA 57+05, provide temporary bypass as shown on attached Detail/PRV38 Temporary Bypass Valves/Piping.

6. Drawing C-17 (Grid B3): On existing 12" steel main at STA 84+38, the existing valve has a large 2+ cubic yard thrust block, which will need to be demolished.

7. Drawing C-17 (Grid B4): Add attached detail for Pine Drive 6" water main relocation; remove and replace water main downstream of PRV45R to its tie-in at Pine St.

8. Drawing C-18 (Grid C3 & D3): Existing 8" C900 PVC water main at approximately STA 88+80 is in conflict with new 12" DIP main; see attached/revise profile.

9. Drawing C-18 (Grid A3 & A4): On existing 12" steel main approximately STA 88+80, 50' Left (north), provide bypass with hot tap per attached Detail/PRV46 Temporary Bypass.

10. Drawing C-21 (Grid A4 & A5): As described in revised Section 02110, Sequence of Work, Paragraph A.10, on Manuel Rd add Zone 47 and 91 intertie/jumper per attached detail.

11. Drawing C-21 (Grid B4 & B5): For the new 6" water main serving the residential area along Fir St., add attached detail of tie-in connection at intersection of Fir St. and Manuel Rd.

12. Drawing C-22 (Grid A2): As described in revised Section 02110, Sequence of Work, Paragraph A.13, provide Line Stop at approximately STA 105+25.

13. Drawing C-23 (Grid A3): Add connection detail for PRV90 attached. Also, replace 1" water service at STA 111+00; connect to new 6" water main in Fir St.

14. Drawing C-26 (Grid B2 & B4): On existing 12" steel main, add Line Stop at STA 123+50 and bypass/hot tap at STA 125+50 as shown attached Detail / PRV51 Temporary Bypass.

15. Drawing C-32 (Grid A4): Add Line Stop on existing 12" steel main at STA 153+15.

16. Drawing C-33 (Grid A2 & B2): On existing 12" steel main approximately STA 155+30, provide cut-in temporary bypass as shown on Detail / PRV54 Temporary Bypass.

17. Drawing C-33 (Grid B4): Do not remove/replace fire hydrant downstream of PRV55. PRV to be reused and no modifications made downstream, so existing hydrant remains.

18. Drawing C-35 (Grid A3 & B3): There is no new service, box or air valve at STA165+60; delete object on 12" main shown at this location.

19. Drawings C-44 & C-45: Delete incorrect reference "See Detail G10 on DWG C-302" for casing detail. The correct reference is Detail 1 Casing Detail for Sheet C-44 and Detail G10, Appendix A for Sheet C-45.

20. Drawing Y-2: The connection at Sawmill Tank site (STA 203+00 to 203+60) has been changed; delete all and substitute revised Detail 1 "Sawmill Tank Connection Detail" (attached). Chemical injection point is same per Detail 15350.

21. Drawings C-301 & C-303: Delete/replace Detail 26R with revised Detail 26; delete/replace Detail 86R with revise Detail 86; delete/replace Detail 28R with revised Detail 28R.

22. Drawing C-303: Delete/replace Detail 55R with Detail 55. On PRV93R detail, delete 6"x6"x2" tee and 2" service, provide two 1" water services shown correctly on Sheet C-35.

23. Drawing C-310: Add second pressure gauge (Item 6) upstream of 6" pressure reducing valve. The 2"x4" reducers (Item 23) to be fusion epoxy coated per AWWA C213. The 4" dismantling joint (Item 22) to be fusion epoxy coated with stainless steel hardware.

24. Drawing C-312: Detail 1/Lilac Park Connection Detail: New 8" gate valve to be provided as shown. The existing 8" gate valve shall be removed and flanged x plain end spool extended to existing 8" 90°Elbow. Existing 8" 90° Elbow has thrust block, which, if possible, should not be significantly disturbed during excavation.

PART C. PROJECT GENERAL DETAILS

1. All revisions to Appendix A, Project General Details are tabulated below.

DETAIL	DESCRIPTION	STATUS
G04	Separation Standards	Same
G05	Trench Section	Same
G05A	Trench Section / Unstable Subgrade	Same
G07	Chain-Link Fence	Same
G08	Slope Protection	Same
G09	Concrete Encasement	Same
G10	Casing/Carrier	Same
G11	Creek Crossing	Revised/Attached
G12	Removable Guard Post	Same
G12A	Paddle Marker	Same
G13	Polyethylene Encasement	Same
W01	Thrust Blocks Bearing Area Schedule	Revised/Attached
W02	Tracer Wire Installation	Same
W02A	Tracer Wire Connector	Same
W03	Gate Valve Installation	Revised/Attached
W03A	Gate Valve Extension	Same
W04	Fire Hydrant Installation	Same
W04A	Fire Hydrant Location	Same
W04B	Fire Hydrant Installation with PRV	Same
W05	3" Air Release Valve (High Pressure)	Revised/Attached
W07	1" Water Service with Meter Box	Missing/Attached
W07A	2" Water Service with Meter Box	Same
W07C	Meter Box Placement / Standard	Same
W07D	Meter Box Placement / Slope	Same
W12	Jumper Pipe Installation	Same
W14	Discharge Box *(A/R Vent)*	Missing/Attached

PART D. REQUESTS FOR INFORMATION

1. Bid Item #7: Please clarify if it is the intent to have 12" gate valves bolted to main line tees as appropriate. The stationing on the plans appears to indicate upwards of 5' in stationing upstream and downstream from the tees for the valves in numerous locations.

   Reply: Assume MJ tees; 12" GV in many cases cannot be bolted directly to main line tees.

2. Bid Item #19: Please clarify locations and quantity of fire hydrants without PRV assemblies.

   Reply: Updated bid schedule requires three (3) standard hydrants without PRV's; these are not located on 12" main but nearby to STA 107+50, 153+00 and 168+00.

3. Bid Item #20: Please clarify the locations of fire hydrants with PRV assemblies. Are they assumed to be the hydrants directly off the new 12" main?

   Reply: Updated bid schedule requires six (6) hydrants with PRV's located directly on 12" main at STA 24+60, 28+40, 43+00, 65+60, 116+73 and 161+06. Hydrants at STA 28+40 and 43+00 may not be optimal and relocated elsewhere on project as field directed by Engineer.

4 Bid Item #21: Please clarify the quantity of 1" Services. There appear to be 11 on sheet C-22 and 2 on sheets C35/36. Is there a new service on plan sheet C-35 at Sta. 165+60?

   Reply: There are total of fourteen (14) 1" services. Yes, eleven (11) on Sheet C-22 and two (2) on Sheets C-35/C-36. The object at STA 165+60 on Sheet C-35 is nothing/mistake. The last service is not marked on plans but nearby STA 111+00 on Sheet C-23.

5. Bid Item #22: Does the 2" Water Service require metering at the connection point?

   Reply: Contractor is NOT required to furnish metering/metering device.

6. Bid Item #25 and #26: Is all piping outside of the PRV stations assumed to be in these items, as well as the new 6" water main on sheets C22 and 23?

   Reply: The bid schedule has been updated and now there is a separate bid item for the 6" water main on Fir St./Sheets C-22 and C-23.

7. Plan Sheet C-1: Please clarify the 10" piping downstream of PRV #26R and the bid item for this work if the piping is intended to be 10".

   Reply: This is no longer an issue as PRV26 is to be reused and not demolished/rebuilt, but the existing piping downstream of PRV26 is either 6" or 8" (not 10").

8. Spec Section 00410-2: Bid Item Description for Bid Item #17: The PRV description notes a District Standard Drawing W13B on Sheet C-310. The Detail clearly includes tees and fittings exterior to the vault walls for 4" and 2" bypass piping, yet the item description states to exclude. Should not these fittings be included in the PRV Bid Item?

   Reply: The 4" piping exterior to vault can be included with Bid Item No.26; there is no bid item for the 2" piping so must be included with either Bid Item No.17 or No.26.

END

PART A.
BID PACKAGE / SPECIFICATIONS

SECTION 00410
BID FORM

TABLE OF ARTICLES

ARTICLE 1- BID RECIPIENT

1.01 This Bid is submitted to: Calaveras County Water District at the main office located at 120 Toma Court, San Andreas, California 95249, no later than **2:00 p.m., January 21, 2016**.

1.02 The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with Owner in the form included in the Bidding Documents to perform all Work as specified or indicated in the Bidding Documents for the prices and within the times indicated in this Bid and in accordance with the other terms and conditions of the Bidding Documents.

ARTICLE 2- BIDDER"S ACKNOWLEDGEMENTS

2.01 Bidder accepts all of the terms and conditions of the Instructions to Bidders, including without limitation those dealing with the disposition of Bid security. This Bid will remain subject to acceptance for 90 days after the Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of Owner.

ARTICLE 3- BIDDER'S REPRESENTATIONS

In submitting this Bid, Bidder represents that:

A. Bidder has examined and carefully studied the Bidding Documents, the other related data identified in the Bidding Documents, and the following Addenda, receipt of which is hereby acknowledged.

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

B. Bidder has visited the Site and become familiar with and is satisfied as to the general, local and Site conditions that may affect cost, progress, and performance of the Work.

C. Bidder is familiar with and is satisfied as to all Federal, State and local Laws and Regulations that may affect cost, progress and performance of the Work.

D. Bidder has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or contiguous to the Site and all drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site (except Underground Facilities) which have been identified in SC-4.02, and (2) reports and drawings of Hazardous Environmental Conditions, if any, at the Site that have been identified in SC-4.06 as containing reliable "technical data."

E. Bidder has considered the information known to Bidder; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Bidding Documents; and the Site-related reports and drawings identified in the Bidding Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder, including applying the specific means, methods, techniques, sequences, and procedures of construction expressly required by the Bidding Documents; and (3) Bidder's safety precautions and programs.

F. Based on the information and observations referred to in Paragraph 3.01.E above, Bidder does not consider that any further examinations, explorations, tests, studies, or data are necessary for the determination of this Bid for performance of the Work at the price(s) bid and within the times and in accordance with the other terms and conditions of the Bidding Documents.

G. Bidder is aware of the general nature of the Work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents.

H. Bidder has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and the written resolution thereof by Engineer is acceptable to Bidder.

I. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance of the Work for which this Bid is submitted.

J. Bidder will submit written evidence of its authority to do business in the State or other jurisdiction where the Project is located not later than the date of its execution of the Agreement.

ARTICLE 4- BIDDER'S CERTIFICATION

4.01 Bidder further represents that:

A. This Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any agreement or rules of any group, association, organization or corporation;

B. Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid;

C. Bidder has not solicited or induced any individual or entity to refrain from bidding; and

D. Bidder has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract. For the purposes of this Paragraph 4.01.D:

1. "corrupt practice" means the offering, giving, receiving, or soliciting of anything of value likely to influence the action of a public official in the bidding process.

2. "fraudulent practice" means an intentional misrepresentation of facts made to (a) to influence the bidding process to the detriment of Owner, (b) to establish bid prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;

3. "collusive practice" means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish bid prices at artificial, non-competitive levels; and

4. "coercive practice" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

ARTICLE 5- BASIS OF BID

5.01 Bidder will complete the Work in accordance with the Contract Documents for the price(s) provided in the attached bid schedule (at the end of this section).

5.02 Unit Prices have been computed in accordance with Paragraph 11.03.B of the General Conditions

5.03 Bidder acknowledges that estimated quantities are not guaranteed, and are solely for the purpose of comparison of Bids, and final payment for all Unit Price Bid items will be based on actual quantities, determined as provided in the Contract Documents.

5.04 Bid Prices are for work that has been furnished and installed by the Contractor and is fully completed. The bid items as described and provided are for bidding and payment purposes and do not in any way limit the Contractor's responsibility to perform all work that may be reasonably inferred from the plans, specifications and other bid documents to produce the intended result.

5.05 All specified cash allowances are included in the price(s) set forth above and have been computed in accordance with Paragraph 11.02 of the General Conditions.

5.06 If "additive" or "deductive" Bid Items are included in the Bid- clearly identify the method for applying the alternates and the basis for award of the contract.

ARTICLE 6- TIME OF COMPLETION

6.01 Bidder agrees that the Work will be substantially complete and will be completed and ready for final payment in accordance with Paragraph 14.07 of the General Conditions on or before the dates or within the number of calendar days indicated in the Agreement.

6.02 Bidder accepts the provisions of the Agreement as to liquidated damages.

ARTICLE 7- ATTACHMENTS TO THIS BID

7.01 The following documents are attached to and made a condition of this Bid:

A. Non-Collusion Affidavit (**Section 00420**);

B. Required Bid security in the form of a Bid Bond (EJCDC No. C-430) or Certified Check (**Section 00430**);

C. Signed Compliance Statement/Certifications of Nonsegregated Facilities RD 400-6). Refer to specific equal opportunity requirements set forth in the Supplementary Conditions (**Section 00440**);

D. Signed Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion- Lower Tiered Covered Transactions (AD-1048) (**Section 00450**);

E. Signed RD Instruction 1940-Q, Exhibit A-1, Certification for Contracts, Grant, and Loans. Refer to paragraph 18.11 of the General Conditions (**Section 00460**);

F. List of Subcontractors (**Section 00470**);

ARTICLE 8- DEFINED TERMS

8.01 The terms used in this Bid with initial capital letters have the meanings stated in the Instructions to Bidders (Section 00200), the General Conditions (Section 00700), Supplementary Conditions (Section 00800), and Engineer's Supplemental Conditions (Section 00900).

ARTICLE 9- BID SUBMITTAL

9.01 This Bid is submitted by: _____

Bidder's Business address: _____

_____

Phone: _____ Facsimile: _____

Submitted on _____, 2016.

State Contractor License No. _____

DIR Registration No. _____

Employer's Tax ID No. _____

If Bidder is:

<u>An Individual</u>

Name (typed or printed): _____

By: _____
(Individual's signature)

Doing business as: _____

<u>A Partnership</u>

Partnership Name: _____ (SEAL)

By: _____
(Signature of general partner – attach evidence of authority to sign)

Name (typed or printed): _____

A Corporation

Corporation Name: _____ (SEAL)

State of Incorporation: _____

Type (General Business, Professional, Service, Limited Liability): _____

By: _____
(Signature – attach evidence of authority to sign)

Name (typed or printed): _____

Title: _____

Attest: _____
(Signature of Corporate Secretary)

Date of Qualification to do business is ____________.

A Joint Venture

Name of Joint Venturer: _____

First Joint Venturer Name: _____ (SEAL)

By: _____
(Signature of first joint venture partner – attach evidence of authority to sign)

Name (typed or printed): _____

Title: _____

Second Joint Venturer Name: _____ (SEAL)

By: _____
(Signature of second joint venture partner – attach evidence of authority to sign)

Name (typed or printed): _____

Title: _____

(Each joint venturer must sign. The manner of signing for each individual, partnership, and corporation that is a party to the joint venture should be in the manner indicated above.)

BID SCHEDULE

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE	BID PRICE
1	Mobilization	LS	1	$_____.____	$_____.____
2	Encroachments & Traffic Controls	LS	1	$_____.____	$_____.____
3	SWPPP/BMP's	LS	1	$_____.____	$_____.____
4	Sheeting, Shoring & Bracing	LS	1	$_____.____	$_____.____
5	Environmental Mitigation Measures	LS	1	$_____.____	$_____.____
6	12" Water Main / Open-Cut	LF	19,140	$_____.____	$_____.____
7	12" Gate Valves	EA	45	$_____.____	$_____.____
8	Demolition / PRV Stations & Associated Piping	LS	1	$_____.____	$_____.____
9	Demolition / Remove Existing 10" & 12" Steel Main	LF	6,000	$_____.____	$_____.____
10	Wetlands/Streambeds Permit Requirements	LS	1	$_____.____	$_____.____
11	Minor Concrete & Thrust Blocks	CY	45	$_____.____	$_____.____
12	Crushed Rock, Gravel & Unstable Subgrade	TONS	100	$_____.____	$_____.____
13	Asphaltic Concrete Paving	TONS	800	$_____.____	$_____.____

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE	BID PRICE
14	Controlled Density Fill / Slurry	CY	350	$_____.____	$_____.____
15	Bore & Jack / Pits	EA	4	$_____.____	$_____.____
16	Bore & Jack / Casing and Carrier Pipe	LF	225	$_____.____	$_____.____
17	Pressure Regulating Stations (New / Replacement)	EA	13	$_____.____	$_____.____
18	3” Combination Air Release, Vacuum & Anti-Surge Valves	EA	16	$_____.____	$_____.____
19	Fire Hydrants without PRV	EA	3	$_____.____	$_____.____
20	Fire Hydrants with PRV	EA	6	$_____.____	$_____.____
21	1” Water Services	EA	14	$_____.____	$_____.____
22	2” Water Service (Cal-Fire Property)	LS	1	$_____.____	$_____.____
23	6” Gate Valves	EA	29	$_____.____	$_____.____
24	8” Gate Valves	EA	8	$_____.____	$_____.____
25	6” Water Main / Fir Street	LF	800	$_____.____	$_____.____
26	PRV Station Piping, Pine St., Manuel Intertie & Lilac Park	LS	1	$_____.____	$_____.____
27	PRV Station Piping / Extra Bends for Vertical Offsets	EA	28	$_____.____	$_____.____

ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE	BID PRICE
28	Chain Link Fence / New	LF	160	$_____.____	$_____.____
29	Line Stops / High Pressure	EA	3	$_____.____	$_____.____
30	10” Gate Valve	EA	1	$_____.____	$_____.____
31	4” Pressure Regulating Valve	LS	1	$_____.____	$_____.____
32	4” Temp. Bypass / Hot Taps (PRV 46 & PRV 51)	EA	2	$_____.____	$_____.____
33	4” Temp. Bypass / Cut-Ins (PRV 38 & PRV 54)	EA	2	$_____.____	$_____.____
TOTAL BID AMOUNT ALL ITEMS (1 to 33) (NUMERICAL)				**$_____.____**	

_____

_____ **DOLLARS**

TOTAL BID AMOUNT (WRITTEN)

DESCRIPTIONS OF BID ITEMS

Note: Bid items listed herein for bidding and payment purposes do not limit Contractor's responsibility to perform all work required under this contract, on drawings, in specifications, or reasonably inferred or interpreted to be necessary to complete the work.

BID ITEM NO.1 – MOBILIZATION/DEMOBILIZATION

This item consist of preparatory work and operations, including, but not limited to those necessary for the movement of personnel, equipment, supplies, and incidentals to the site; securing performance and payment bonds and required insurance, establishing a field office (if applicable) and staging areas; preparing schedules and sequencing plans, submitting shop drawings; and for all other work and operations to be performed, or costs incurred, prior to beginning the Work. Contractor shall provide and maintain portable toilet(s) on-site for use by Contractor and subcontractor employees. Demobilization shall include, but not limited to, removal of all waste materials, debris, final cleanup of construction and staging areas, and issuance of maintenance bond. *(Note: This bid item not to exceed five percent (5%) of the total Contract Sum and initial progress payment to be limited to two percent (2%) with balance of payments based on percentage of work completed.)*

BID ITEM NO.2 – ENCROACHMENT PERMITS/TRAFFIC CONTROLS

Contractor shall prepare and file all paperwork to complete Contractor's part of encroachment permits. Contractor shall perform all work and coordination necessary to secure and comply with permit conditions as issued by Caltrans and County Public Works for all work within highway and road right of ways. Contractor must comply with all requirements and conditions as listed "Contractor" under these permits. The District will submit preliminary permit applications to respective agencies as "Owner" and pay all fees directly invoiced by Caltrans and County. County of Calaveras shall be listed as a co-obligee on performance bond or added via a dual obligee rider. Contractor shall prepare/submit specific traffic control plans meeting requirements and approval of agencies, and fully support and implement traffic control plans including all signage, flaggers, barricades, k-rail, safety devices, etc. Traffic plans shall be designed and implemented in accordance with California Manual on Uniform Traffic Control Devices (MUTCD) 2014 edition and, as applicable, State Standard plans. Contractor shall schedule and notify Caltrans and County of all highway and road lane closures and other encroachments within right of way. For permitted activities within highway, Contractor shall notify Caltrans permit officer two weeks in advance of work, obtain closure numbers and report daily status via Transportation Management Center (TMC) at (209) 948-7556 both at beginning of traffic control and again when done at end of day; if lane closure is scheduled but not used, Contractor is obligated to call in to the TMC and cancel it for each day.

BID ITEM NO.3 – STORM WATER POLLUTION PREVENTION (SWPPP/BMP'S)

This item includes all labor, materials, equipment for preparing, furnishing, installing, implementing and maintaining a project specific Storm Water Pollution Prevention Plan (SWPPP) and Best Management Practices (BMP's) to comply with the Construction General Permit Order No.2012-0006-DWQ/NPDES No.CAS000002. SWPPP shall be filed electronically with State's Storm Water Monitoring and Report Tracking System (SMARTS), prepared under direction of a Qualified SWPPP Developer (QSD) and furnished, installed, implemented and maintained under direction of a Qualified SWPPP Practitioner (QSP) licensed by the California Stormwater Quality Association (CASQA). All work shall be according to the Caltrans Stormwater Quality Handbooks, Project Planning and Design Guide, Stormwater Pollution Preventions Plan (SWPPP) and Water Pollution Control Program (WPCP) Preparation Manual, Construction Site Best Management Practices (BMPs) Reference Manual (CTSW-RT-11-255.08.01) and applicable construction site BMP symbols, details, drawings and templates. BMP's shall be provide for run-on control, soil stabi6lization, erosion control, sediment control, tracking control, wind erosion control, material pollution prevention/control and waste management. Each day all waste excavated materials shall be removed from roads and roads mechanically swept; a regenerative air sweeper shall be employed/used at least twice weekly including each Friday (if trenching/excavating in roads or tracking dirt onto roads) to thoroughly clean all pavement surfaces. Contractors trenching, excavating and backfilling operations shall be conducted to preserve existing vegetation not in the immediate construction zone and will not be conducted in such a method/manner that allows soil or backfill materials to directly enter into any creeks, stream, drainage or roadside ditch (except in compliance with issued Section 404/401 permits). All disturbed soil areas shall be stabilized by appropriate BMP's. After demobilization, Contractor's responsibility shall continue during guarantee period until a Notice of Termination (NOT) is filed/accepted by the Regional Board.

