STANDARD SPECIFICATIONS FOR CONSTRUCTION

SANTA CLARITA VALLEY WATER AGENCY

2019

SANTA CLARITA VALLEY WATER AGENCY

POTABLE WATER SYSTEM
CONSTRUCTION MANUAL

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PREFACE

The General Notes, Specifications and Standard Drawings contained herein set minimum standards for working relationships, workmanship and quality. These documents are provided as construction standards for proposed improvements or additions to the Santa Clarita Valley Water Agency (SCVWA) potable water system.

Use of these documents should not be construed as a substitute for engineering each separate project. Each project will have calculations, specifications and drawings prepared by an appropriately State of California licensed engineer.

General Water Notes

The following general water notes shall be on every potable water plan, from time to time the agency has the right to add additional notes as needed for engineered projects.

1. ALL WORK AND MATERIALS SHALL BE APPROVED BY SCVWA AND SHALL BE IN ACCORDANCE WITH THE MOST CURRENT STANDARD SPECIFICATION FOR PUBLIC WORKS CONSTRUCTION (SSPWC) "GREENBOOK", LATEST EDITION SCVWA STANDARD SPECIFICATIONS, STANDARD DRAWINGS, WATER ORDINANCE, RULES AND REGULATIONS, AND AWWA STANDARDS. THE CONTRACTOR SHALL HAVE A SET OF SCVWA STANDARD SPECIFICATIONS AND APPROVED PLANS ON THE JOB SITE AT ALL TIMES.

2. UNLESS OTHERWISE INDICATED ON THE PLANS OR SCVWA, PIPE STORAGE, HANDLING, LAYING AND JOINTING SHALL BE PERFORMED IN ACCORDANCE WITH AWWA M23 (PVC) AND AWWA M41 (DIP) AND THE PIPE MANUFACTURER'S PUBLISHED INSTALLATION INSTRUCTIONS, WHICH SHALL BE SUBMITTED WITH THE PIPE MATERIAL SUBMITTAL. THE USE OF A "COME ALONG" OR SIMILAR PULLING DEVICE SHALL BE USED FOR ASSEMBLY OF PVC PIPE, THE USE OF A BACKHOE OR OTHER POWERED EQUIPMENT SHALL NOT BE PERMITTED.

3. PRIOR TO PROJECT ACCEPTANCE, ALL PROPERTY GRANT DEED(S) AND EASEMENT DEED(S) SHALL BE CONVEYED TO SCVWA AND RECORDED BY THE COUNTY OF LOS ANGELES.

4. IT IS THE CONTRACTORS RESPONSIBILITY TO HAVE A PERSON TRAINED AS A COMPETENT PERSON IN EXCAVATION ON-SITE DURING ALL EXCAVATION ACTIVITIES.

5. IT IS THE OWNER'S AND/OR DEVELOPER'S RESPONSIBILITY TO DETERMINE THAT THE REQUIRED FIRE FLOW IS AVAILABLE. ALL IMPROVEMENTS ARE AT THE EXPENSE OF OTHERS AND SUBJECT TO SCVWA APPROVAL.

6. PRIOR TO COMMENCING ANY WORK, THE CONTRACTOR SHALL CALL DIGALERT (811) TO LOCATE EXISTING UTILITIES. THE CONTRACTOR IS RESPONSIBLE FOR POTHOLING AND SURVEYING ALL CONNECTION POINTS AND CROSSINGS PRIOR TO SHOP DRAWING SUBMITTAL AND THE START OF CONSTRUCTION AT NO ADDITIONAL COST TO SCVWA. CONTRACTOR IS RESPONSIBLE FOR ACQUIRING ALL THE NECESSARY PERMITS BEFORE ANY WORK BEGINS.

7. THE CONTRACTOR SHALL APPLY FOR INSPECTION IN WRITING FROM SCVWA (661) 259-2737 AT LEAST 5 SCVWA WORKING DAYS BEFORE STARTING WORK ON THIS PROJECT. THE CONTRACTOR SHALL MAKE ARRANGEMENTS FOR INSPECTION EACH DAY, AT LEAST 24 HOURS IN ADVANCE.