BID ITEM NO.4 – SHEETING, SHORING & BRACING

In accordance with California Labor Code and Department of Industrial Relations requirements, the Contractor shall furnish and install sheeting, shoring and bracing for all excavations and trenches five (5) feet or deeper and into which a person is required to descend; safety plan(s) shall meet minimum requirements of the Construction Safety Orders, Sections 1539 to 1543. Refer to geotechnical report for different soil types.

BID ITEM NO.5 – ENVIRONMENTAL MITIGATION MEASURES

Contractor shall provide all labor, equipment and materials to comply with the Mitigation Monitoring and Reporting Plan (MMRP) of the adopted Initial Study and Mitigated Negative Declaration (IS/MND). The District will retain a bird specialist, biologist, archeologist, cultural resources monitor and wetlands scientist to conduct environmental surveys and monitoring activities. Mitigation measures are further described and listed below:

- Mitigation AQ-1: Mitigate construction related fugitive dust emissions and prepare and submit a dust control plan to Calaveras County Air Pollution Control District (CCAPCD).
- Mitigation AQ-2: Mitigate construction related heavy equipment and vehicle exhaust emissions.
- Mitigation BR-1: Avoid disturbance to Small's southern clarkia, a special status plant.
- Mitigation BR-2: Schedule construction in northern project area outside nesting season.
- Mitigation BR-3: Before staging, conduct nesting bird (osprey/spotted owl) surveys and protect active nests.
- Mitigation BR-4: Minimize impacts to wetlands and streams and comply with terms of Clean Water Act and Fish and Wildlife Code authorizations.
- Mitigation CR-1: Protect cultural resources uncovered by ground disturbing activities.
- Mitigation CR-2: Protect human remains uncovered by ground disturbing activities.
- Mitigation HHM-1: Implement a hazardous materials spill prevention and response plan.
- Mitigation HHM-2: Implement a fire safety plan.
- Mitigation HWQ-1: Implement a Construction Stormwater Pollution Prevention Plan (SWPPP) employing and deploying appropriate Best Management Practices (BMPs).
- Mitigation HWQ-2: Protect waterbodies (streams, creeks, drainages, and wetlands) from construction activities and prevent excavated materials and stockpiles from entering these areas.
- Mitigation NO-1: Maintain noise control mufflers and other devices on heavy equipment, restrict work hours, and implement additional measures to limit construction related noise.
- Mitigation NO-2: Notify residences in advance of construction activities and noise.
- Mitigation TT-1: Prepare and implement required traffic control plans

BID ITEM NO.6 – 12" WATER MAIN / OPEN-CUT

This item includes providing all labor, equipment and materials for construction of 12" fully mechanically restrained ductile iron water main (pipe, fittings, flanged adaptors, restraint glands, and other accessories) by open-cut trench method according to project specifications and drawings. The work includes, but is not limited to, clear/grubbing, tree removal, utility marking/potholing, trench excavation, rock excavation/ hammering, removal and disposal of waste excavated material, installation of pipe, fittings and accessories, placement/compaction of bedding, backfill, road base and temporary cut back/cold patch; providing polyethylene wrap, locator wire and caution tape; scheduling shutdowns, coordinating construction sequences; disinfection, flushing, testing and placing pipeline into service; making public notifications and other related activities as described in Contract Documents. All piping, fittings and accessories shall be working pressure rated and hydrostatic tested to 350-psig. Payment shall be made for lineal feet of 12" pipe (measured at ground surface) installed, tested, disinfected and placed into service and approved/accepted. *(Notes: This item includes tie-ins at both tank sites and at intersection of new 12"/existing 16" DIP mains; provide three 16"x12" reducers shown on Sheet Y-1 and C-312. For bore & jack, include 12" carrier in Bid Item No.16.)*

BID ITEM NO.7 – 12" GATE VALVES

Contractor shall provide all labor, equipment and materials for 12" resilient wedge gate valves as shown on project drawings and Details W03 and W03A. Gate valves shall conform to AWWA C515 with ductile iron body per ASTM A536, fusion epoxy per AWWA C550, manganese bronze stem and thrust collar, and polymer wedge guide bearing caps to lower operating torque. UL Listed/FM Approved to 350-psig working pressure, 525-psig seat test and 700-psig shell test. Valves to be Mueller Co., American (ACIPCO) or equal. Payment shall be for each valve furnished, installed, disinfected, tested, approved and placed into service.

BID ITEM NO.8 – DEMOLITION / PRV STATIONS & ASSOCIATED PIPING

The scope of work for this bid item includes providing all labor, equipment and materials for demolition and removal of existing PRV station and existing upstream and downstream piping, existing valves and thrust blocks and disposal of all resulting waste as more specifically scheduled/tabulated below. Payment shall be lump sum based on the percentage of work completed.

LOCATION	STA±	DESCRIPTION
PRV26 PRV86 PRV90 PRV55	13+98 28+62 110+83 156+87	Four (4) PRV Stations / Remove Upstream Piping: These PRV stations are NOT to be demolished but reused/reconnected to the new 12" DIP main; see details provide in Addendum No.3. Demolish/remove existing upstream piping from existing 10"/12" steel main to upstream side of the existing vaults. The existing flanged spool that penetrates the upstream side of the vault wall shall be removed and replaced to the first primary flange attachment inside the existing vault. The existing wall penetration shall be carefully removed by saw-cutting, chisel, hammer drill, rotary hammer, or small demolition hammer to avoid excessive damage to existing concrete/masonry wall. After installing new spool, patch and repair wall penetration with high strength, non-shrink grout, e.g. Quikrete Fastset Non-Shrink Grout (1585-09) or equal.
PRV27 PRV46 PRV93	25+75/70' R 88+45 168+30/10' L	Three (3) PRV Stations / Abandon In-Place: Close isolation valves, remove pressure regulating valves, and blind flange open/exposed end of downstream isolation valves at limits of active system. Any existing piping in conflict with new trench shall be saw-cut, removed and abandoned ends plugged with concrete. For PRV46, demolish small redwood vault in conflict with trench.
PRV28	28+00	One (1) PRV Station / Abandon Piping & Demolish Vault: Demolish existing deep concrete vault to at least 1' below invert of new 12" DIP main; lower half of vault can be abandoned in place with gate valves closed, pressure regulating valve removed, exposed dead ends blind flanged off. Any existing piping in conflict with new trench must be saw-cut, removed and abandoned ends plugged with concrete. *(Note: Due to depth of vault, entry to be performed as a permit required confined space entry with appropriate safety protocols checked/provided for worker safety.)*
PRV37 PRV38 PRV45 PRV47 PRV91 PRV92 PRV51 PRV53 PRV54	44+83 56+73 84+50 103+49 104+74 112+31 121+80 152+89 154+93	Nine (9) PRV Stations / Complete Demolition: Contractor shall completely demolish and remove these existing PRV stations including concrete vault, metal covers, interior piping, fittings and valves, all upstream and downstream piping, values, and thrust blocks. Prior to demolition, carefully remove and salvage existing pressure regulating valves for District and deliver to White Pines Barn. Also, prior to demolition, field verify that limits of active system versus inactive system coincide with proposed limits of demolition; isolate active system by cutting-in new isolation valves (if called for per construction sequence) or by other means. Demolish downstream piping to point of new connection according to applicable PRV details.

BID ITEM NO.9 – DEMOLITION / REMOVE EXISTING 10" & 12" STEEL MAIN

In locations where new 12" DIP main is to be placed in same location or in close proximity to current location of existing 10" and 12" steel main or impedes into new trench, this item includes providing all labor, materials and equipment resulting from additional effort above standard trench excavation required to excavate the existing 10" and 12" main, fittings, thrust blocks, and appurtenances and remove and dispose of pipe, debris, additional trench spoil, and waste materials. The stations (STA) designated on plans for "remove and replace" versus "abandon in place" are tentative and subject to final field verification and adjustment as trenching progresses and as directed by the Engineer and to be confirmed daily or at weekly meetings. Payment shall be for the actual length of existing 10" and 12" steel main excavated and removed as measured in lineal feet at ground surface including fittings and thrust blocks and disposal of waste materials. *(Notes: Existing 10"/12" steel main shall be saw-cut before removal if it may pull on contiguous piping that is to temporarily remain active. Cut ends to be abandoned shall be plugged with concrete furnished under Bid Item No.11.)*

BID ITEM NO.10 – WETLAND / STREAMBED PERMIT REQUIREMENTS

The project crosses wetlands and streambeds as shown on drawings and environmental maps. The Contractor shall be cognizant of and minimize impacts to these environmentally sensitive areas. Work within wetlands and streambeds is allowed only by permit herein incorporated by reference: 1) U.S. Army Corps of Engineers (USACE) Section 404, NWP 12 – Utility Line Activities (SPK-2014-00828), 2) Regional Board, Section 401, Water Quality Certification, and 3) California Department of Fish and Wildlife, Section 1600, Streambed Alteration. Copies of permits are available at the District's office at 120 Toma Ct., San Andreas, CA 95249. Contractor shall provide all laborer, equipment and materials to implement mandatory plans and comply with all terms and conditions of each permit. The District may stop work, if Contractor fails to submit a required plan, to make notifications, to reserve/restore wetlands topsoil and vegetation/grasses, fails to implement a streambed dewatering plan, meet allowable turbidity limits, or to restore the streambed. Contractor shall prepare and submit mandatory plans for USACE review and approval at least 30-days prior to work including: a) plan for disposal and stockpile of materials excavated from wetlands and b) plan for dewatering streambed work area of standing or flowing waters. The District will pay permit all fees directly charged by regulatory agencies. Payment shall be lump sum for preparing, submitting and implementing mandatory plans, making notifications and complying with terms and conditions of subject permits. *(Note: For wetlands Detail G05A and streambed/creek crossing Detail G11 include imported rock/gravel in Bid Item No.11 and concrete encasements in Bid Item No.12.)*

The permit requirement apply to wetland and streambed crossings are at the following locations:

- Wetland 1 (SP11) / From STA 43+80 to STA 44+40
- Wetland 4 (SP1A) / From STA 59+00 to STA 60+05
- Wetland 5 (SP2A) / From STA 63+40 to STA 64+15
- Stream A / From STA 42+35 to STA 42+55 (estimated 5' streambed/in-stream)
- Stream B / From STA 44+82.8 to PRV37R (estimated 5' streambed/in-stream)
- Stream D / From STA 87+65 to STA 87+80 (estimated 5' streambed/in-stream)
- Stream E / From STA 95+80 to STA 95+90 (estimated 5' streambed/in-stream)

BID ITEM NO.11 – MINOR CONCRETE & THRUST BLOCKS

Minor concrete shall include encasements per Detail G11 for stream/creek crossings, all thrust blocks, abandoned pipeline plugging, pads, fence post holes, and other miscellaneous concrete as directed by the Engineer. Unless otherwise approved, all concrete shall be Class 3 conforming to Section 03300, Concrete and Reinforcing Steel. Small quantities of concrete can be job site mixed provided material is accurately measure and reported in daily field reports submitted to the District's inspector. Payment shall be for each cubic yard (or fraction thereof) of the actual quantity of concrete delivered to job site, meeting requirements of Section 03300, and incorporated into the work; delivery tags and invoices to be provided as backup documentation for progress payment requests.

BID ITEM NO.12 – CRUSHED ROCK, GRAVEL & UNSTABLE SUBGRADE

Use of imported gravel, crushed rock, and drain rock is required per Detail G11 for listed streambed/creek crossings and Detail G05A for trenching within wetlands. Also, provide imported crushed rock, drain rock and other rock to stabilize subgrade in trenches and excavations, leveling courses under vaults and other areas of the project with unstable or highly saturated/wet subsurface conditions. This work includes providing all labor, equipment and materials required for dewatering and over-excavation; removal and disposal of waste excavated material; furnishing and placement of crushed rock, gravel and filter fabric to stabilize subgrade. Contractor shall be paid based on actual weight of imported crushed rock/gravel material per ton incorporated into the work, as directed by Engineer. Contractor shall provide daily scale weight tags upon delivery to job site and copies of invoices; excess material not incorporated into work or unnecessarily wasted/used may be subtracted from quantities and payments. *(Note: This item is only for clean gravel, drain rock and crushed rock; it excludes Class 2 AB and excludes materials for surface tracking control and other SWPPP/BMPs.)*

BID ITEM NO.13 – ASPHALTIC CONCRETE PAVING

Paving materials, equipment, spreading and compacting procedures shall conform to Section 39, Caltrans Standard Specifications. The Contractor shall provide all labor, equipment and materials for saw-cutting, removal, disposal of existing pavement and replacement with new hot mix asphaltic concrete paving within highways, streets, driveways, parking lots, and other paved areas. Work within Caltrans right of way shall be as directed by and approved in the field by the local encroachment permit's officer. In all other paved areas, work shall be as directed and approved by the County Public Works inspector. A clean, straight saw cut shall be made along all edges between new and existing pavement; joints shall be treated/primed/sprayed with a tack coat of asphalt emulsion prior to placement of adjacent hot mix asphalt. Final pavement shall be placed with a paver machine and compacted to the compaction level intended by the mix design. Contractor shall repaint fog, limit, center lines and all other traffic/pavement makings. Final paving thickness shall be determined in the field by CCWD and agency having jurisdiction over public right-of-way, either Public Works or Caltrans, based on traffic volume and type of use; minimum thickness of placed and compacted AC paving shall be 3-inches or greater as directed by CCWD. Payment shall be for weight of hot mix AC paving delivered (submit daily truck tags) and placed and meeting quality standards; finished surface shall be thoroughly compacted, smooth and free from ruts, humps, depressions or irregularities. *(Note: For any load, District may deduct if a significant amount of hot mix is wasted/unusable and not incorporated into work).*

BID ITEM NO.14 – CONTROLLED DENSITY FILL / SLURRY

Controlled density fill (CDF) shall be transit mix of two (2) sack or 188 lbs/cy Type II Portland cement, 55 to 58 gal/cy clean water, maximum 1.5% air and 2,900 lbs/cy fine aggregate. The fine aggregate quality and grading shall conform to State Standard Specification, Section 90 for Portland Cement Concrete. Payment shall be for each cubic yard delivered and placed at job site in locations shown on project drawings or as otherwise directed by District; provide truck tags for each delivery. *(Note: For any load, District may deduct if a significant amount of slurry is wasted/unusable and not incorporated into work).*

BID ITEM NO.15 – JACKING & RECEIVING PITS (BORE & JACK)

This item includes two (2) receiving pits and two (2) jacking pits suitable for construction and installation of steel casing and carrier pipe. Contractor shall provide all labor, equipment, and materials needed to mobilize, excavate, construct, dewater and utilize pits of appropriate size for staging and operating bore & jack equipment used for construction of casing and carrier pipes as specified and shown on project drawings. Contractor shall provide sheeting, shoring and bracing for pits to comply with California Labor Code and Department of Industrial Relations requirements and Construction Safety Orders, Section 1539 to 1543. Upon completion, all pits shall be returned to original grade with a suitable backfill material, moisture conditioned and compacted to approximately 90% relative compaction; bedding and pipe zone backfill to be Class 2 AB. Existing utilities crossing through or located near or within the area of pits shall be supported and protected from damage. Trenchless work within/adjacent to Route 4 shall conform to issued permit conditions and Caltrans Encroachments Permits Manual. Payment shall be for each pit completed and backfilled in accordance with the permit and contract requirements.

BID ITEM NO.16 – CASING/CARRIER PIPE (BORE & JACK)

Contractor shall provide all labor, equipment and materials to complete two (2) trenchless sections as shown on project drawings (Sheets C4 and C18 plan and profile, Sheets C44 and C45 and Detail G10. Contractor shall provide either 22" or 24" diameter steel casing 0.25" thick wall with minimum 36-ksi yield strength. All casing joints shall be fully butt welded along full circumference. Casing shall be sized to accommodate carrier pipe bells and insulators while still allowing clearance for filling void space. Carrier pipe shall be 12-inch ductile iron restrained joint pipe (same type as furnished throughout project) and casing insulators skids provided at required intervals to properly support, center and restrain carrier pipe inside the casing. Soak carrier pipe for 24-hrs and then pressure test to 350-psig by AWWA standard procedures to verify zero leakage. Contractor shall provide surface monitoring points along bore length to check that road surface does not displace, drop, or subside due to or during trenchless operations. Trenchless work within/adjacent to Route 4 shall be performed according to issued permit and Caltrans Encroachment Permits Manual. Payment shall be for each linear foot of casing with 12-inch carrier furnished, installed, tested and accepted by District.

BID ITEM NO.17 – PRESSURE REGULATING STATIONS (NEW / REPLACE)

This item includes: PRV27R (22+34), PRV28R (27+00), PRV37R (44+83), PRV38R (56+73), PRV45R (84+50), PRV46R (88+90), PRV47R (103+44), PRV91R (104+74), PRV92R (112+31), PRV51R (121+80), PRV53R (152+89), PRV54R (154+93) and PRV93R (167+15). This item includes providing all labor, equipment and materials required to furnish and install new pressure reducing stations per Detail W13B, Sheet C-310 and specifications Section 15114. Pressure reducing valves shall be 6" main and 2" bypass globe style with ductile iron bodies and Class 300 flanges rated 400-psi working pressure; 2" relief valves shall be angle pattern ductile iron bodies with Class 150 flanges rated 250-psi working pressure. All valves shall be fusion epoxy coated inside and outside with internal/external stainless steel trim; provide anti-cavitation trim if tabulated/noted. Pilot system shall be stainless steel tubing with isolation valves, opening and closing speed controls, and Y-strainer. Each PRV station provided with precast concrete vault, traffic rated cover, resilient wedge gate valves, gauges, pipe supports and accessories and appurtenances shown on Detail W13B and discharge box per Detail W14. Backfill materials shall be Class 2 AB. Hydrostatic tests shall be performed before making final downstream tie-in connections to existing system; Contractor shall clean, disinfect per AWWA, flush and hydrostatic test (upstream 350-psi and downstream 250-psi) each PRV station, After testing, Contractor shall set/adjust final operating pressure settings 6" main, 2" bypass and 2" relief valves for service conditions (checked by District); relief valve shall be set first before making tie-in to avoid over pressurizing and damaging downstream water system. Payment shall be for each PRV station furnished and installed, disinfected, tested and placed into service by Contractor, as accepted by District. *(Notes: This bid item to include all piping penetrating vault walls. See Bid Item No.8 for demolition of existing PRV stations.)*

BID ITEM NO.18 – 3" COMBINATION AIR RELEASE, VACUUM & ANTI-SURGE VALVES

Contractor shall provide all labor, equipment and materials for 3" combination air valves per Detail W05. Air valves shall have four functions: 1) air vent upon filling, 2) vacuum vent upon draining, 3) air-release in operation, and 4) anti-surge in operation. Valve body shall be Class 300 flanged, fusion bonded epoxy coated ductile iron with 363-psi working pressure. Payment shall be for each air valve assembly furnished and installed per detail, tested, disinfected, placed in service by Contractor and accepted by District. *(Note: All air valves identified on plan and profile sheets as 2" CARV shall be changed to 3" CARV according to Addendum No.3 and revised Detail W05.)*

BID ITEM NO.19 – FIRE HYDRANT (WITHOUT PRV)

Contractor shall furnish all labor, equipment and materials and install complete fire hydrant assembly including hydrant, main line tee, 6" ductile iron branch line piping, 6" gate valve, valve box, snow poles, tracer wire, polyethylene wrap, and other items per Details W04 and W04A and specification Section 15118. Contractor shall provide all associated trenching, backfill, and compaction according to Detail G05, Trench Section. Fire hydrants to be AWWA C502, dry-barrel type rated 250-psig working pressure and 500-psig factory test. Hydrant shall be placed in a location approved by and acceptable to Caltrans in highway right-of-way, Public Works along County roads, and otherwise as directed by District. Payment shall be for each hydrant furnished, installed, tested, disinfected, flushed and placed into service according to the project specifications, drawings and applicable details. *(Note: Hydrants nearby STA 107+50, 153+00 and 168+00.)*

BID ITEM NO.20 – FIRE HYDRANT (WITH PRV)

Contractor shall provide all labor, equipment and materials for fire hydrant assembly including hydrant, main line tee, 6" ductile iron flanged spools and branch line piping, 6" gate valve, valve box, 6" pressure reducing valve, dismantling joint, concrete vault with hot dip galvanized H20 traffic rated cover, snow poles, tracer wire, polyethylene wrap, and other items per Details W04A and W04B and specification Section 15118. Contractor shall provide all associated trenching, backfill and compaction per Detail G05 and specifications. Fire hydrants to be AWWA C502 dry-barrel rated 250-psig working pressure and 500-psig factory test. Hydrant and vault shall be placed in a location approved by and acceptable to Caltrans in highway right-of-way, Public Works along County roads, and otherwise as directed by District. In public right-of-way, vaults shall be located past edge of pavement within shoulder *(not in drain ditch)* with top of vault level to ground surface. Payment shall be for each hydrant and pressure reducing valve assembly furnished, installed, tested, disinfected, flushed and placed into service according to specifications, drawings and applicable details. *(Note: Hydrants shown at STA 24+60, 28+40, 43+00, 65+60, 116+73 and 161+06 but some locations may be adjusted in field by Engineer.)*

BID ITEM NO.21 – 1" WATER SERVICES

This item includes all labor, equipment and materials for new 1" water services per Details W07, W07C and W07D and shown on Sheets C22, C23, C35 and C36. Before taking existing 12" steel main out of service on Fir St. (between Manuel Rd and Dunbar Rd), replace all water services (supplied by existing 12" steel main) and re-connect services to new 6" water main. Contractor shall extend new 1" water services to existing meter locations and reconnect service to each lot. Bedding, backfill and compaction effort shall be according to Detail G05, Trench Section. Contractor shall provide all new materials PE tubing, service saddle, corp. stop, meter valves, meter box, and other items shown in Detail W07. Payment shall be for each new 1" service furnish, installed, disinfected, tested and placed into service by Contractor and accepted by District.

BID ITEM NO.22 – 2" WATER SERVICE

This item includes all labor, equipment and materials for removing existing and providing new 2" water service per Detail W07A and as shown on Sheet C-1 for Cal-Fire (APN 032-005-016), which is currently supplied by the existing 10" steel main (STA 11+60, 30' south). Before taking the existing 10" steel main out of service for replacement, new 2" water service shall be furnished and installed via new tap saddle downstream of PRV26 to current meter location via a parallel trench offset at least three (3) feet from nearest edge of trench for new 12" DIP main. Trench bedding, backfill and compaction according to Detail G05. Contractor shall provide all new materials PE tubing, stainless steel insert stiffeners, service saddle, corp. stop, new meter valves and all other items per Detail W07A. The 2" PE tubing shall be one continuous coil length without splices. Payment shall be lump sum for the new 2" water service and disinfected, tested and placed into service by Contractor and accepted by District. *(Note: Estimated trench length is 240'±; provide trench 12" width x 36" depth with minimum 30" cover over 2" service line.)*

BID ITEM NO.23 – 6" GATE VALVES

Contractor shall provide all labor, equipment and materials for 6" resilient wedge gate valves as shown on project drawings and Details W03 and W03A. Gate valves shall conform to AWWA C515 with ductile iron body per ASTM A536, fusion epoxy per AWWA C550, manganese bronze stem and thrust collar, and polymer wedge guide bearing caps to lower operating torque. UL Listed/FM Approved to 350-psig working pressure, 525-psig seat test, and 700-psig shell test. Valves to be Mueller Co., American (ACIPCO) or equal. Payment shall be for each valve furnished, installed, tested, disinfected, approved and placed into service. *(Note: This bid item specifically excludes 6" gate valves inside PRV station vaults to be furnished per Bid Item No.17 and excluded 6" gate valves to be furnished with fire hydrants per Bid Items No.19 and No.20.)*

BID ITEM NO.24 – 8" GATE VALVES

Contractor shall provide all labor, equipment and materials for 8" resilient wedge gate valves as shown on project drawings and Details W03 and W03A. Gate valves shall conform to AWWA C515 with ductile iron body per ASTM A536, fusion epoxy per AWWA C550, manganese bronze stem and thrust collar, and polymer wedge guide bearing caps to lower operating torque. UL Listed/FM Approved to 350-psig working pressure, 525-psig seat test, and 700-psig shell test. Valves to be Mueller Co., American (ACIPCO) or equal. Payment shall be for each valve furnished, installed, disinfected, tested, approved and placed into service.

BID ITEM NO.25 – 6" WATER MAIN / FIR STREET

Provide all labor, equipment and materials for construct of 6" ductile iron water main by open-cut trench method along Fir St. (from Manuel Rd to Dunbar Rd) as shown on Sheets C-21, C-22 and C-23 and according to applicable project details and specifications. This work includes, but is not limited to, tree trimming, utility marking/potholing, rock excavation/hammering, removal/disposal of waste excavated material, installation of pipe, fittings and accessories, placement/compaction of bedding, backfill, road base and temporary cutback/ cold patch; providing polyethylene wrap, locator wire and caution tape; scheduling shutdowns and coordinating construction sequences; disinfecting, flushing, testing, placing water main into service; making public notifications and other related activities as described in the Contract Documents. All pipe, fittings, joints fully mechanically restrained; tie-ins to existing water main thrust blocked. Before making tie-ins, hydrostatic test to 150-psig and pass bacteriological tests. Payment for lineal feet of 6" water main (measured at ground surface) furnished, installed, tested, disinfected, placed into service and approved. *(Note: This bid item to include tie-in at intersection of Fir St. & Manuel Rd. The other tie-in at intersection of Fir St. & Dunbar Rd. must be included either here in Bid Item No.25 OR included with Bid Item No.26 below.)*

BID ITEM NO.26 – PRV STATION PIPING, PINE ST., MANUEL INTERTIE & LILAC PARK

This work generally includes 8", 6", 4" and other piping associated with: a) upstream connections to existing PRV stations, b) upstream/downstream connections to new PRV stations, and c) other water mains on Pine Dr., Manuel Rd. intertie, and Lilac Park connection. This bid item includes furnishing and installing all pipe, fittings, restraint glands, flanged coupling adapters, transition couplings, gaskets, nuts and bolts, and all other miscellaneous materials. All new piping and fittings to be ductile iron with fully mechanically restrained joints, and thrust block tie-ins to existing system. This item includes providing all labor, equipment and materials for construction of ductile iron water main by open-cut trench method according to project specifications and drawings. This work includes, but is not limited to, all general items of work such as clear/grubbing, utility marking and potholing, rock excavation/hammering, trench excavation, removal/disposal of waste excavated material, furnishing and installing pipe, fittings and accessories, placement/compaction of bedding, backfill and road base, temporary cut back/cold patch; providing polyethylene wrap, locator wire and caution tape; scheduling shutdowns and coordinating construction sequences; disinfection, flushing, testing and placement of water main into service; making public notifications and other items of work as described in the contract documents. Payment shall be lump sum base on percentage of work completed, placed into service and approved/accepted. *(Notes: Do not include any gate valves with this bid item; use Bid Items No.23 and No.24 instead. Also, this bid item excludes all temporary bypass piping to be provided in Bid Items No.32 and No.33.)*

BID ITEM NO.26 / TABULATION

LOCATION	STA±	DESCRIPTION
PRV26 PRV86 PRV90 PRV55	13+98 28+62 110+83 156+87	Four (4) Existing PRV Stations: According to project details, provide new upstream piping from new 12" DIP main to each existing PRV station and complete new upstream connections. Furnish/install new Class 250/Class 125 flanged x plain end ductile iron spools to penetrate upstream side of existing PRV station vault walls and attach to first primary flange inside each vault. Test at 300-psig while isolating downstream system. *(Note: See Bid Item 8. for requirements for demolition.)*
PRV27R PRV28R PRV37R PRV38R PRV45R PRV46R PRV47R PRV91R PRV92R PRV51R PRV53R PRV54R PRV93R	22+34 27+00 44+83 56+73 84+50 88+90 103+49 104+74 112+31 121+80 152+89 154+93 167+10	Thirteen (13) New PRV Stations: According to applicable details, complete new upstream and downstream piping and downstream tie-in connections to existing system. Complete all new upstream piping from new 12" DIP main to upstream side of new PRV stations. Also, complete new downstream piping from each new PRV station to point of and including all tie-in connections to the existing system. Before making final downstream tie-ins to existing system, test upstream piping 350-psig and downstream piping 250-psig; tests may be conducted simultaneously with testing of PRV stations. *(Note: This item only includes piping and fittings outside/exterior to the new PRV station vaults; use Bid Item No.17 for piping, fittings and valves inside new PRV station vaults.)*
Pine Dr.	none	On Pine Dr., to avoid conflict with new 12" DIP transmission main, relocate 6" water main according to applicable project detail including 6" MJ tee and four 45° or 22.5° MJ bends; provide restraint glands for all MJ fittings.
Manuel Rd. Intertie	none	On Manuel Rd. downstream of existing PRV47 and PRV91, complete 6" intertie between zones 47 and 91 according to applicable project detail. Cut-in tees into existing 6" and 8" water mains on Manuel Rd. approximately 75' north of Sequoia Drive. Contractor to field verify a final location for intertie with Engineer prior to starting work. *(Note: Include 6" gate valve with Bid Item No.23.)*
Lilac Park	115+94	Furnish and install new flanged x plain end spool with restraint flanged adaptor; remove and replace existing 8" gate valve at connection to new 12-inch DIP main. *(Note: An extra 8" gate valve is installed uphill on opposite side of highway at corner of Maple St.; these two 8" gate valves are included with Bid Item No.24.)*

BID ITEM NO.27 – PRV STATION PIPING (EXTRA BENDS FOR VERTICAL OFFSETS)

This bid item provides extra/additional bends for making vertical offsets and other horizontal/vertical field adjustments and are not shown on the PRV station details. Vertical offsets are shown on the project details for PRV27R and 28R, but other PRV station details do not make allowances for or incorporate sufficient fittings for making vertical offsets or other horizontal/vertical field adjustments. In addition to fittings already shown on project details (that are included in Bid Item No.26 above), provide extra four (4) 8" bends, twenty-two (22) 6" bends, and two (2) 4" bends for making these vertical offsets and other field adjustments. Bends to be mechanical joint with restraint glands; 11.25°, 22.5° and/or 45° to suite field conditions as approved/directed by the Engineer. Payment shall be for each fitting furnished/installed (with restraint glands) and incorporated into the work. *(Note: All fittings already shown on the PRV station details are to be included with Bid Item No.26 above; this bid item is for extra bends that are specifically "not shown" on the PRV details.)*

BID ITEM NO.28 – CHAIN LINK FENCE / NEW

Contractor shall provide all labor, equipment and materials for new eight (8) foot height chain link fence as shown on the applicable project detail. Chain link fabric shall be 3.5-in x 5" mesh, Class 2A (ASTM F668) polymer coated green (ASTM F934), 9-gauge zinc-coated wire core and knuckle selvage top and bottom; green extruded HDPE slats shall be inserted during weaving process. Line posts, rails and other framework shall be cold-rolled electric-resistance welded pipe (ASTM F1043) with 50-ksi yield strength and line posts 2.875-inch diameter and rails 1.66-inch diameter. Line posts and rails shall be galvanized interior and exterior coating with 10 mil PVC vinyl coating green to match chain link fabric; all fittings, rods, bands, tension bars, etc. shall be galvanized and color coated to match posts, rails and chain link fabric. Tension wire shall be Class 2A polymer coated green, 7 gauge wire core complying with ASTM F1664. Line posts shall be set maximum every ten (10) foot spacing, extending a minimum three (3) foot below ground and embedded in 15-inch diameter concrete footing. Chainlink fabric, line posts, framework, tension wire, fittings, vinyl slats and other materials, accessories and components shall be products of one manufacturer's system.

BID ITEM NO.29 – LINE STOPS / HIGH PRESSURE

According to Section 02110, Initial Construction Tasks, Paragraph A.13 and A.14, provide line stops on existing high pressure 12" steel main at STA 105+25, STA 123+50 and STA 153+20. The 12" steel main operating pressure is 275 to 290-psig. Line stops at STA 105+25 and 123+50 must be performed simultaneously to isolate and shutdown 12" steel main between these points/locations. At STA 153+20, the line stop shall be used to keep 12" steel main active to south and isolated/shutdown to north. Line stop fittings shall be two piece full body weld-on carbon steel design, e.g. JCM 440 or equal, with AWWA Class E flanged outlet; the two-piece weld on sleeve shall wrap and reinforce the 12" steel main. The work shall be performed with the system remaining live/active without requiring service interruptions during installation of the line stop fitting or plugs. Given safety concerns working on a high pressure main (operating near 300-psig), this work shall be performed by Tap Masters, Inc., 5060 Forni Way, Suite A2, Concord, CA, Phone: (925) 439-7975, unless bidder proposes to submit for District's review and approval an alternate subcontractor that exclusively specializes, is highly proficient and experienced in this type of work and company has been operating continuously in business for at least 10-years.

BID ITEM NO.30 – 10" GATE VALVE

According to Section 02110, Initial Construction Task, Paragraph A.4, provide one 10" gate valve to be cut-in and installed on the existing 10" steel main at a location north of receiving pit (Sheet C-4, STA 25+80) and south of PRV27. This gate valve is for isolating the existing 10" steel main to facilitate the construction sequence. Contractor shall provide all labor, equipment and materials for 10" resilient wedge gate valve installed per Detail W03. Gate valve shall conform to AWWA C515 with ductile iron body per ASTM A536, fusion epoxy per AWWA C550, manganese bronze stem and thrust collar, and polymer wedge guide bearing caps to lower operating torque; UL Listed/FM Approved 350-psig working pressure, 525-psig seat test and 700-psig shell test. Valve shall be Mueller Co., American (ACIPCO) or equal. Gate valve to be installed with EBAA 2100 Mega-Flange or equal on each end and thrust blocked; valve to be initially installed/remain in open position until thrust block has setup for 14-days to attained strength. Payment shall be for each new 10" gate valve furnished and installed and operational. *(Note: All thrust blocks to be included with Bid Item No.11.)*

BID ITEM NO.31 – 4" PRESSURE REGULATING VALVE

Contractor shall provide one (1) 4" Cla-Val Model 90-99 ductile iron with Class 300 flanges, integral 2" low flow valve (grooved 90-01), strainer, open/close speed controls, stainless steel trim and tubing, and epoxy coated. This valve is to be used, salvaged and reused for a total of four temporary bypasses on the project as described in Section 021100, Initial Construction Tasks. After initial installation, the same valve shall be salvaged and reused re-installed at each of the remaining temporary bypass locations. Payment shall be lump sum for providing one (1) valve for use on the entire project; the valve shall become property of the District at the end of the project.

BID ITEM NO.32 – 4" TEMPORARY BYPASS / HOT TAPS (PRV 46 & 51)

According to Section 02110, Initial Construction Tasks, Paragraph A.9 and A.12 and applicable details (see Addendum No.3), for each exiting PRV 46 and PRV 51 provide piping and valves allowing each PRV station to be temporarily bypassed and removed from service for demolition and replacement while continuing to maintain water service to customers and fire flow capacity. Each temporary bypass shall include one 4" outlet hot tap on the existing 12" steel main, two 4" gate valves, 4" DIP pipe and fittings (mechanically restrained) and completed downstream tie-in to existing distribution system. Contractor shall field mark proposed layout for bypass piping for review/approval by Engineer and prior to starting work. The above 4" Cla-Val (Bid Item No.31) shall be incorporated with Class 250 DIP flanged x plain end spools provided to complete upstream and downstream connections to the valve. Hot tap to be done on 12" steel main while active/pressurized at 250-290 psig. Tapping sleeves to be JCM 417 or equal, two piece full circumference weld-on carbon steel sleeve with AWWA C207 Class E flanged outlet with 275-psig working pressure. Given safety concerns working on a high pressure main, ordering and installation of sleeves and hot taps shall be performed by Tap Masters, Inc., 5060 Forni Way, Suite A2, Concord, CA, (925) 439-7975 or equally qualified subcontractor that exclusively specializes, is highly proficient and experienced in this type of work and company has operated continuously in business past 10 years. Upon replacement/reconstruction of each PRV, temporary piping is to be removed except for the downstream tie-in which is to remain in-place/in-service; all exposed/open/abandoned ends of active system to be blind flanged and/or capped/restrained. Payment shall be for each bypass completed, installed, tested and disinfected and operational including completion of hot taps. *(Note: All thrust blocks to be included with Bid Item No.11; and 12", 6" and 8" gate valves to be included with Bid Items No.7, No.23 and No.24.)*

BID ITEM NO.33 – 4" TEMPORARY BYPASS / CUT-INS (PRV 38 & 54)

According to Section 02110, Initial Construction Task, Paragraph A.8 and A.14.b and applicable details (see Addendum No.3), for each exiting PRV38 and PRV54 provide piping and valves for temporary bypass of each PRV station removed from service for demolition and replacement while continuing to maintain potable water service to customers and fire flow capacity. Each temporary bypass shall include one 12"x12"x4" DIP tee furnished and cut-in/installed on the existing 12" steel main with one 12" gate valve, two 4" gate valves, 4" DIP pipe and fittings (fully mechanically restrained), and downstream tie-ins. *(Note: The downstream tie-ins have 8" and 6"gate valves for making subsequent connections to new PRV38R and PRV54R.)* The 4" bypass piping shall be 60 to 80 feet in overall length; the proposed piping layout shall be field marked and reviewed by Engineer and Contractor prior to installation. The above 4" Cla-Val (Bid Item No.30) shall be incorporated into piping with Class 250 DIP flanged x plain end spools provided to complete upstream and downstream connections to this valve. To minimize interruption of service to customers, a short duration shutdown (4-hours maximum) will be allowed to cut-in 12"x12"x4" DIP tee (with 12" gate valve and 4" gate valve bolted to the tee); the 12" gate valve shall be installed and remain in open position until concrete thrust block has been placed and has sufficient time to cure/attain strength; a second short duration shutdown will be performed to cut-in tee downstream of existing PRV stations. Upon replacement/reconstruction of each PRV station, all temporary piping is to be removed except for the downstream tie-in which is to remain in-place/in-service; all exposed/open/abandoned ends of active/inactive system to be blind flanged and/or capped; 12" gate valves and 12"x12"x4" tees at these locations are only temporary to be abandoned in-place with the 12" steel main. Payment shall be for each 4" temporary bypass completed, installed, tested and disinfected and operational on the existing 12" steel main. *(Note: Bid Item No.11 already includes estimated quantity of concrete for entire project including all thrust blocks; Bid Items No.7, 23 and 24 have already accounted for 12", 6" and 8" gate valves.)*

END OF SECTION

SECTION 02110
SEQUENCE OF CONSTRUCTION

1.0 GENERAL

Given high operating pressure and poor condition of the existing transmission main and concerns over worker safety excavating in close proximity to active transmission main, it must be removed from service prior to adjacent trenching and installation of the new water main. Also, service interruptions to residences and businesses typically cannot exceed eight (8) hours, and the required sequence of work is intended to minimize service outages. Therefore, Contractor is required to perform work in a series of steps in which a designated segment of the existing pipeline is taken out of service, either a parallel trench is excavated or existing pipeline is excavated/removed (as indicated on the project drawings), the new transmission line is constructed, then new main is pressure tested, disinfected and returned to service operation before proceeding to next segment. As the Contractor advances along the alignment, all new work will be placed into service and become operational before advancing to next segment of work. Except as otherwise stated herein or directed in the field, the work shall generally start from Meadowmont area and progress advancing towards White Pines. Unfortunately, the project does not allow the Contractor to entirely construct new transmission main along a parallel alignment while keeping the existing transmission main in operation.

The following sequence of work shall be followed by the Contractor:

A. <u>INITIAL CONSTRUCTION TASKS:</u>

1. Sheet C37 / At STA 172+75 to 172+90, pothole flanged cross at juncture of existing 16” and new 12” transmission mains; locate 16” blind flanges and install 16”x12” reducers and 12” gate valves to each side of existing cross; protect interior exposed ends of open distribution system from contamination, dirt, and groundwater; disinfect by swabbing all interior surfaces of existing tee, new reducers and gate valves with 1% sodium hypochlorite solution prior to installation; test, flush and return to service; install temporary 12” blind flanges on exposed ends of gate valves.
2. Sheet Y2 / At Sawmill Tank, cut-in new 12” wye, 12” gate valves, DIP spools and thrust block; duration of shutdown is highly critical unless otherwise approved by District perform shutdown mid-week during off-peak demand periods in April, May, October or November or overnight hours.
3. Sheet C1 / Install new 2” water service to Cal-Fire Station (APN 032-005-016) to maintain water service during replacement of the transmission main; provide new water service per applicable detail installing tap saddle/corporation stop on existing water main to fire hydrant lateral downstream of PRV26 and extending 2” service tubing to existing meter location. Test, disinfect, flush, verify bacteriological results and place into service.
4. Sheet C4 / For isolation of existing 10” steel main, at location South of PRV27 and north of receiving pit (and approximately 25’ north of joint pole), perform brief shutdown and cut-in new 10” gate valve and thrust block (min. 2.5 cy / 25 sq.ft.) for 290 psig; keep valve fully open until thrust block attains strength. Keep interior of exposed pipeline clean protected from groundwater and dirt; disinfect gate valve by swabbing with 1% hypochlorite solution.
5. Sheet C4 / For isolation of existing 6” water main on Cedar Lane, downstream of existing PRV28 and new PRV28R tie-in point, install new 6” gate valve on existing 6” AC line and thrust block. Protect interior exposed ends of water main from contamination, dirt and groundwater; disinfect by swabbing all exposed interior surfaces with 1% hypochlorite solution.
6. Sheet C5 / Pothole and expose existing 10” gate valves at STA 28+40 (10’ left) and STA 29+00 (10’ left) and thrust block (min. 2.5 cy/25 sq.ft.) each for 290-psig.
7. Sheet C8 / On downstream side of PRV37 (STA 44+82.80) opposite/east side of highway (near corner of 1927 Hwy 4 / APN 028-011-052), install new 6” isolation gate valve on existing 6” AC water main and thrust block. Protect interior exposed ends of water main from contamination, dirt and groundwater; disinfect by swabbing interior surfaces with 1% hypochlorite solution.

8. Sheet C11 / For subsequent bypass of PRV38 on existing 12” steel transmission main (STA 57+05), cut-in new 12”x12”x4” ductile iron tee with new 12” gate valve and 4” gate valve and thrust block (min. 2.5 cy/25 sq.ft.) for 290 psig; keep 12” gate valve fully open until thrust block attains strength. Protect exposed ends of transmission main from contamination, dirt and groundwater; disinfect all interior surfaces by swabbing with 1% sodium hypochlorite solution.