8. DISINFECTION: CONTRACTOR SHALL TAKE ALL MEASURES NECESSARY TO ASSURE SANITARY INSTALLATION OF ALL FACILITIES. CONTRACTOR SHALL ENDEAVOR TO KEEP ALL DIRT, RODENTS, INSECTS, ETC, AWAY FROM SURFACES TO BE EXPOSED TO DOMESTIC WATER. TEST PLATES SHALL BE INSTALLED BEFORE PRESSURE TESTING AND DISINFECTION. ISOLATION VALVES SHALL BE KEPT CLOSED AT ALL TIMES UNTIL SATISFACTORY COMPLETION OF PRESSURE TEST, DISINFECTING, FLUSHING AND BACTERIOLOGICAL TEST. CONTRACTOR SHALL NOTIFY SCVWA IN WRITING 5 SCVWA WORKING DAYS IN ADVANCE OF ANY DESIRED: PROJECT TESTING, INCLUDING FLUSHING, PRESSURE TESTING, DISINFECTION TESTING, AND BACTERIOLOGICAL SAMPLING OF NEW WATER MAINS; OR OPERATION OF ISOLATION VALVES. VALVES SHALL BE OPERATED ONLY BY SCVWA PERSONNEL. DEVELOPER/CONTRACTOR SHALL COMPLY WITH AWWA STANDARDS FOR FLUSHING, PRESSURE TESTING, AND DISINFECTION. BACTERIOLOGICAL TEST SAMPLING

SHALL BE SCHEDULED ONLY ON MONDAY THROUGH THURSDAY. DESIGN MAXIMUM OPERATING PRESSURE FOR THE PROPOSED PIPELINE IS XXX PSI. HYDROSTATIC TEST PRESSURE SHALL BE XXX PSI.

9. THE CONTRACTOR SHALL SUBMIT A PROJECT TESTING PLAN TO SCVWA FOR REVIEW AND APPROVAL PRIOR TO THE START OF CONSTRUCTION, INCLUDING: PRESSURE TESTING PLAN, FLUSHING PLAN, AND DISINFECTION PLAN. THESE PLANS SHALL COMPLY WITH AWWA C 651 STANDARDS.

10. CONTRACTOR SHALL NOTIFY SCVWA A MINIMUM OF FIVE (5) SCVWA WORKING DAYS PRIOR TO INTERRUPTION OF WATER SERVICE.

11. DEVELOPERS/CONTRACTOR SHALL COMPLY WITH ALL RULES AND REGULATIONS OF APPLICABLE AGENCIES.

12. DEVELOPERS/CONTRACTOR SHALL APPLY FOR INSTALLATION OF A TEMPORARY CONSTRUCTION WATER METER AND SHALL COMPLY WITH SCVWA SPECIFICATIONS REGARDING CONSTRUCTION OF TEMPORARY WATER SERVICE.

13. WHERE FIRE HYDRANTS ARE INSTALLED OR UPGRADED, THE CONTRACTOR SHALL INSTALL REFLECTORIZED, RAISED PAVEMENT MARKERS (STIMSONITE HYDRANT SPOTTER), ALSO CALLED "BLUE DOTS". A TWO-PART EPOXY ADHESIVE SHALL BE USED TO INSTALL THE MARKERS. ONE MARKER SHALL BE INSTALLED OPPOSITE EACH FIRE HYDRANT, APPROXIMATELY 6 INCHES OFFSET FROM STREET CENTERLINE ON THE HYDRANT SIDE OF THE STREET.

14. WATER METER LINES SHALL BE INSTALLED PERPENDICULAR TO WATER MAINS OR PROPERTY LINES AND SHALL NOT TO BE LOCATED IN DRIVEWAYS AND/OR CUSTOMER'S WALKWAYS OR HARDSCAPE.