9. Sheet C18 / For subsequent bypass PRV46 on existing 12” steel transmission main (approximately STA 88+75, 40’ left/north), install 4” Class E (275-psig) flanged outlet hot tap with 12” welded tapping sleeve (carbon steel two piece split tee weld on tapping sleeve to fully wrap/reinforce pipe) and fully seal weld; finish with 4” isolation gate valve on outlet; slurry backfill tee allowing access to 4” flange for completing bypass connection.

10. Sheet C21 / On Manuel Road (half way between Sequoia and Cedar Street) downstream of PRV47 and PRV91, install 6” intertie between these two zones; cut-in/thrust block new 6” tee on water main downstream of PRV47 and new 8”x8”x6” tee on water main downstream of PRV91. When cutting in tees, protect interior exposed ends of open water mains from contamination, entering dirt and groundwater and disinfect all interior exposed surfaces of open ends, new tees, valves and piping by swabbing with 1% hypochlorite solution.

11. Sheet C21 / On Fir Street from Manuel to Dunbar Rd, install new 6-inch water main and water services complete tie-ins to existing water system at Manuel Rd and tie-in at Dunbar Rd; transfer water services to new 6-inch water distribution main; pothole and maintain sufficient offset (~5’) for subsequent removal and replacement of existing 12-inch transmission main; avoid damaging or rupturing the existing service lines from high pressure transmission main. Test, disinfect, flush and obtain passing bacteriological results, then complete tie-ins and place into service.

12. Sheet C26 / Complete bypass of PRV51, on existing 12” steel transmission main (Blagen Rd at STA 125+50) as follows:

    a. Install 4” Class E (275-psig) flanged outlet hot tap with 12” welded tapping sleeve (carbon steel two piece split tee weld on tapping sleeve to fully wrap/reinforce pipe) and fully seal weld; finish with 4” isolation gate valve on outlet; slurry backfill tee / allow access to 4” flange for completing bypass connection; disinfect by swabbing all exposed interior surfaces and equipment with a 1% hypochlorite solution or other AWWA method.

    b. On opposite side of street, cut-in new 6”x6”x4” ductile iron tee with new 4” gate valve on existing 6” AC main and thrust block; protect exposed open ends of water main from contamination, entering dirt and groundwater and disinfect by swabbing with 1% hypochlorite solution. Complete bypass with 4” Cla-Val pressure reducing valve with integral 2” low flow bypass and necessary 4” DIP piping to complete the bypass.

13. Sheet C23 & C25 / Install line stops at STA 105+25 and STA 123+50, shutdown existing 12-inch steel transmission main between these two locations and perform the following work:

    a. Before starting line stops, Lilac Park juncture, PRV90 and PRV51 must be isolated from the existing transmission main, bypass at STA 125+50 must be operational, and new 6-inch water main along Fir Street completed including services and tie-ins at Manuel and Dunbar. Time is critical as water supply to Lilac Park must be coordinated to draw from an alternate, temporary water supply from Blue Lake Springs during this shutdown.

    b. At Henry Street for PRV 51 on existing 12” steel main, cut-in new 12”x12”x6” MJ ductile iron tee (STA 121+80), DIP spools, two new 12” gate valves and 6” gate valve; both mechanically restrain all fittings, valve ends, and joints and thrust block entire assembly (min. 2.5 cy/25 sq.ft.) for 290-psig; keep 12” gate valves open until thrust block attains strength. Gate valve flanged ends should not be embedded into the thrust block and accessible for subsequent connections to new 12” DIP transmission main and new connection to PRV51R. Cut/open ends of main should be protected from contamination, entering dirt and groundwater; disinfect by swabbing all interior surfaces of open ends, tee, spools and valves with 1% hypochlorite solution.

c. On Fir Street for existing PRV90 connection on existing 12" steel main, cut-in new 12"x12"x6" MJ ductile iron tee (STA 110+83), DIP spools, two new 12" gate valves and 6" gate valve; both mechanically restrain all fitting, valve ends and joints and thrust block entire assembly (min.2.5 cy/25 sq.ft.) for 290 psig. Gate valve flanged ends should not be embedded into the thrust block and accessible for subsequent connections of new 12" transmission main and new connection to PRV90. Protect cut/open ends of main from contamination, entering dirt and groundwater; disinfect by swabbing all interior surfaces with 1% hypochlorite solution.

14. Sheet C32 & C33 / Install line stop on existing 12" transmission line at STA 153+15 (active to south and shutdown to north), isolate north end with existing valve near STA 172+60, 7.5' left, and make notifications/schedule maximum 8-hour shutdown to perform the following work:

    a. Cut-in new 12" isolation gate valve into existing 12" steel main at approximately STA 166+50, 95' right and thrust block (min. 2.5 cy/25 sq.ft.) for 290-psig and keep gate valve open until thrust block attains strength; keep exposed ends of open main free of contamination, dirt and groundwater and disinfect by swabbing with 1% hypochlorite solution.

    b. For subsequent bypass north of PRV54, on existing 12" steel main (STA 155+30), cut-in new 12"x12"x4" ductile iron tee with new 12" gate valve and 4" gate valve and thrust block (min. 2.5 cy/25 sq.ft.) for 290 psig; keep 12" gate valve fully open and 4" gate valve fully closed until thrust block attains strength. Protect exposed ends of open main free from contamination, dirt and groundwater and disinfect by swabbing with 1% hypochlorite solution.

B. <u>STA 10+00 to 22+40 / PRV26 & PRV27R</u>:

1. Prior to starting work, relocate Cal-Fire water service, protect PRV26 vault and cover from damage, close all isolation valves on PRV26 and verify with District alternate route via Pine Drive to supply water to Lakemount Drive, Valley View Drive and Diablo View zones.
2. Shutdown existing 10" steel line STA 10+00 to 25+75 using new 10" gate valve installed per Paragraph A.4 above; do not excavate within 25-ft of 10" gate valve when excavating receiving pit or cutting/removing 10" steel main to eliminate conflict with receiving pit.
3. Remove/replace transmission main from STA 10+00 to 22+40 and complete construction of PRV27R (STA 22+34), upstream/downstream piping and water main along Meadowview Way.
4. Test, disinfect and flush new water mains and PRV27R; upon passing bacteriological tests, make tie-ins at STA 10+00, PRV26 (STA 13+98) and Meadowview Way; place new main into service from STA 10+00 to 22+40 including PRV26 and PRV27R.

C. <u>STA 22+40 to 28+70 / Bore & Jack / PRV28R & PRV86</u>:

1. Isolate existing 10" steel main using existing gate valve near STA 28+40 and isolate PRV27 and PRV28 by closing all gate valves inside each PRV station; salvage for District all existing pressure reducing valves and blind flange open ends of abandoned gate valves; demolish existing PRV28 vault to extent needed for line and grade of new transmission main; cut out existing 10" steel line impeding into trench and cap/plug ends.
2. Remove and replace transmission line from STA 22+40 to 28+70, install bore & jack, new 12" main, PRV28R and upstream and downstream piping short of making tie-ins.
3. Important: When installing new 12" main and excavating parallel trench from STA 28+20 to 28+70, close valve at STA 29+00 to shutdown existing 10" steel main until backfilling and compacting trench to STA 28+65; then return 10" steel main to service. Branch outlets on new tees (STA 28+47 and 28+62) must have gate valves on branch outlets for isolation but <u>do not</u> extend trenches laterally towards existing 10" main. Time is critical; the only water service to the Meadowmont Shopping Center is via PRV86; notify customers at least seven (7) days in advance perform shutdown mid-week during overnight hours (10 PM to 6 AM)
4. Test, disinfect and flush from STA 22+40 to 28+70 including PRV28R, all piping and appurtenances; upon passing bacteriological tests, complete tie-ins and place into service.
5. Close valve at STA 29+00 and make second shutdown existing 10" steel main; complete final tie-in from tee (STA 28+62) to upstream side of PRV86; disinfect by swabbing all interior surface of piping with 1% sodium hypochlorite solution.

D. STA 28+70 to 56+80 / PRV37R & PRV38R:

1. Complete 4" bypass around PRV38; provide 4" Cla-Val Model 90-99 with Class 300 flanges, integral 2" low flow 90-01, strainer and open/close speed controls; disinfect and place into service; shutdown/isolate PRV38.
2. Isolate/take PRV37 out of service; confirm supply to zone via PRV29 on Mustang Rd.
3. Isolate existing 12" steel main via gate valve previously installed at STA 57+05.
4. Install, remove and replace transmission line from STA 28+70 to STA 56+80 including both PRV37R and 38R; test, disinfect and flush new transmission main and PRV's; after passing bacteriological tests, place into service and complete final tie-ins.
5. Remove 4" bypass and blind flange or cap abandoned ends; salvage 4" Cla-Val for reuse.

E. STA 56+80 to 89+00 / PRV45R & 46R:

1. Isolate existing 10" transmission main using existing gate valve near STA 84+35; replace transmission line from 56+80 to 84+00; isolate PRV45 and coordinate with District staff to re-route water supply to Pine Drive via PRV48 and/or other system routes.
2. To supply customers on Oak Circle, complete 4" bypass piping around PRV46 using previously installed 4" hot tap on 12" steel main (north of Oak Court); re-install salvaged 4" Cla-Val; test, disinfect, flush 4" bypass and obtain passing bacteriological tests; tie-in downstream end of bypass to nearby hydrant (thoroughly flush) or to existing water main on Oak Ct.; shutdown 12" steel main to Oak Circle/Oak Ct.
3. Isolate, demolish and remove PRV45 and PRV46 confirm limits of demolition for downstream piping and blind flange and/or cap ends of abandoned lines.
4. Install, remove, and replace transmission main continuing from STA 84+00 to 89+00 including construction of water main on Pine Drive, bore & jack and PRV45R and 46R.
5. Test, disinfect and flush new transmission main from STA 56+80 to 89+00; after passing bacteriological tests, complete tie-ins downstream of PRV45R and 46R and place into service; remove temporary 4" bypass and salvage 4" Cla-Val for reuse.

F. STA 89+00 to 110+75 / PRV47R & PRV91R:

1. On Manuel Rd. open 4" intertie between PRV47 and PRV91 zones; isolate/shutdown PRV47 and PRV91 and supply both zones via PRV90; isolate/shutdown existing 12" steel main using permanent gate valve previously installed at STA 110+78; coordinate all activities with District staff to check and re-adjust zone service pressures.
2. Install, remove and replace transmission line from STA 89+00 to 110+75 including both PRV47R and 91R and all associated piping upstream/downstream of PRV's.
3. Test, disinfect and flush new transmission main from STA 89+00 to 110+75 including PRV47R and 91R and associated upstream and downstream piping; after passing bacteriological tests, complete final tie-ins and place into service.
4. On Manuel Road, close valve on 4" intertie between PRV47R and PRV91R zones.

G. STA 121+75 to 110+88 / Lilac Park / PRV51R & PRV92R:

1. In advance of work, to isolate Lilac Park line cut-in/thrust block new 8" gate valve on existing 8" PVC water main on opposite side of Route 4 at corner of Maple St.; demolish PRV51 and construct PRV51R using previously installed new tee at STA 121+85.5.
2. Construct new 12" transmission main in reverse order starting at Henry St. (STA 121+75) and working backwards to Fir St. (STA 110+88). Re-route water supply to Dunbar Rd via Fir St. and PRV47R, before taking existing 12" steel main and PRV92 out of service,.
3. Install, remove and replace transmission main from STA 121+75 to 115+88 including Lilac Park tie-in; test, disinfect and flush new main and PRV51R; after passing bacteriological tests, return Lilac Park to service; coordinated/scheduled shutdown with Blue Lake Springs at least 3-weeks in advance and complete all work within 5-days.
4. After returning Lilac Park to service, continue construction of new transmission main from STA 110+88 to 115+88 including PRV92R; test, disinfect and flush new main and PRV92R; upon passing bacteriological tests, place in service and make final tie-ins.

H. STA 121+85 to 155+00 / PRV53R & PRV54R:

1. Using gate valve and tee previously installed at STA 155+25 on existing 12" steel main, complete construction of 4" bypass to temporarily supply Hazel Fischer School; test, disinfect and place bypass into service; use 12" gate valve at STA 155+25 to isolate/shutdown existing 12" steel main and isolate/demolish existing PRV53 and PRV54.
2. Replace/construct new 12" transmission main from STA 121+85 to 155+00 including PRV53R and PRV54R; test, disinfect and flush new transmission main and PRV's; upon passing bacteriological tests, complete tie-ins and place into service.
3. Remove temporary 4" bypass, cap abandoned ends and salvage 4" Cla-Val for District.

I. STA 155+00 to 167+15 / PRV55 & 93R

1. Shutdown existing 12" steel main from STA 155+00 to 166+50 including PRV55; isolate 12" steel main use 12" gate valve previously installed at STA 166+50, 95' Right; keep in operation water services to White Pines Park, Moose Lodge, White Pines baseball field.
2. Install new transmission main from STA 155+50 to 167+75 including construction of PRV93R and new upstream piping to existing PRV55.
3. Downstream of PRV93R, construct new 1" services for White Pine Park and Moose Lodge to meter boxes and extend 6" water main for White Pine baseball field; to avoid conflicts coordinate parallel construction of new 12" main and 6" main to STA 167+85.
4. Test, disinfect and flush new 12" main from STA 155+50 to 167+15 including PRV93R, 1" services and 6" main; after passing bacteriological tests, place into service and make tie-ins; delay tie-in of 1" service to Moose Lodge until trenching to STA 168+75.

J. STA 167+15 to 172+80 / Downhill from 16" Cross to White Pines:

1. Trench and construct new 12" main from STA 167+15 to 168+75; complete 1" service from meter box to Moose Lodge; isolate/demolish old PRV93.
2. Shutdown existing 12" steel main from STA 166+50, 95' Right (near Moose Lodge) to isolation valve near STA 172+65, 5' Left (downhill from 16" cross); keep existing 12" steel main in service from 16" cross uphill to Sawmill Tank.
3. Construct new 12" main from STA 167+15 to 172+75; test, disinfect and flush; after passing bacteriological tests, place in service and complete tie-ins.
4. At this point, new 12" transmission main and all PRV stations should be completed and in service from STA 10+00 to 172+80.

K. STA 172+80 to 203+60 / Uphill from 16" Cross to Sawmill Tank:

1. Existing 12" steel main from 16" cross uphill to Sawmill Tank to remain in service during construction of new 12" DIP main from STA 172+80 to 203+60; new main parallels existing main but switches side to side along uphill route and cross at several locations.
2. For Sawmill Tank tie-in, utilize previously installed new 12" wye and 12" gate valves.
3. Install new transmission main from STA 172+80 to 203+60; pressure test, disinfect and flush; obtain passing bacteriological tests, before making final tie-ins.
4. Blind flange and/or cap open and unused ends of new and abandoned water line.

END OF SECTION

SECTION 15113
AIR AND VACUUM VALVE ASSEMBLIES

1.0 GENERAL

1.1 Scope - This specification governs materials and installation "anti-shock" air-vacuum and air-release valve assemblies. The type of air valve to be installed shall be as indicated on the Drawings. Valve assemblies include all items from the main pipeline to the valve vent as shown on the Drawings.

1.2 Submittals – Product data sheets for the make and model with complete catalog information, descriptive literature, specifications, and identification of materials of construction in accordance with Section 00700-7.16 and Section 00800- SC- 7.20.

2.0 MATERIALS

2.1 Construction: The air release and vacuum break valve shall be a compact single chamber design with solid cylindrical High Density Polyethylene (HDPE) control floats housed in a compact single chamber design with solid cylindrical HDPE control floats housed in a tubular ductile cast iron body, epoxy powder coated to 250 microns, secured by means of stainless steel 304 or 316 fasteners. The entire valve assembly and components shall have a rated working pressure through 363 psi and be NSF61 approved.

The valve shall have an integral surge alleviation mechanism which shall operate automatically to limit transient pressure rise or shock induced by closure due to high velocity air discharge or the subsequent rejoining of separated water columns. The limitation of pressure rise must be achieved by deceleration of approaching water prior to valve closure.

Large orifice sealing shall be effected by the flat face of the control float seating against a Nitrile/EPDM rubber 'O' Ring housed in a dovetail groove circumferentially surrounding the large orifice. Discharge of pressurized air shall be controlled by the seating and unseating of a small orifice on a natural/EPDM rubber seal affixed to the control float. The intake/discharge orifice area shall be equal to the nominal size of the valve i.e. a 3" valve shall have a 3" intake/discharge. The internal annular area surrounding the floats shall also be equal to the nominal 3" intake/discharge area.

The valve construction shall be proportioned with regard to material strength characteristics, so that the deformation, leaking or damage of any kind does not occur by submission to twice the designed working pressure. The valve design shall incorporate an over pressure safety feature that will fail without an explosive effect, such as is normally the case when highly compressed air is released suddenly.

The inlet connections shall be flanged and conform to ANSI B16.5 Class 300 and outlet connection shall be threaded and conform to ASNI B16.5 Class 150.

2.2 Manufacturers: Vent-O-Mat Series RBXc, RF Valves, Inc. anti-shock and anti-surge air release valve represented by Aquadyne Associates; or District approved equal.

3.0 EXECUTION

3.1 Installation - The tap for the air valves shall be made in a level section of pipe no closer than 18 inches to a bell, coupling, joint, or fitting.

Tapping mains shall conform to the standard procedures for house services.

Air valve assemblies shall be installed in accordance with the Drawings and manufacturer's instructions.

Threaded joints shall be cleaned by wire brushing or swabbing. Teflon joint compound or Teflon tape shall be applied to pipe threads before installing threaded valves. Joints shall be watertight.

Dielectric connections with PVC tape wrap shall be provided at all connections between steel or iron and brass or bronze. Copper, brass, and other nonferrous metal pipe shall be isolated from steel or cast iron by insulated couplings or unions.

The Contractor shall also isolate nonferrous pipe from steel supports and pipe straps by means of insulating sleeves or tape wrapped around the pipe.

3.2 Testing - Air valve assemblies shall be tested at the same time that the connecting pipelines are pressure tested.

END OF SECTION

SECTION 15114
PRESSURE REDUCING AND RELIEF CONTROL VALVES

1.0 GENERAL

1.1 Scope – This specification governs materials and installation of pressure NSF 61 approved reducing valves and pressure relief control valves complete and operable, in accordance with the Contract Documents.

1.2 Submittal – Furnish submittals in accordance with the Section 00700-7.16 and Section 00800- SC- 7.20.

1.3 Warranty - The valve specified in the Section shall be warranted for a period of three (3) years from the date of shipment to be free of defects in materials and workmanship.

1.4 Equipment -

Location or PRV Station No.	Pressure Regulator Valve (Bypass), CL 300 flanged	Pressure Regulator Valve (Main), CL 300 flanged	Pressure Relief Valve, CL 150 flanged
Fire Hydrants	-	6-inch	-
Temporary Jumper	2-in (grooved ends)	4-in. Model 90-99	N/A
27R	2-in. w/ anti cavitation trim	6-in. w/ anti cavitation trim	2-inch
28R	2-in. w/ anti cavitation trim	6-inch	2-inch
37R	2-inch	6-inch	2-inch
38R	2-inch	6-inch	2-inch
45R	2-in. w/ anti cavitation trim	6-in. w/ anti cavitation trim	2-inch
46R	2-in. w/ anti cavitation trim	6-in. w/ anti cavitation trim	2-inch
47R	2-in. w/ anti cavitation trim	6-in. w/ anti cavitation trim	2-inch
91R	2-inch	6-inch	2-inch
92R	2-inch	6-inch	2-inch
51R	2-inch	6-inch	2-inch
53R	2-in. w/ anti cavitation trim	6-in. w/ anti cavitation trim	2-inch
54R	2-in. w/ anti cavitation trim	6-in. w/ anti cavitation trim	2-inch
93R	2-in. w/ anti cavitation trim	6-inch	2-inch

2.0 MATERIALS

2.1 Valve Characteristics - Pressure reducing valves shall reduce an upstream pressure to a pre-set constant lower pressure, regardless of fluctuations in the upstream pressure. Pressure relief valves shall open when the inlet pressure exceeds a set maximum level. Relief valves shall maintain that pressure and gradually close as the pressure drops below the maximum pressure. Both reducing and relief valves shall be hydraulically-operated, with diaphragm and shall be of the globe or angle pattern as indicated on the Drawings. Necessary repairs shall be possible without removing the valves from the pipeline.

2.2 Valve Body and Flanges - Valve bodies and flanges shall be ASTM A536 ductile iron and the bodies shall be fusion epoxy coated. All pressure reducing valves are to be Class 300 flanged and all pressure relief valves shall be Class 150 flanged. The valve cover shall be flanged and be of the same material as the body.

2.3 Valve Trim - The valve stems, springs, body seat rings, and bolts, nuts, and washers shall be of Type 304, or 316 stainless steel. The valve stems shall have top and bottom guides and shall be 303 stainless steel. Rubber parts shall be Buna-N. The diaphragms shall be of Nylon-reinforced Buna-N, supported firmly between body and valve cover.

2.4 Valve Controls - The valve shall be furnished with a complete, externally-mounted control system, including adjustable speed control needle valves, strainer, and necessary stainless steel connecting tubing and fittings. The controls shall be capable of achieving the flow and speed adjustment indicated on the in Section 15114-2.6.

2.5 Manufacturer. – Valves furnished shall be from the Cla-Val Company, with no like, equivalent, or "or equal" item permitted. Pressure relief valves shall be model 50-01KC, CL 150, with no like, equivalent, or " or equal" item permitted, and pressure reducing valves shall be model 90G-BYKC, CL 300, with no like, equivalent, or "or equal" item permitted. Valves shall be furnished with anti-cavitation trim when specified.

2.6 Operation Conditions – Operation conditions for the valves shall be as specified in the Table below.

Location or PRV Station No.	Upstream Pressure (psi)	Down-stream Pressure (psi)	Down-stream Pressure, Bypass (psi)	Minimum Design Flow (gpm)	Maximum Design Flow (gpm)	Fire Flow (gpm)
Fire Hydrants	210-280	65-100	-	-	-	1500
27R	250	65	70	3.8	8.3	1000
28R	290	95	100	14.3	31.4	1000
37R	260	150	155	24.7	54.4	1000
38R	255	180	185	94.9	208.7	1000
45R	240	60	65	14.2	31.3	1000
46R	230	60	65	5.0	11.0	1500
47R	210	60	65	3.8	8.3	1500
91R	210	90	95	13.8	30.3	1000
92R	210	75	80	3.5	7.7	1500
51R	210	80	85	4.8	10.5	1500
53R	255	65	70	8.3	18.2	1000
54R	255	60	65	10.0	22.0	1500
93R	250	85	85	1.0	2.2	1000

2.7 Factory Tests - Valves shall be factory tested with a hydrostatic test and a functional test and a test certificate shall be submitted to the Engineer prior to delivery of the valve.

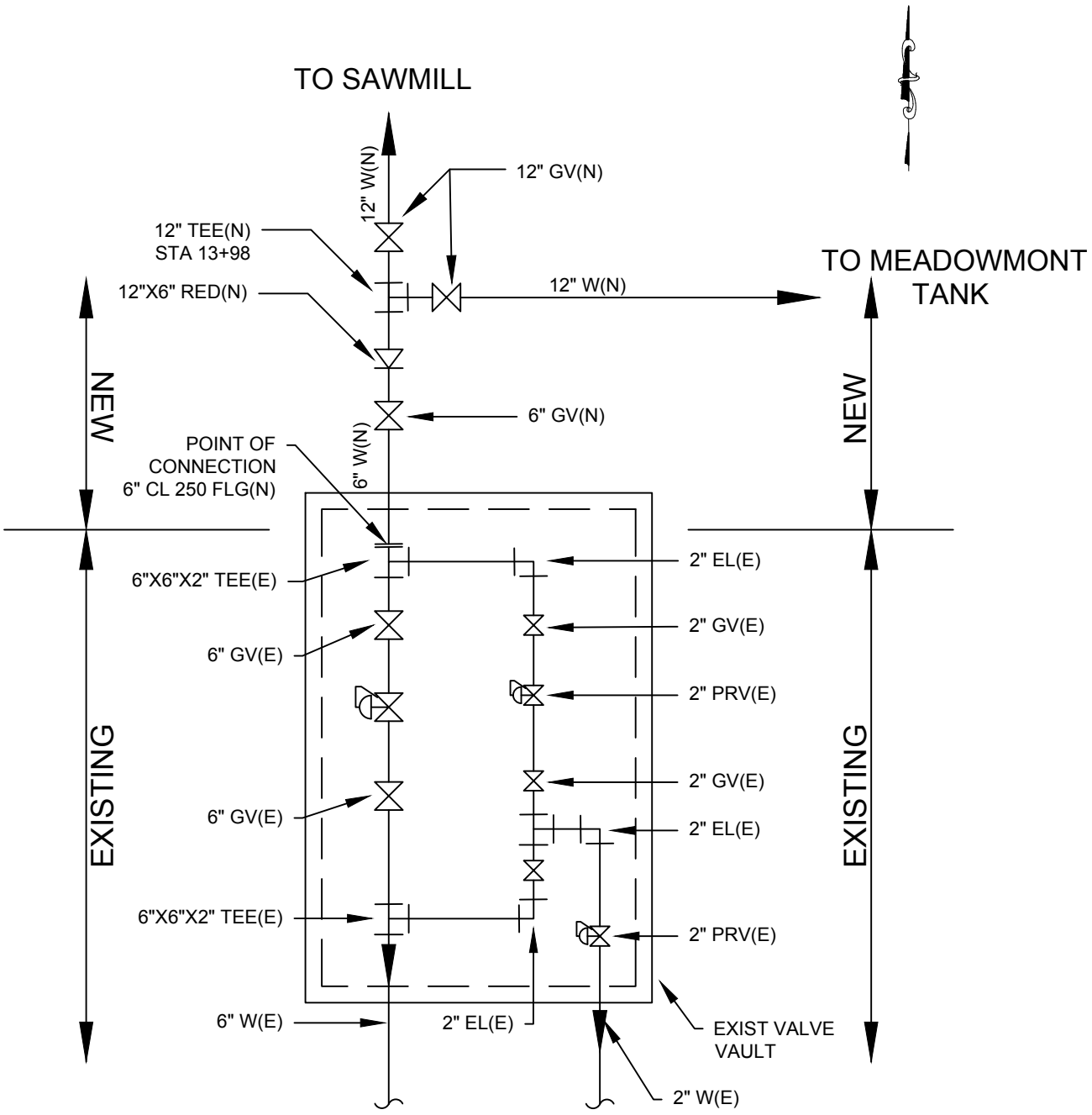
3.0 EXECUTION

3.1 Installation -Valves shall be installed in accordance with provisions of this Section and as indicated on the Drawings.

3.2 Inspection, Startup, and Field Adjustment - The service representative of the valve manufacturer shall be present to assist the Contractor in the installation and adjustment of the valve(s).

END OF SECTION

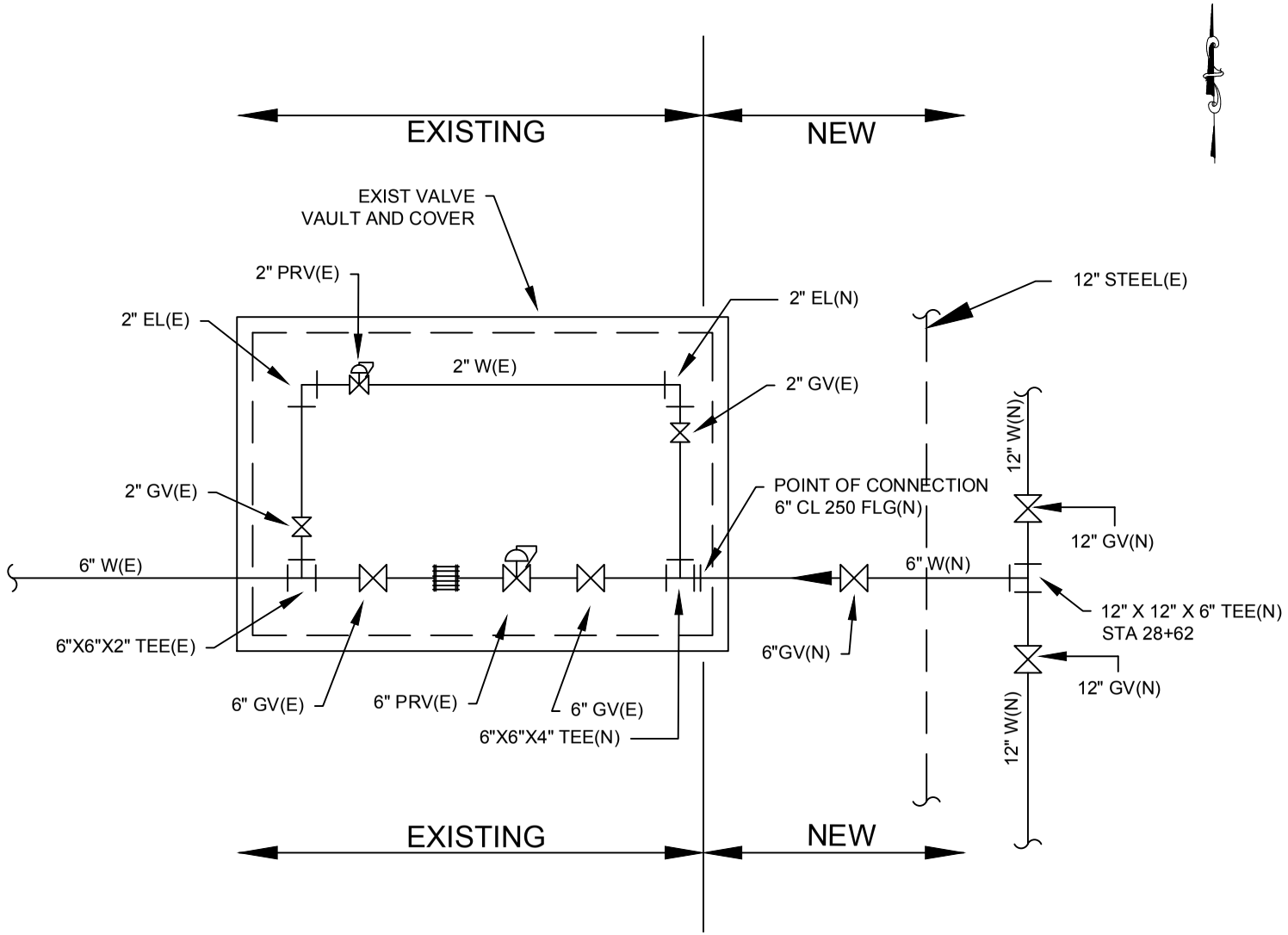
PART B.
DRAWINGS



CALAVERAS COUNTY WATER DISTRICT

PRV 26 CONNECTION

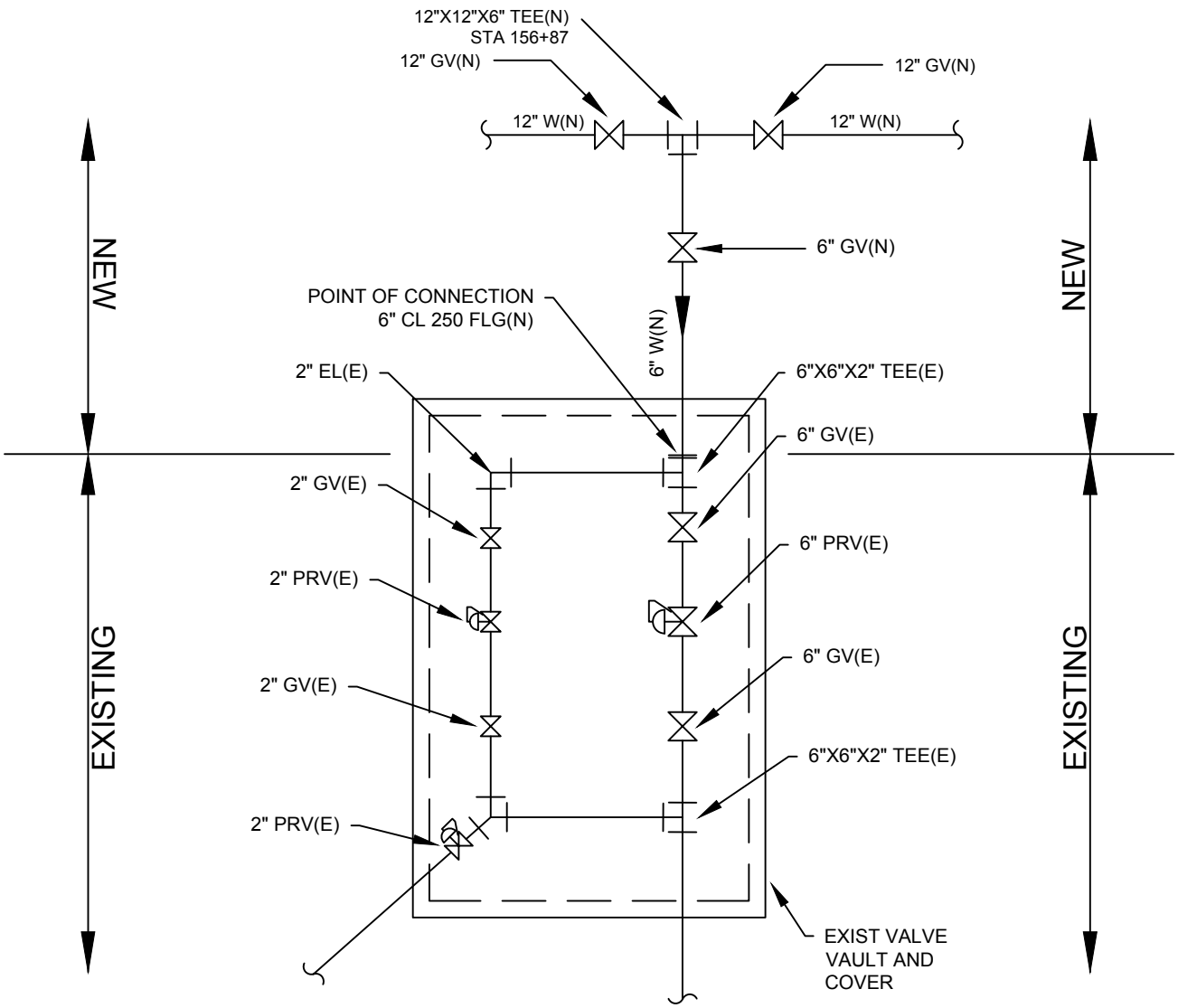
DRAWN BY:	SCALE:	CCWD DRAWING
CCWD STAFF	NONE	SHEET C-1/C-301 (STA 13+98)
APPROVED: CHARLES PALMER	DATE: DEC. 2015	



CALAVERAS COUNTY WATER DISTRICT

PRV 86 CONNECTION

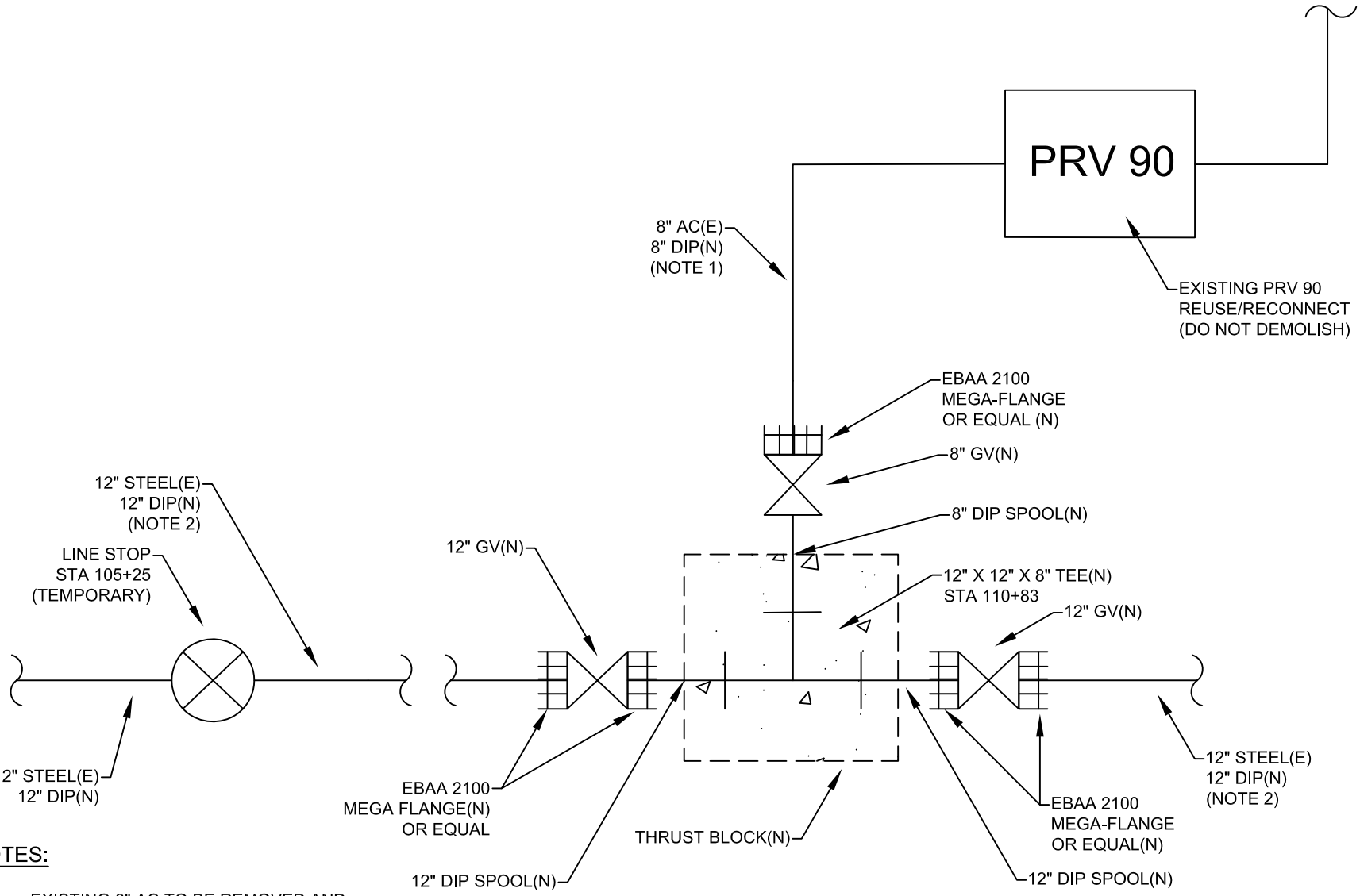
DRAWN BY:	SCALE:	CCWD DRAWING
CCWD STAFF	NONE	SHEET C-5/C-301 (STA 28+62)
APPROVED: CHARLES PALMER	DATE: DEC. 2015	



CALAVERAS COUNTY WATER DISTRICT

PRV 55 CONNECTION

DRAWN BY: CCWD STAFF	SCALE: NONE	CCWD DRAWING SHEET C-33/C-303 (STA 156+87)
APPROVED: CHARLES PALMER	DATE: DEC. 2015	



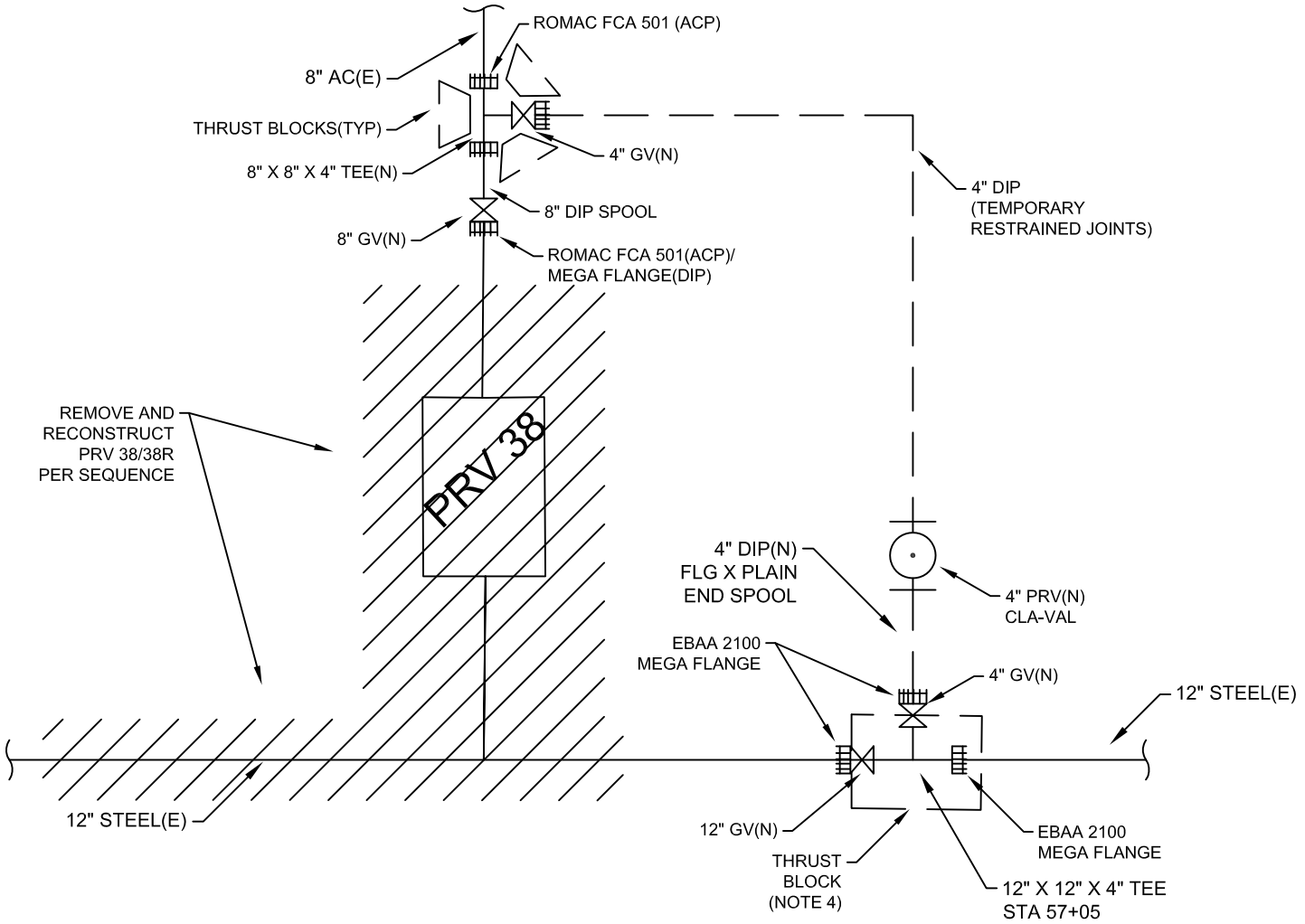
NOTES:

1. EXISTING 8" AC TO BE REMOVED AND REPLACED AFTER INSTALLING NEXT 12"X12"X8" TEE AND NEW VALVES.
2. TO FACILITATE CONSTRUCTION SEQUENCE, EXISTING 12" MAIN TO BE CONNECTED TO NEW 12" GATE VALVES TO EACH SIDE OF NEW 12"X12"X8" TEE, AS NEW 12" DIP MAIN IS CONSTRUCTED/COMPLETED UPTO VALVES, 12" STEEL WILL BE REMOVED AND NEW 12" DIP MAIN FINAL TIE-IN CONNECTIONS MADE.

CALAVERAS COUNTY WATER DISTRICT

PRV 90 PERMANENT TEE

DRAWN BY: CCWD STAFF	SCALE: NONE	CCWD DRAWING SHEETS C-23 (STA 110+83)
APPROVED: CHARLES PALMER	DATE: DEC. 2015	



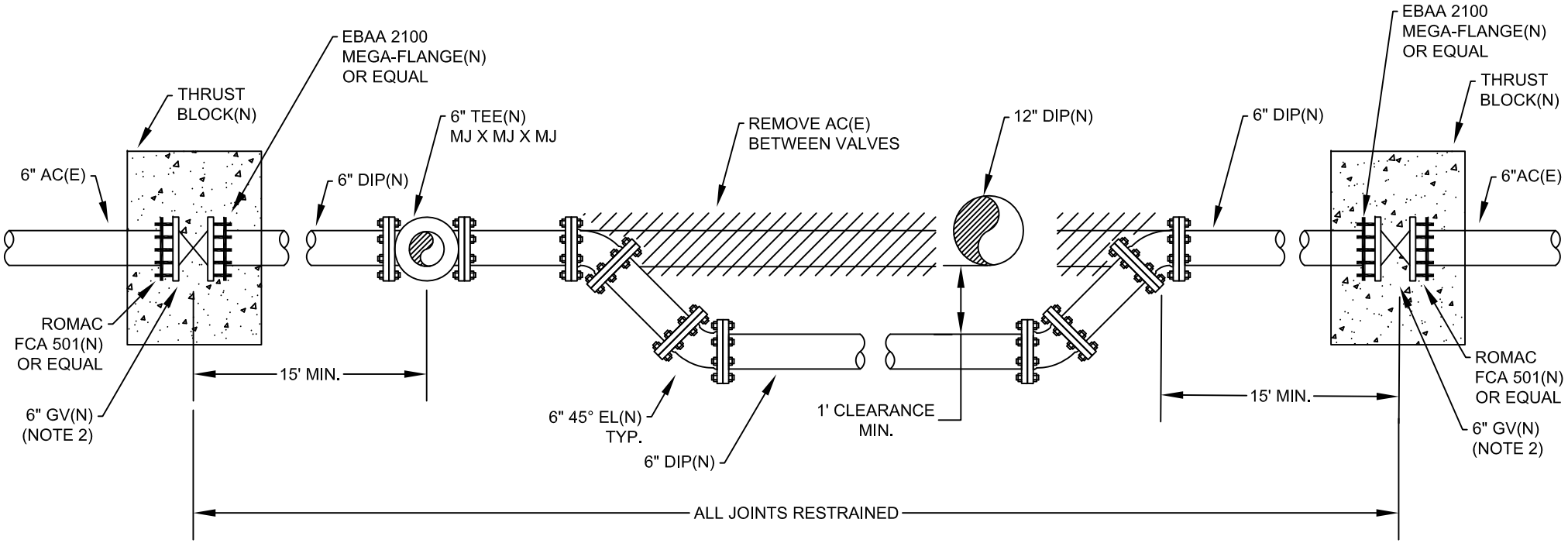
NOTES:

1. ROMAC FCA 501 OR EQUAL WITH FUSION EPOXY AND 304 STAINLESS STEEL NUTS AND BOLTS.
2. 4" CLA-VAL MODEL 90-99, CLASS 300 WITH LOW FLOW BYPASS.
3. REMOVE TEMPORARY 4" DIP PIPING AFTER CONSTRUCTION OF PRV38R. SALVAGE AND REUSE 4" PRV AT PRV 46 AND OTHER BYPASSES.
4. THRUST BLOCK TO BE 2.5 CY MINIMUM AND 25 SQ. FT. BEARING AREA; KEEP 12" GATE VALVE OPEN UNTIL THRUST BLOCK ATTAINS STRENGTH.

CALAVERAS COUNTY WATER DISTRICT

PRV38 TEMPORARY BYPASS VALVES/PIPING

DRAWN BY:	SCALE:	CCWD DRAWING
CCWD STAFF	NONE	PRV 38 (STA 57+05)
APPROVED: CHARLES PALMER	DATE: DEC. 2015	



NOTES:

1. TO ISOLATE EXISTING AC LINE, NEW GATE VALVES MUST BE CUT-IN FIRST AND THRUST BLOCKED IN ADVANCE OF PERFORMING LINE RELOCATION.
2. VALVE TO BE INSTALLED PER DETAIL W03 WITH VALVE BOX AND RISER.

CALAVERAS COUNTY WATER DISTRICT		
PINE DR. 6" WATER MAIN RELOCATION		
DRAWN BY: CCWD STAFF	SCALE: NONE	CCWD DRAWING NAME
APPROVED: CHARLES PALMER	DATE: DEC 2015	SHEET C-17

CALAVERAS COUNTY WATER DISTRICT

REVISED PROFILE
STA 88+40 TO 89+20

CCWD DRAWING NAME

SHEET C-18

SCALE: NONE

DATE: DEC 2015

DRAWN BY: CCWD STAFF

APPROVED: CHARLES PALMER

CONTROLLED DENSITY FILL

CG @ PIPE CENTERLINE

12" GV(N)

STA: 89+18.92
INV: 3943.82
S: 41.81%

S: -0.00%

STA: 89+40.71
INV: 3943.82

S: 2.65%

STA: 89+58.68
INV: 3944.30

S: 3.51%

STA: 89+76.87
INV: 3944.94

S: 5.81%

STA: 89+95.20
INV: 3946.00

S: 6.99%

STA: 90+13.64
INV: 3947.29

S: 6.44%

STA: 90+32.08
INV: 3948.48

S: 5.48%

INVERT 3943.82
STA 89+18.92 45° ELBOW

INVERT 3940.93
STA 89+16.03 45° ELBOW

INV: 3943.82
STA: 89+18.92 - 22.5° ELBOW

INV: 3940.93
STA: 89+12.01 - 22.5° ELBOW

STA: 89+10

ELEV: 3943.0±
A: 89+06.2± - (E) SD

ELEV: 3943.0±
STA: 89+02.7± - (E) SD

INVERT 3940.93
STA 88+97 45° ELBOW

INV: 3940.94
STA: 88+93.98 - 22.5° ELBOW

INV: 3943.82
STA: 88+87.08 - 82.5° ELBOW

INVERT 3943.25
STA 88+94.7 45°ELBOW

STA: 89+85

S: -41.72%
S: -0.04%

INVERT 3945.65
STA 88+80 8"W(E)

INVERT 3943.25
STA 88+90 TEE

12" GV(N)

ELEV: 3941.5±
STA: 88+65.6± - (E) SS

S: 0.08%

3" CARV (TYP ALL)

W05

CRN EL: 3944.89
STA: 88+47.00 -

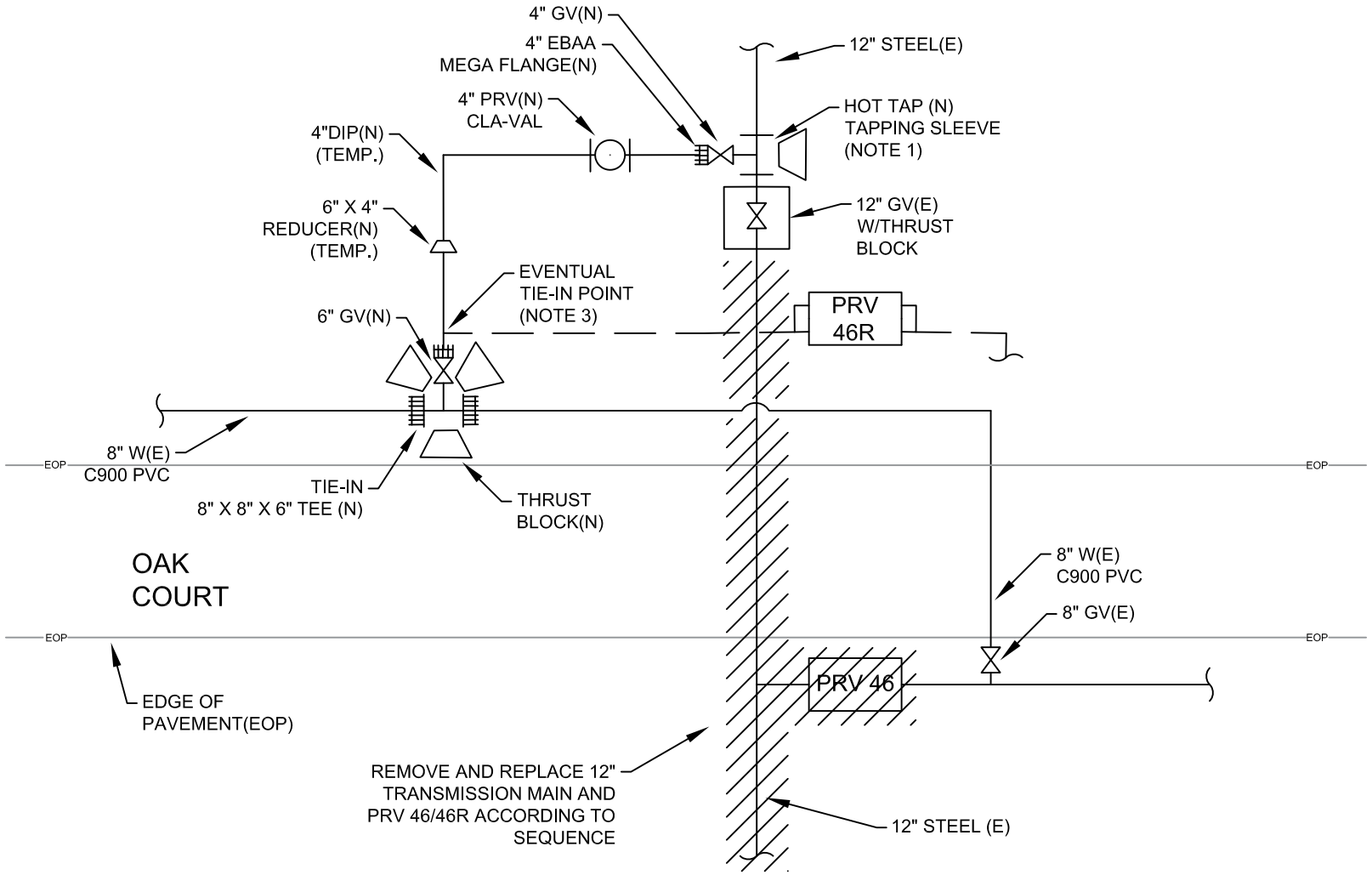
INVERT 3943.25
STA 88+43.75 45° ELBOW

S: 95.28%

INV: 3934.50
STA: 88+34.64 - 45° ELBOW

STA: 88+44.36 - 45° ELBOW
INV: 3943.78

88+00
88+25
88+50
88+75
89+00
89+25



NOTES:

1) TAPPING SLEEVE TO BE TWO PIECE FULL CIRCUMFERENCE WELDED TAPPING SLEEVE WITH ANSI 150 OR AWWA C207 CLASS E FLANGED OUTLET AND WORKING PRESSURE RATED 275-285 PSI AND TEST PRESSURE RATED TO 125% X WORKING PRESSURE.

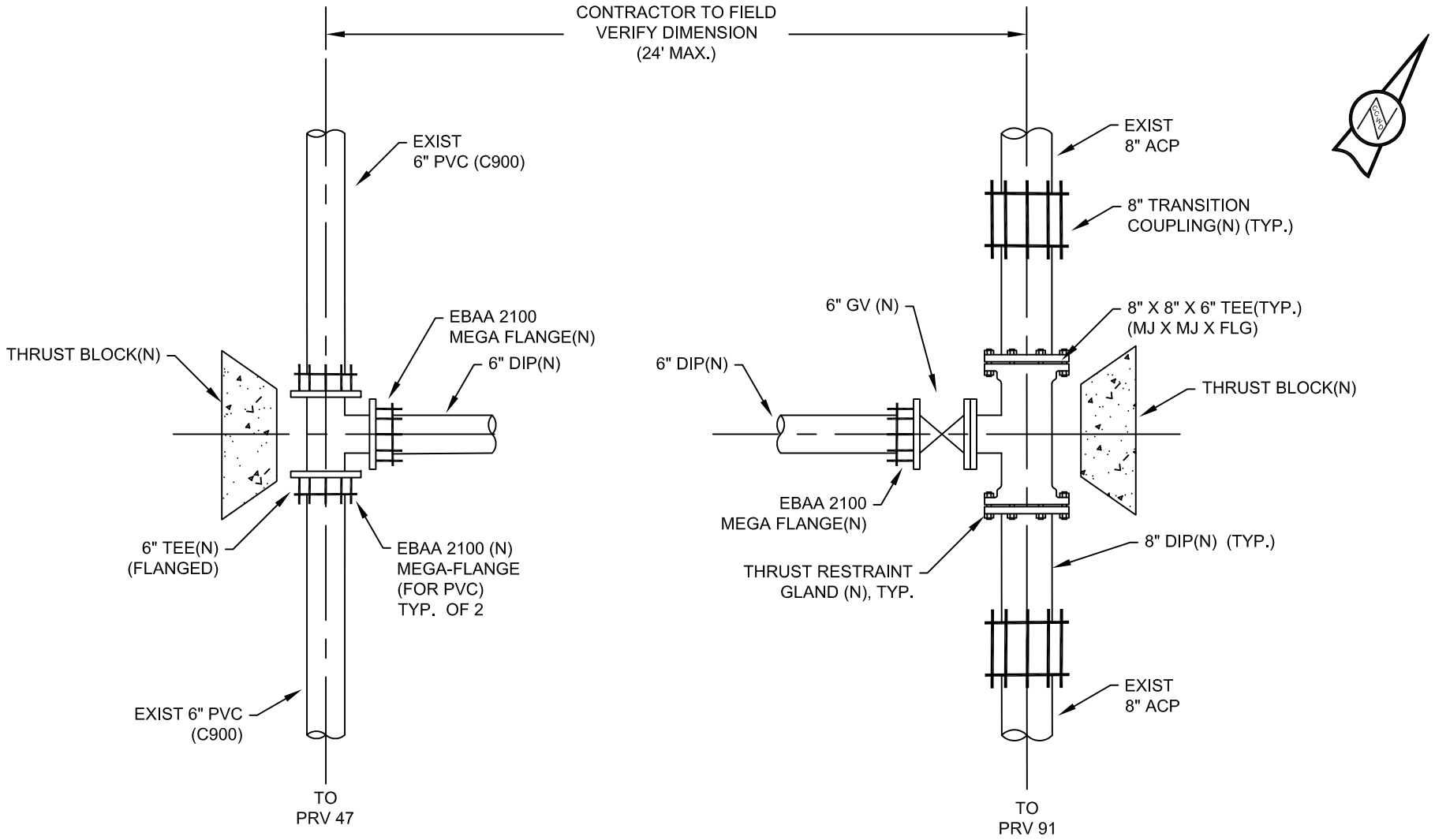
2) ALL DIP PIPING TO BE FLANGED OR MECHANICALLY RESTRAINED EBAA 2100 MEGA FLANGE OR MJ RESTRAINT GLANDS.

3) AFTER CONSTRUCTION, TESTING & DISINFECTION OF PRV 46R, DISCONNECT TEMPORARY BYPASS AND CONNECT PRV 46R TO SAME DOWNSTREAM TIE-IN POINT.

CALAVERAS COUNTY WATER DISTRICT

PRV 46 TEMPORARY BYPASS

DRAWN BY:	SCALE:	CCWD STANDARD DRAWING NO.
CCWD STAFF	NONE	SHEET C-18 (STA 88+75/89+00)
APPROVED: CHARLES PALMER	DATE: DEC. 2015	



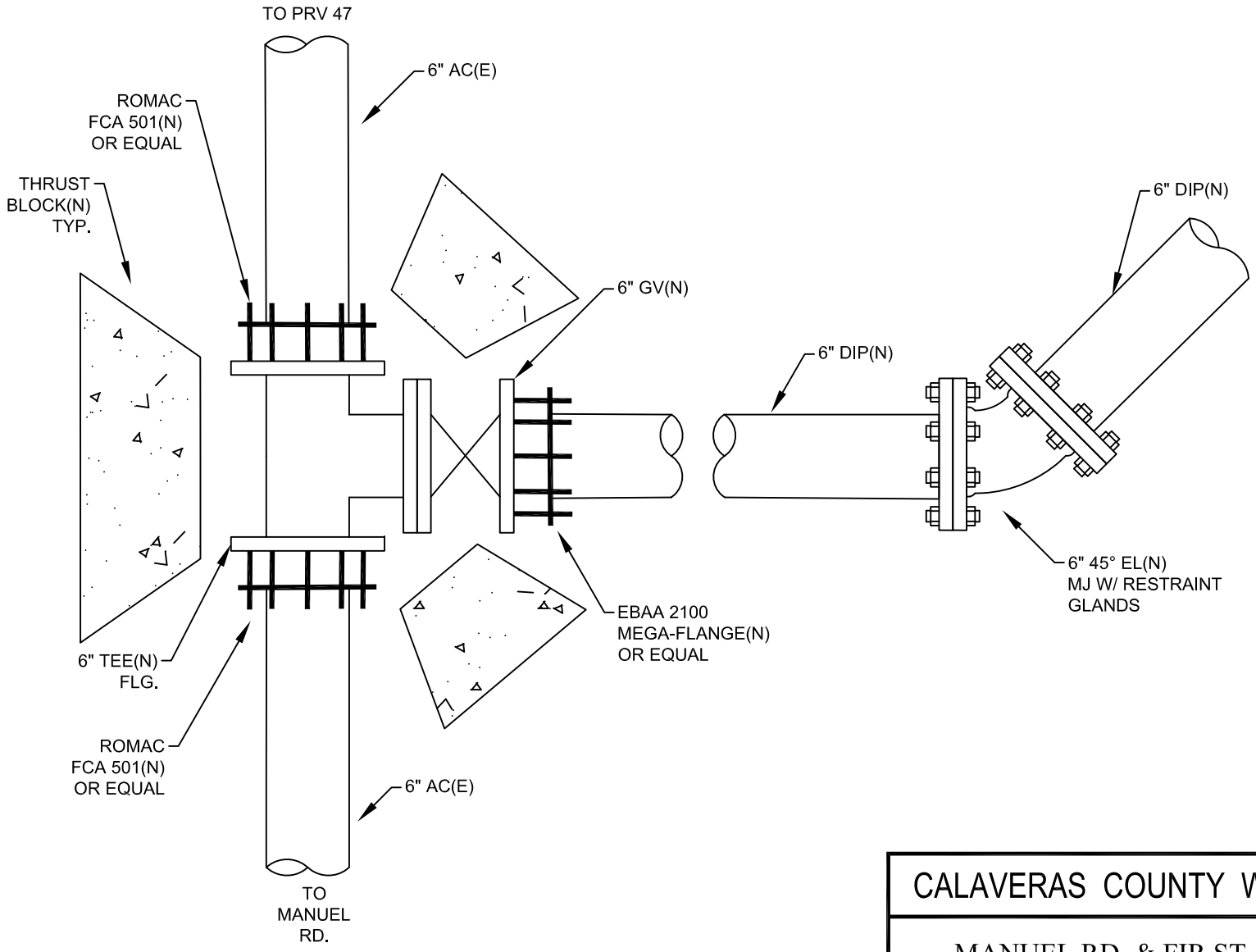
NOTES:

1. ALL DUCTILE IRON PIPE, FITTINGS & VALVES TO BE POLYETHYLENE ENCASED PER AWWA C105
2. TRANSITION COUPLINGS TO BE ROMAC XR 501 OR EQUAL FUSION EPOXY AND 304 STAINLESS STEEL HARDWARE

CALAVERAS COUNTY WATER DISTRICT

PRESSURE ZONE 47 & 91 INTER-TIE
MANUEL RD.

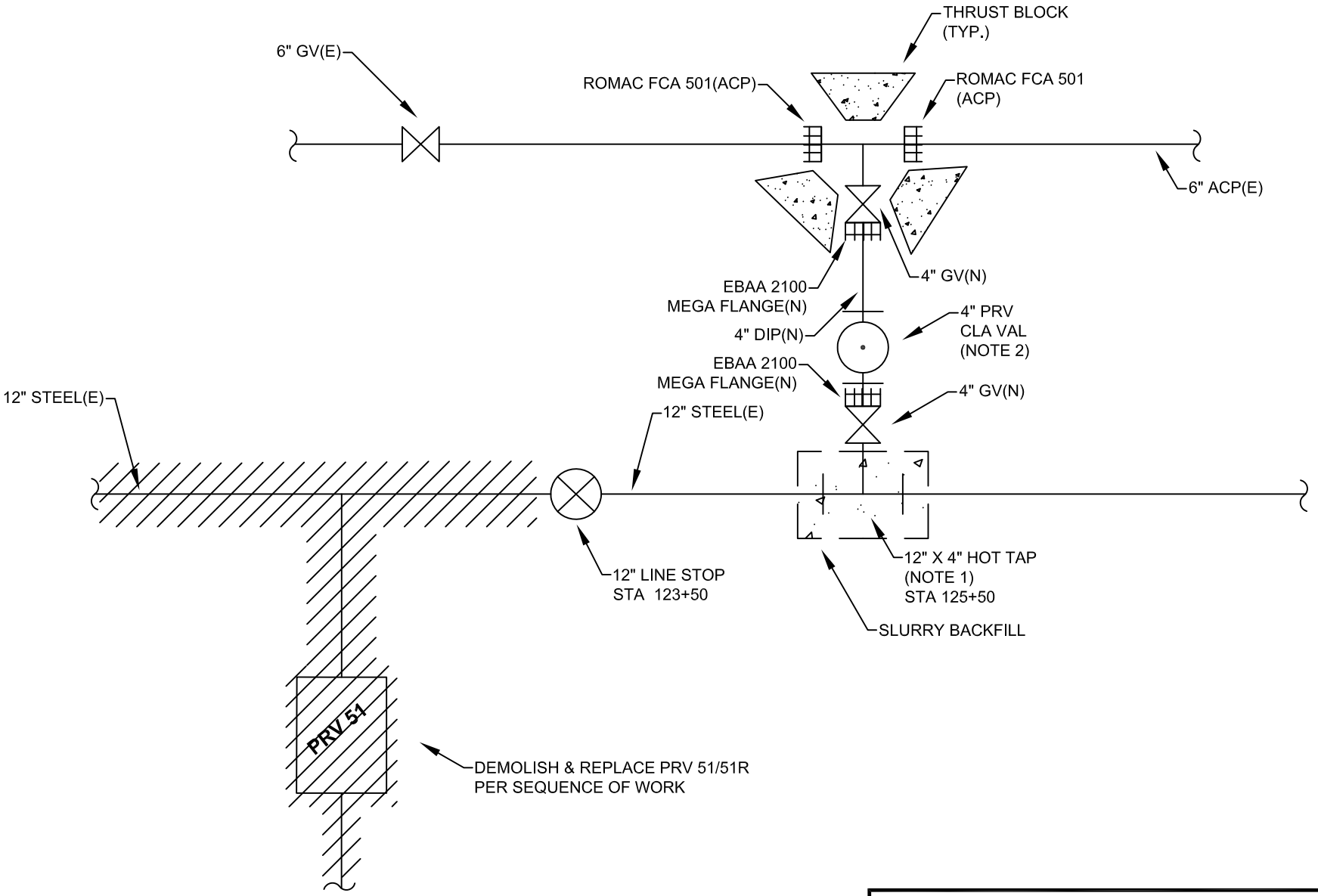
DRAWN BY: CCWD STAFF	SCALE: NONE	CCWD DRAWING NAME
APPROVED: CHARLES PALMER	DATE: DEC 2015	SHEET C-21



CALAVERAS COUNTY WATER DISTRICT

MANUEL RD. & FIR ST. TIE-IN DETAIL

DRAWN BY: CCWD STAFF	SCALE: NONE	CCWD DRAWING NAME
APPROVED: CHARLES PALMER	DATE: DEC 2015	SHEET C-21



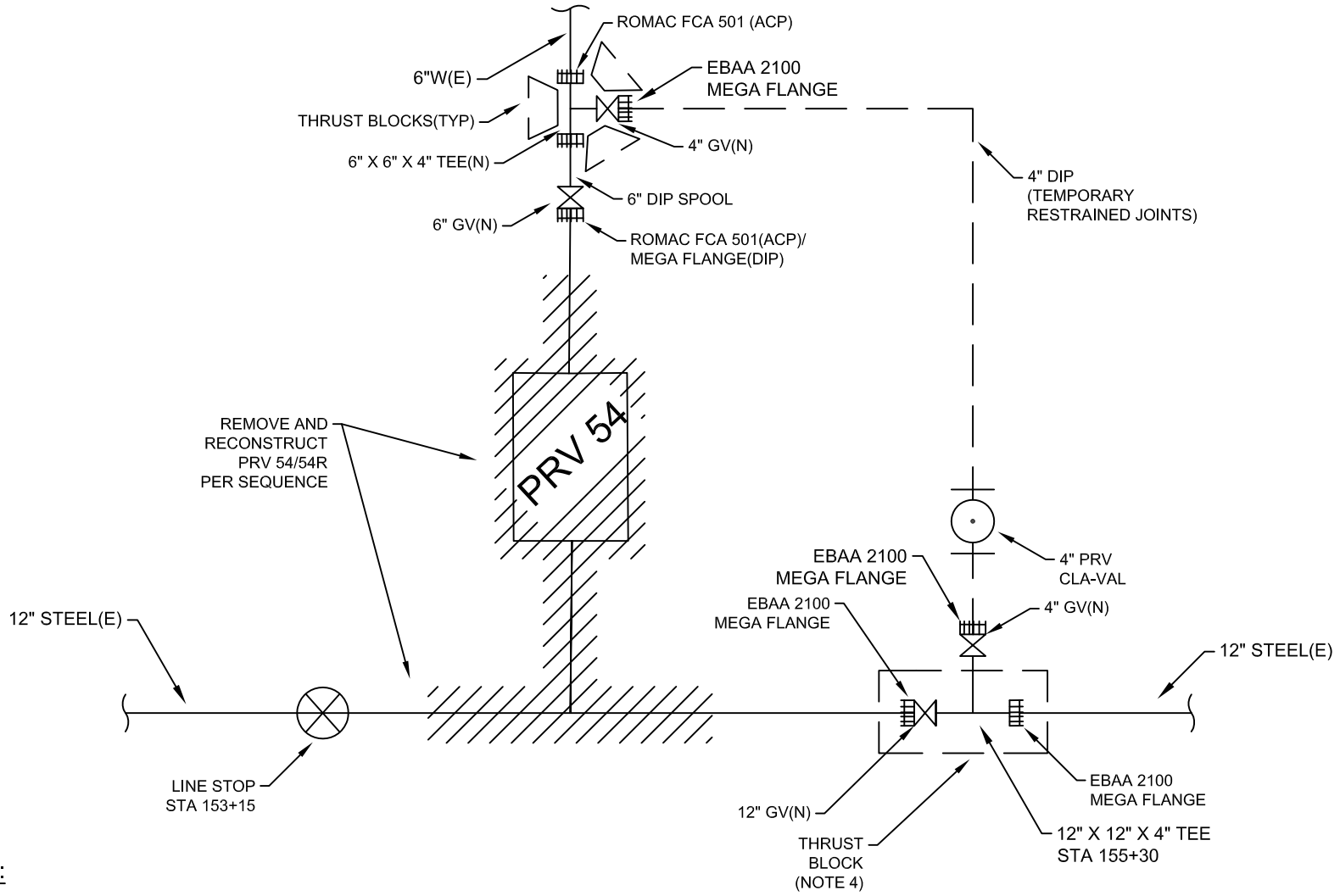
NOTES:

1) TAPPING SLEEVE TO BE TWO PIECE FULL CIRCUMFERENCE WELDED TAPPING SLEEVE WITH ANSI 150 OR AWWA C207 CLASS E FLANGED OUTLET AND WORKING PRESSURE RATED 275-285 PSI AND TEST PRESSURE RATED TO 125% X WORKING PRESSURE,JCM INDUSTRIES OR EQUAL.
2) 4" CLA VAL MODEL 90-99, CLASS 300 FLANGES WITH 2" LOW FLOW BYPASS.

CALAVERAS COUNTY WATER DISTRICT

PRV 51 TEMPORARY BYPASS

DRAWN BY: CCWD STAFF	SCALE: NONE	CCWD DRAWING SHEET C-26 (STA 125+50)
APPROVED: CHARLES PALMER	DATE: DEC. 2015	



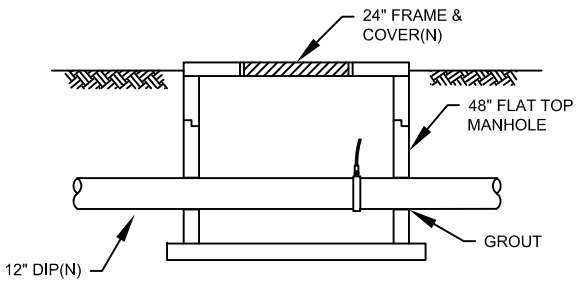
NOTES:

1. ROMAC FCA 501 OR EQUAL WITH FUSION EPOXY AND 304 STAINLESS STEEL NUTS AND BOLTS.
2. 4" CLA-VAL MODEL 90-99, CLASS 300 WITH LOW FLOW BYPASS.
3. REMOVE TEMPORARY 4" DIP PIPING AFTER CONSTRUCTION OF PRV54R. SALVAGE AND REUSE 4" PRV/CLA-VAL.
4. THRUST BLOCK TO BE 2.5 CY MINIMUM AND 25 SQ. FT. BEARING AREA; KEEP 12" GATE VALVE OPEN UNTIL THRUST BLOCK ATTAINS STRENGTH.
5. LINE STOP USED TO ACCOMMODATE INSTALLATION OF 12" GV(N) AND 12"X12"X4" TEE, LINE STOP JCM 440 OR EQUAL FULL BODY CARBON STEEL WELD-ON WITH AWWA CLASS E FLANGE/275 PSI.

CALAVERAS COUNTY WATER DISTRICT

PRV54/54R TEMPORARY BYPASS

DRAWN BY: CCWD STAFF	SCALE: NONE	CCWD DRAWING SHEET C-33 (STA 155+30)
APPROVED: CHARLES PALMER	DATE: DEC. 2015	



CHEMICAL INJECTION MANHOLE

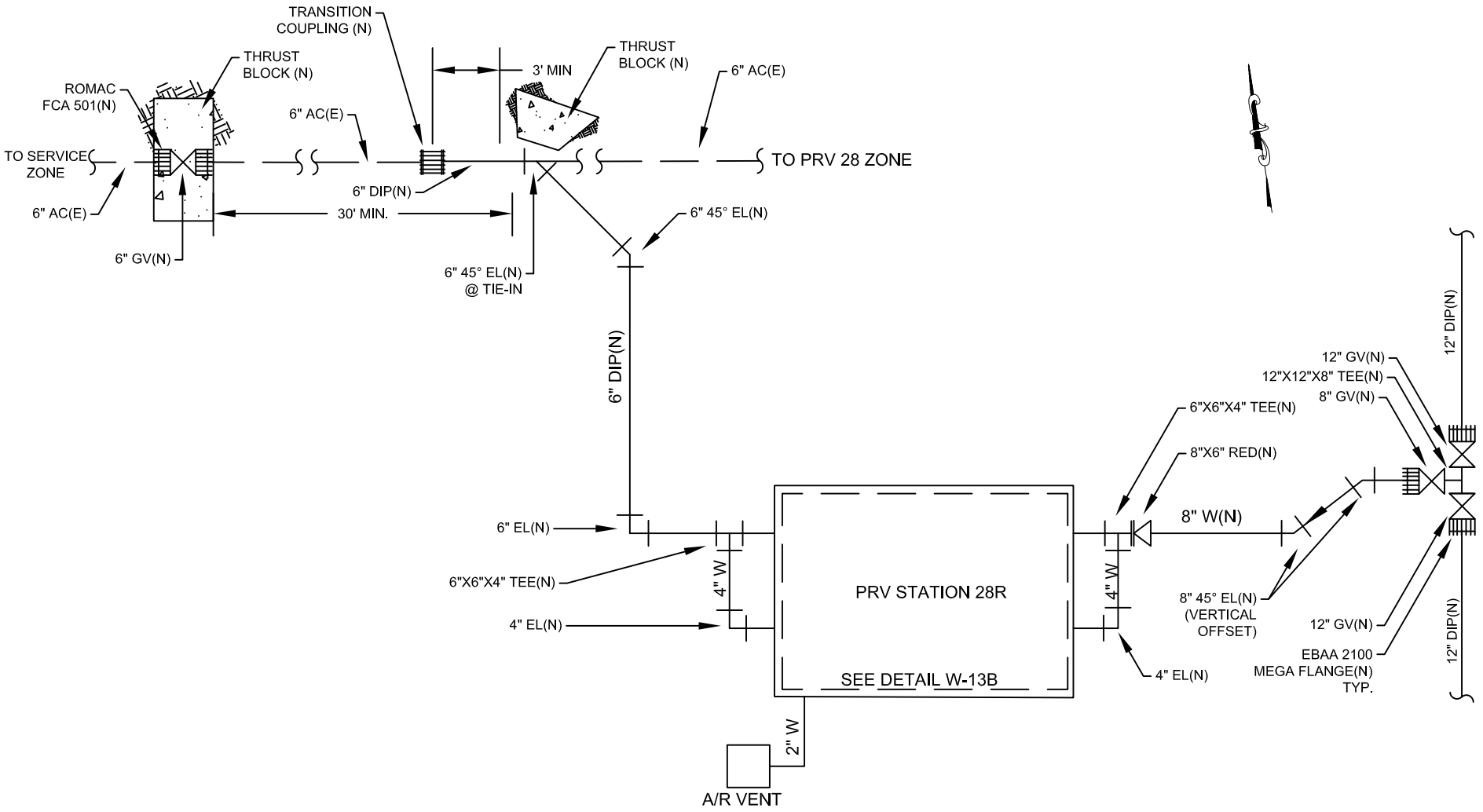
NOTES:

1. USE MINIMUM 8' DIP SPOOL EMBEDDED IN CONCRETE THRUST BLOCK; CUT TO LENGTH TO INSTALL 45° BEND.
2. LOCATE EXISTING 12" BFV AND CONFIRM OPERATION BEFORE SCHEDULING SHUTDOWN AND CUTTING IN NEW 12" WYE.

CALAVERAS COUNTY WATER DISTRICT

ADDENDUM 3
SAWMILL TANK CONNECTION DETAIL

DRAWN BY: CCWD STAFF	SCALE: NONE	CCWD DRAWING SHEET Y-2 DETAIL 1
APPROVED: CHARLES PALMER	DATE: DEC. 2015	



NOTES:

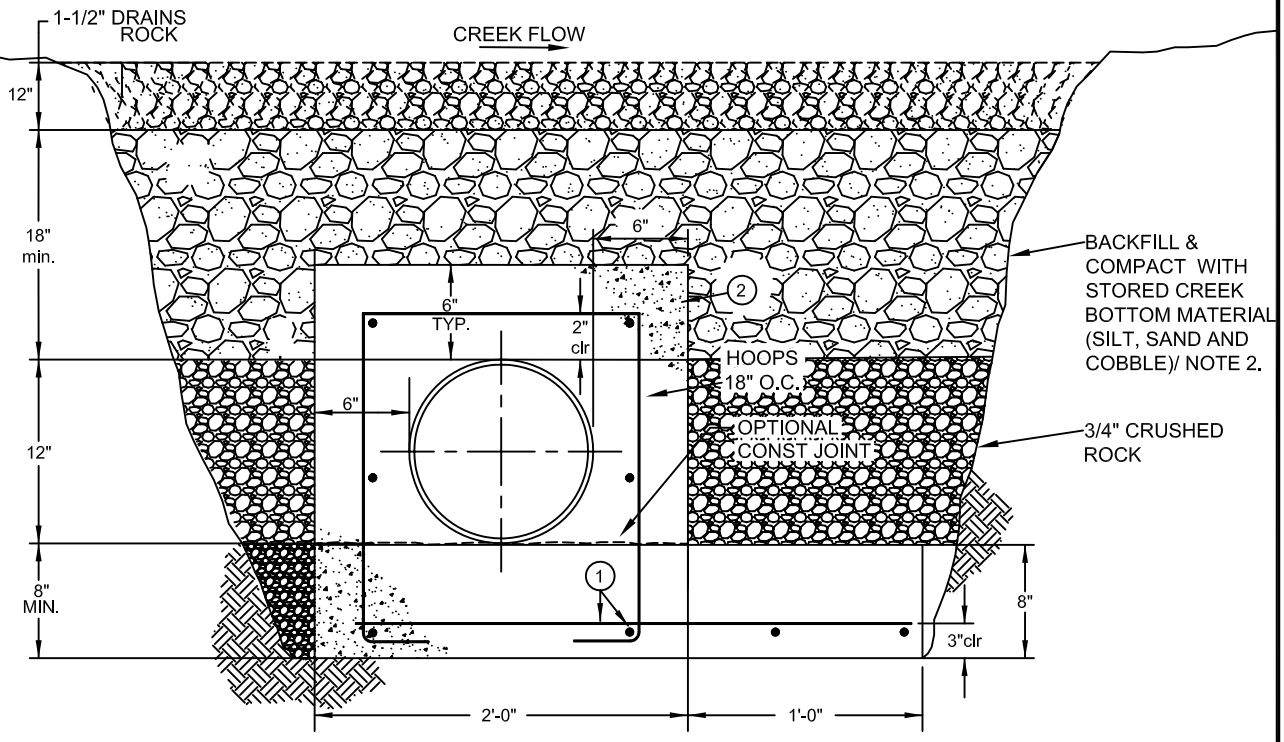
1. TO ISOLATE SERVICE ZONE, INSTALL 6" GATE VALVE ON EXISTING AC LINE FIRST AND PLACE THRUST BLOCK AND RETURN EXISTING LINE AND PRV 28 BACK IN SERVICE.
2. AFTER CONSTRUCTION, TESTING AND DISINFECTION OF PRV 28R, REMOVE PRV 28 FROM SERVICE, REMOVE TEMPORARY 6" TRANSITION COUPLING AND CUT DIP EAST OF 6" GATE VALVE AND COMPLETE TIE-IN WITH 6" 45° ELBOW (RESTRAINED).
3. ALL DUCTILE IRON PIPE AND FITTINGS TO HAVE MECHANICAL THRUST RESTRAINT, TRACER WIRE AND POLYETHYLENE ENCASEMENT.

CALAVERAS COUNTY WATER DISTRICT

PRV 28R CONNECTION DETAIL

DRAWN BY: CCWD STAFF	SCALE: NONE	CCWD DRAWING SHEET C-4/C301 (STA 27+00)
APPROVED: CHARLES PALMER	DATE: DEC. 2015	

PART C.
PROJECT GENERAL DETAILS



CREEK CROSSING IN SOIL

NOTES:

1. PIPE SHALL BE DUCTILE IRON WITH RESTRAINED JOINTS.
2. BACKFILL & COMPACT WITH NATIVE/STORED CREEK BOTTOM MATERIAL; USE IMMEDIATELY ADJACENT/NEARBY MATERIAL FROM STREAM BANKS IF LOWER MOISTURE CONTENT IS NEEDED TO ACHIEVE COMPACTION.

ITEM #	DESCRIPTION
1	#4 REBAR (ALL)
2	CLASS 3 CONCRETE

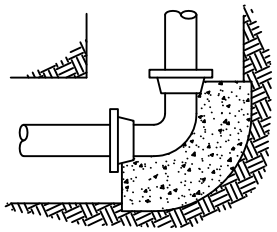
F:\CCWD\1-ACAD_dwgs\Details\Nov2007_Working_Stds\Final_Dec2008\General\SD_G11.dwg 20090121.1534

CALAVERAS COUNTY WATER DISTRICT

GENERAL DETAILS
CREEK CROSSING (PROJECT MODIFIED)

DRAWN BY: CCWD STAFF	SCALE: NONE	CCWD STANDARD DRAWING NO.
APPROVED: CHARLES PALMER	DATE: DEC. 2015	G11

HORIZONTAL BEND ANCHOR
CONCRETE BEARING AREA (S.F.)



90° BEND

4" = 6	10" = 14
6" = 6	12" = 20
8" = 9	

45° BEND

4" = 3	10" = 8
6" = 3	12" = 11
8" = 6	

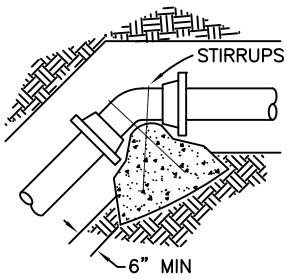
22 1/2° BEND

4" = 1.5	10" = 4
6" = 1.5	12" = 6
8" = 2	

11 1/4° BEND

4" = 1	10" = 3
6" = 1	12" = 4
8" = 2	

VERTICAL BEND ANCHOR
CONCRETE VOLUME (C.Y.)



45° BEND

4" = 1.4	10" = 3.6
6" = 1.4	12" = 5.1
8" = 2.4	

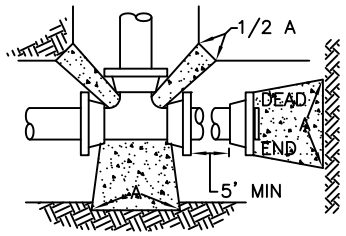
22 1/2" BEND

4" = 0.7	10" = 1.8
6" = 0.7	12" = 2.6
8" = 1.2	

11 1/4" BEND

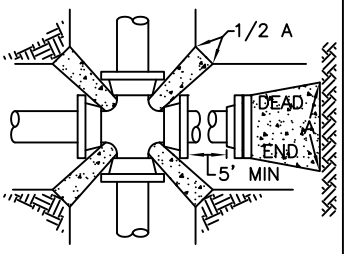
4" = 0.4	10" = 0.9
6" = 0.4	12" = 1.3
8" = 0.6	

TEE/DEAD END & PLUG
CONC. BEARING AREA (S.F.)



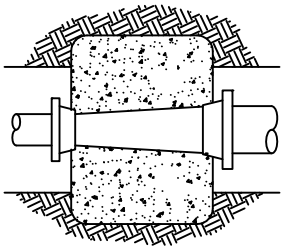
4" = 3	10" = 8
6" = 3	12" = 12
8" = 5	

CROSS with PLUG
CONC. BEARING AREA (S.F.)



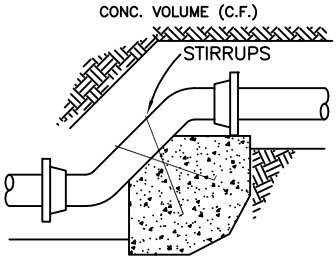
4" = 3	10" = 8
6" = 3	12" = 12
8" = 5	

REDUCER
CONC. BEARING AREA (S.F.)



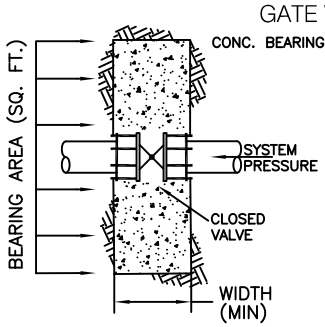
4"–6" = 10	8"–10" = 10
6"–8" = 10	10"–12" = 10

OFFSET ANCHOR BLOCK SINGLE FITTING
CONC. VOLUME (C.F.)



4" = 26	10" = 80
6" = 26	12" = 107
8" = 53	

DEAD END/CONSTRUCTION GATE VALVE
CONC. BEARING AREA (S.F.)



PIPE	150PSI	300PSI	WIDTH(MIN)
4"	3	6	18"/24"
6"	3	6	18"/24"
8"	5	10	18"/24"
10"	8	16	24"/30"
12"	12	24	24"/30"

NOTES:

1. THRUST BLOCKS TO BE CONSTRUCTED OF CLASS 3 CONCRETE.
2. AREAS GIVEN ARE FOR PIPE AT TEST PRESSURES OF 150 PSI. SIZE OF THRUST BLOCK ABOVE 150 PSIG MUST BE SCALED PROPORTIONALLY, I.E 2X FOR 300 PSIG.
3. IN SOIL WITH 2,000 PSF BEARING CAPACITY, INSTALLATIONS USING DIFFERENT TEST PRESSURES, AND/OR SOIL TYPES, SHOULD ADJUST THRUST BLOCK AREAS ACCORDINGLY, SUBJECT TO APPROVAL OF DISTRICT ENGINEER.
4. BLOCKS TO BE POURED AGAINST UNDISTURBED SOIL, OF MINIMUM AREA SQUARE FEET.
5. PROTECT BOLTS, NUTS, THREADS, AND GASKETS FROM CONCRETE WITH 6 MIL. MIN. PVC SHEETING.
6. ALL FITTINGS SHALL BE WRAPPED (SEE DETAIL G13).
7. STIRRUPS SHALL BE MINIMUM 1/2" IN SIZE
8. TWO STIRRUPS REQUIRED ON 4" – 8" FITTINGS. FOUR STIRRUPS REQUIRED ON 10" – 12" FITTINGS.

CALAVERAS COUNTY WATER DISTRICT

WATER DETAILS
THRUST BLOCK BEARING AREA SCHEDULE

DRAWN BY: CCWD STAFF	SCALE: NONE	CCWD STANDARD DRAWING NO.
APPROVED: CHARLES PALMER	DATE: DEC 2015	W01

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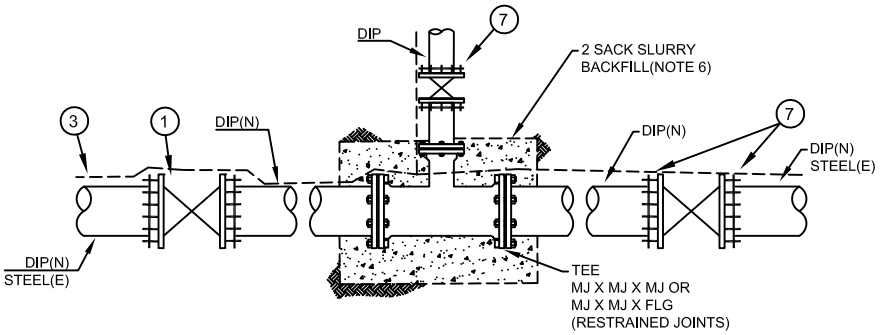
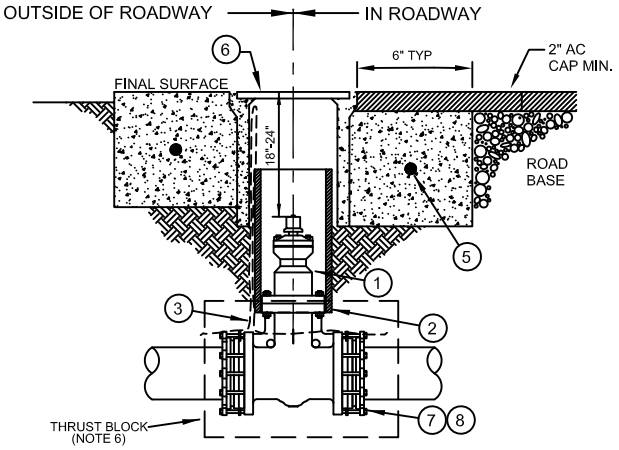
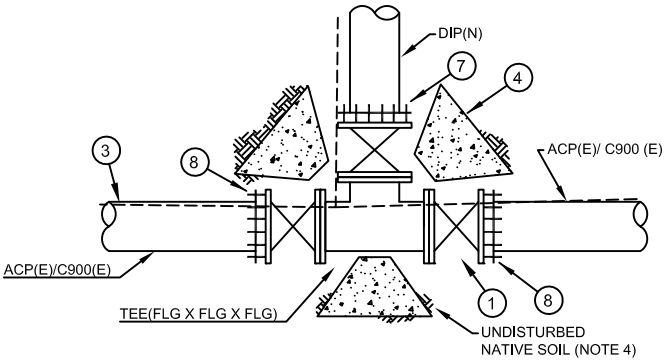


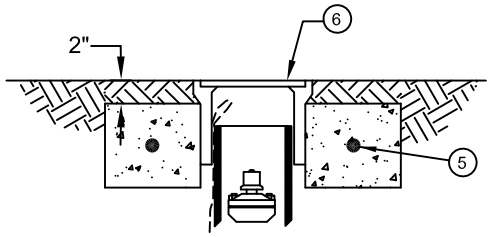
TEE INSTALLATION
NEW/DIP PIPELINE
(MECHANICAL THRUST RESTRAINT)



GATE VALVE DETAIL



TEE INSTALLATION
EXISTING ACP/C900 PIPELINE



INSTALLATION IN LANDSCAPING

ITEM #	DESCRIPTION
1	GATE VALVE, RESILIENT SEAT PER SECTION 15109 (NUMBERS & SIZE AS SHOWN ON PLANS)
2	8" C900 P.V.C. RISER
3	TRACER WIRE FOR ALL INSTALLATIONS (PER DETAIL W02 & W02A)
4	CONCRETE THRUST BLOCK PER DETAIL W 01
5	#4 REBAR HOOP
6	CHRISTY G5 OR APPROVED EQUAL/ NOTE 3
7	EBAA 2100 MEGA FLANGE (DIP/STEEL)
8	ROMAC FCA 501 OR EQUAL (ACP/ C900)/ NOTE 2

NOTES:

1. WHEN OPERATING NUT IS GREATER THAN 24" FROM FINISHED GRADE, INSTALL STEM EXTENSIONS. (see CCWD W03A)
2. FLANGE COUPLING ADAPTER FOR ACP/C900 TO BE ROMAC FCA 501 RATED 260 PSIG WORKING PRESSURE WITH FUSION EPOXY AND TYPE 304 STAINLESS STEEL HARDWARE.
3. CONCRETE VALVE BOX BODY WITH TRAFFIC TYPE CI COVER MARKED WATER. RECESS BOX 1/4" MAX. FOR SNOW REMOVAL ABOVE 2000'.
4. THRUST BLOCKS & SLURRY TO BE POURED AGAINST STABLE, FIRM, UNDISTURBED SOIL.
5. ALL DUCTILE IRON PIPE, FITTINGS AND VALVES TO BE FULLY MECHANICALLY RESTRAINED AND POLYETHYLENE ENCASED PER AWWA C105.
6. CONCRETE THRUST BLOCK NEW VALVE OR ASSEMBLY IF CUT-IN TO EXISTING STEEL, ACP OR C900 PVC MAIN.

CALAVERAS COUNTY WATER DISTRICT

WATER DETAILS
GATE VALVE INSTALLATION

DRAWN BY: CCWD STAFF	SCALE: NONE	CCWD STANDARD DRAWING NO.
APPROVED: CHARLES PALMER	DATE: DEC. 2015	W03

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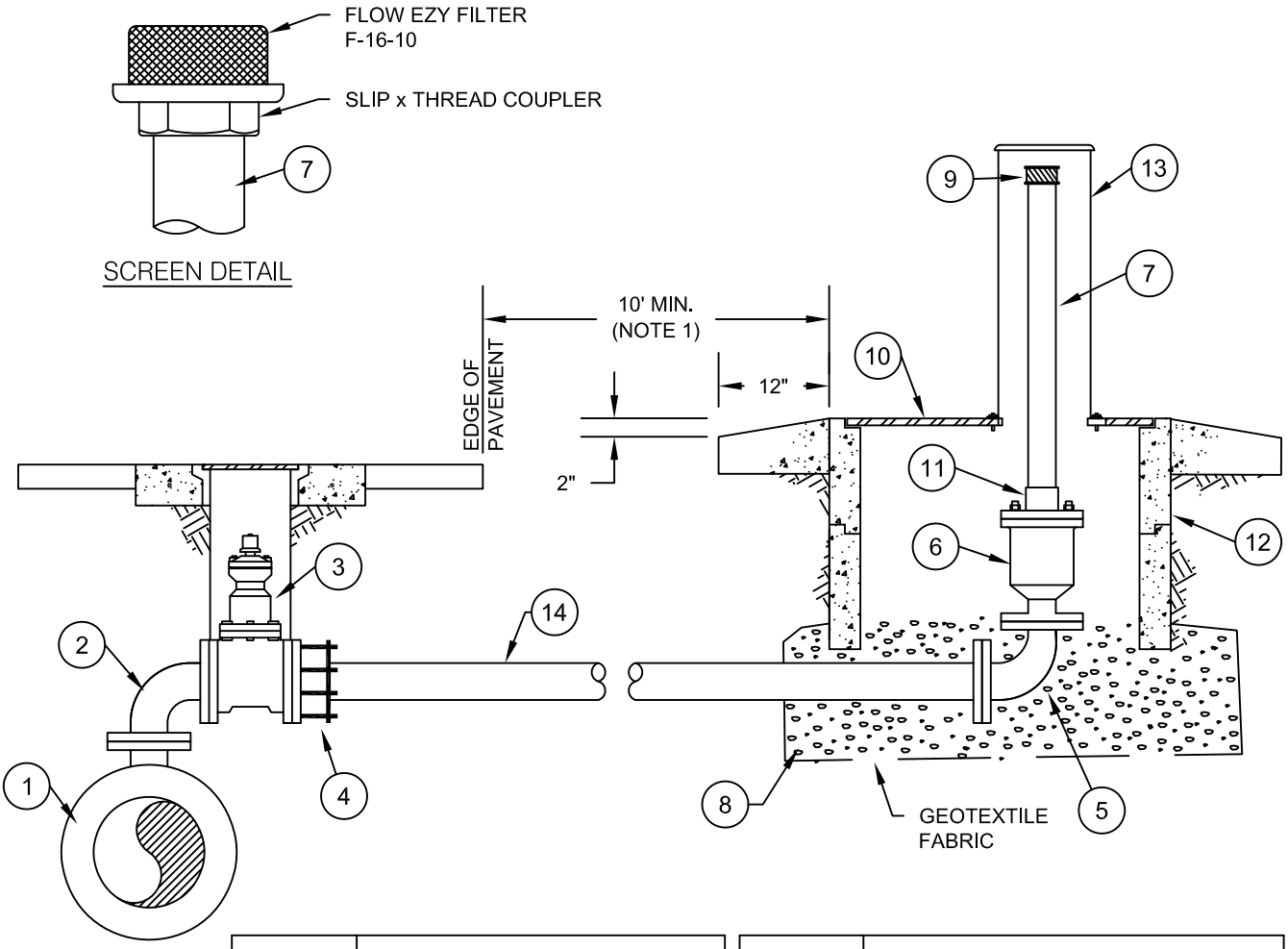


ITEM #	DESCRIPTION
1	12" X 4" DUCTILE IRON TEE
2	4" DUCTILE IRON 90° FLG BEND
3	4" AWWA GATE VALVE (SEE SPECIFICATIONS)
4	4" EBAA MEGA FLANGE OR EQUAL
5	4" X 3" RED 90° EL. SCH40(FUSION EPOXY COATED) CL300 FLG
6	3" AIR/SURGE/ VAC VALVE (SEE SPECIFICATIONS)
7	3" SCH80 PVC (NOTE 3)

ITEM #	DESCRIPTION
8	1/2" CRUSHED ROCK ENCAPSULATED IN GEO-TEXTILE
9	FLOW EZY FILTER SEE SCREEN DETAIL
10	3/16" DIAMOND PLATE 20.25" x 33.25" PLACER WATERWORKS PW/218(1730)
11	3" SCH 80 THREAD X SOLVENT WELD COUPLING
12	JENSEN PRECAST HT1730 TRAFFIC BOX OR EQUAL
13	8"X8"X18" AIR VENT TUBE, PLACER WATERWORKS AV-18
14	4" DIP SPOOL CLASS 250 FLANGED X PLAIN END

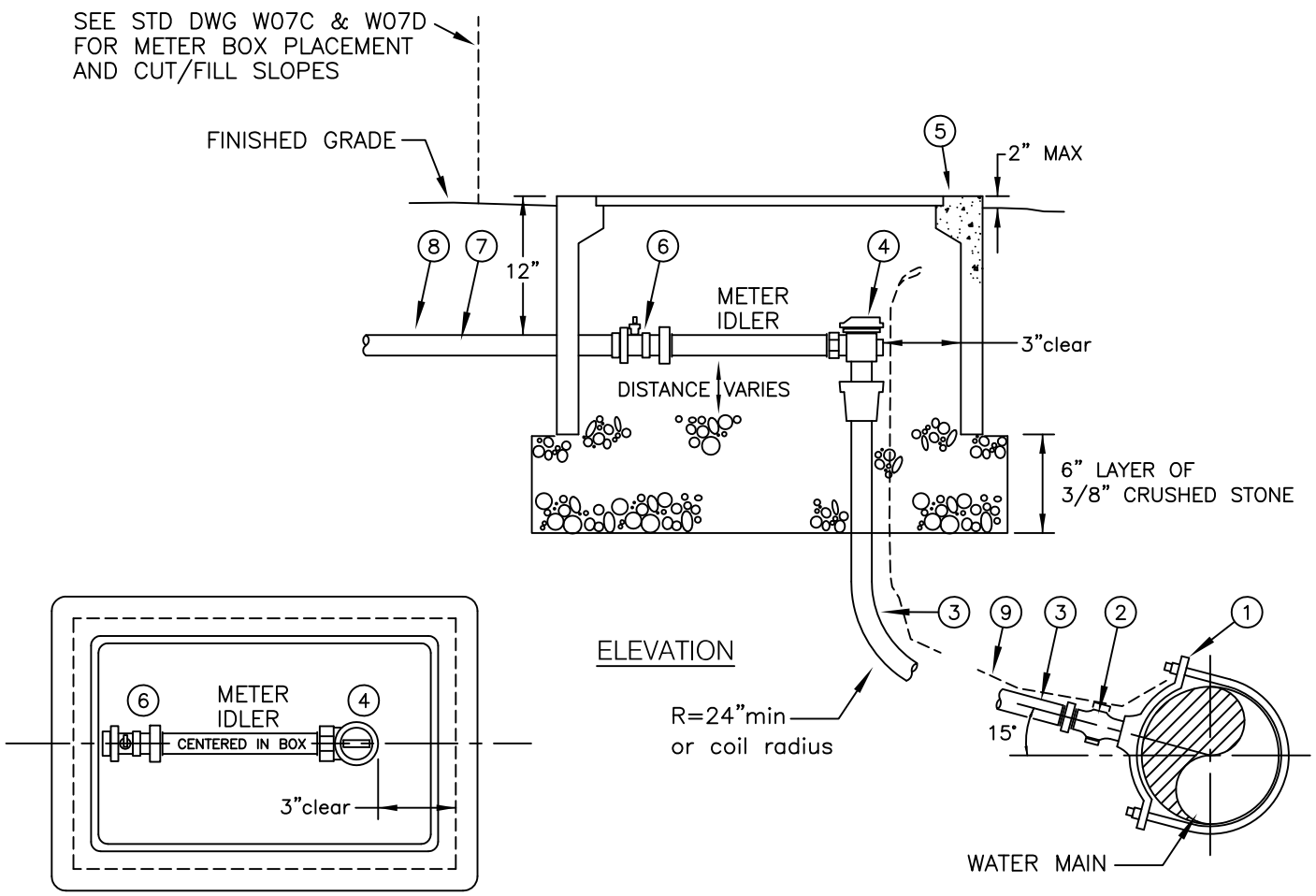
NOTES:

1. AIR VALVE BOX SHALL NOT BE LOCATED IN DRAINAGE DITCH. FINAL PLACEMENT AND LOCATION SHALL BE APPROVED BY ENGINEER TO SUITE ACTUAL FIELD CONDITIONS, TOPOGRAPHY AND GRADE.
2. PIPING INSTALLED PER STANDARD TRENCH DETAIL WITH POLYETHYLENE ENCASEMENT AND TRACER WIRE.
3. PRE-WELD PIPE TO COUPLING BEFORE THREADING INTO TOP OF AIR VALVE; SOLVENT MAY DAMAGE AIR VALVE.

CALAVERAS COUNTY WATER DISTRICT

WATER DETAILS
AIR RELEASE VALVE (HIGH PRESSURE)

DRAWN BY: CCWD STAFF	SCALE: NONE	CCWD STANDARD DRAWING NO.
APPROVED: CHARLES PALMER	DATE: DEC 2015	W05 (REV)



ITEM #	DESCRIPTION*
1	SERVICE SADDLE
2	1" CORPORATION STOP
3	1" P.E. CONTINUOUS SERVICE TUBING, CTS
4	ANGLE BALL METER VALVE FOR 1" CTS TUBING AND 5/8" X 3/4" METER
5	METER BOX
6	STRAIGHT METER VALVE FOR 1" PVC PIPE AND 5/8" X 3/4" METER
7	1" SCH 40 PVC PIPE
8	EXTEND/RECONNECT CUSTOMER SERVICE (NOTE 9)
9	TRACER WIRE

*SEE SECTION 15095 FOR MATERIAL SPECIFICATIONS

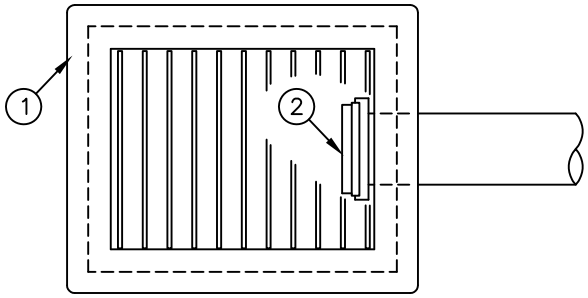
NOTES:

1. SERVICE SADDLE SHALL NOT BE INSTALLED WITHIN 18" OF VALVE, JOINT, OR FITTING.
2. METER BOXES INSTALLED BY CONTRACTOR PER CCWD STANDARD DETAILS W07C & W07D.
3. SET TOP OF METER BOX FLUSH WITH SIDE-WALK OR AS SHOWN.
4. ALL TAPS SHALL BE MADE WITH MACHINE GUIDE OR PILOT TAP.
5. WATER SERVICE SHALL EXTEND PERPENDICULAR TO THE CENTERLINE OF THE STREET FROM THE WATER MAIN TO THE METER STOP.
6. P.E. TUBING SHALL BE CONTINUOUS WITH STAINLESS STEEL INSERT STIFFENERS AT ENDS.
7. ALL FITTINGS TO BE NSF-61 APPROVED BRASS.
8. PROVIDE 5/8" X 3/4" METER IDLERS WHEN SETTING WATER VALVES; TRANSFER METERS WHEN PLACING IN SERVICE.
9. AFTER NEW WATER MAIN AND SERVICE LINES ARE TESTED AND DISINFECTED, EXTEND AND CONNECT/ TRANSFER CUSTOMER SERVICE.
10. TRENCH FOR 1" CTS TUBING TO BE MINIMUM 30" DEEP BEFORE METER.

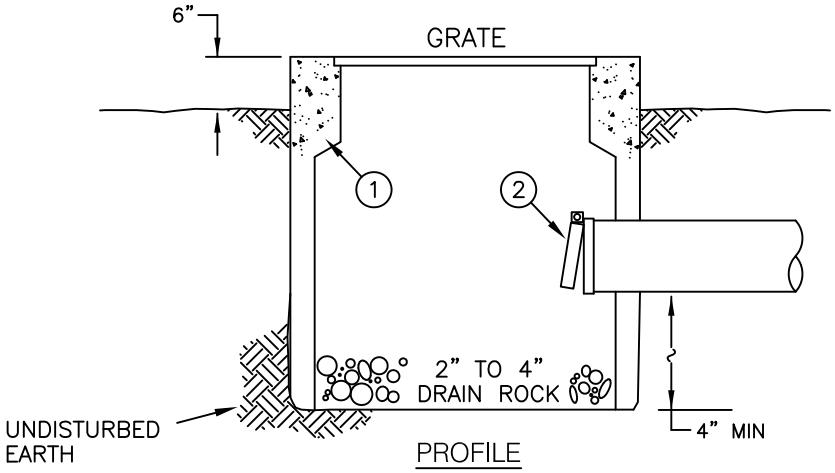
CALAVERAS COUNTY WATER DISTRICT

WATER DETAILS
1" SERVICE WITH METER BOX

DRAWN BY: CCWD STAFF	SCALE: NONE	CCWD STANDARD DRAWING NO.
APPROVED: C. PALMER	DATE: DEC. 2015	W07



PLAN



PROFILE

ITEM #	DESCRIPTION
1	2'x2' DRAINAGE INLET BOX W/ FRAME AND GRATE
2	FLAP VALVE

CALAVERAS COUNTY WATER DISTRICT

WATER DETAILS
DISCHARGE BOX

DRAWN BY: CCWD STAFF	SCALE: NONE	CCWD STANDARD DRAWING NO.
APPROVED: CHARLES PALMER	DATE: DEC 2015	W14