15. DEVELOPER/OWNER SHALL BE RESPONSIBLE TO PROVIDE SURVEY STAKES TO CORRECTLY LOCATE THE WATER FACILITIES. SURVEY STAKES SHALL PROVIDE GRADE AND ALIGNMENT FOR USE BY THE CONTRACTOR TO CONSTRUCT THE FACILITIES. SURVEY CUT SHEETS MUST BE PROVIDED TO SCVWA.

16. FITTINGS SUBJECT TO THRUST SHALL BE INSTALLED WITH CONCRETE THRUST BLOCK RESTRAINTS POURED AGAINST UNDISTURBED SOIL OF TRENCH WALL. SIZES OF THRUST BLOCKS SHALL BE PER SCVWA STANDARDS.

17. THE CONTRACTOR SHALL PROTECT IN PLACE ALL EXISTING SEWER, STORM DRAIN, GAS, AND ELECTRICAL SUBSTRUCTURES INCLUDING LATERAL CONNECTIONS. ALL DAMAGES SHALL BE REPAIRED AND/OR REPLACED AT THE CONTRACTOR'S EXPENSE.

18. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING CERTIFIED COMPACTION TEST RESULTS AT A MINIMUM OF 100 L.F. INTERVALS FOR THE TRENCH BACKFILL. TEST SHALL BE CONDUCTED FOR SUBBASE AND AT GRADE IN ACCORDANCE TO SCVWA STANDARD SPECIFICATIONS AND SECTION 211 OF SSPWC. THE AGENCY RESERVES THE RIGHT TO REQUIRE ADDITIONAL TEST AS DETERMINED BY THE PROJECT ENGINEER OR INSPECTOR.

19. BARRICADES IN ACCORDANCE WITH SCVWA STANDARD SHALL BE INSTALLED AT FIRE HYDRANT AND OTHER FACILITIES NOT LOCATED BEHIND STANDARD CURB FACE, OR AS REQUIRE BY THE AGENCY INSPECTOR.

20. ALL MATERIAL USED AND ALL WORK TO BE PERFORMED SHALL BE IN ACCORDANCE WITH AWWA AND NSF 61 STANDARDS.

21. MINIMUM REQUIRED COVER IS 36" FOR ALL WATER MAINS AND SERVICES UNLESS OTHERWISE DIRECTED BY THE AGENCY. MAXIMUM DEPTH IS 60" UNLESS OTHERWISE DIRECTED BY THE AGENCY. INSTALLATION MUST COMPLY WITH REGULATIONS FOR PIPELINE SEPARATION.

22. "W" SHALL BE IMPRINTED ON CURB FACE AT EACH SERVICE LATERAL (METER) LOCATION.

23. WHERE FEASIBLE, FIRE HYDRANT RUNS AND SERVICES SHALL BE STRAIGHT FROM VALVE TO HYDRANT BURY. ALL HYDRANT RUNS SHALL HAVE FULLY RESTRAINED MECHANICAL JOINTS, OR AS REQUIRED BY THE AGENCY INSPECTOR.

24. CONTRACTOR SHALL WARRANTY ALL WORK FOR 24 MONTHS AFTER DATE OF ACCEPTANCE BY THE AGENCY'S GENERAL MANAGER, CHIEF ENGINEER OR DESIGNEE.

25. NO-OX-ID OR BITUMASTIC PROTECTIVE COATING SHALL BE APPLIED TO ALL FITTINGS, NUTS, AND BOLTS.

26. ALL PIPE, FITTING, AND VALVE JOINTS SHALL BE RESTRAINED WITHIN THE DESIGNATED RESTRAINT LENGTHS INDICTED ON THE DRAWINGS. IF BENDS, VALVES OR OTHER FITTINGS NOT SHOWN ON THE PLANS ARE PROPOSED TO BE INCORPORATED DURING CONSTRUCTION, CONSULT WITH THE ENGINEER FOR PROPER RESTRAINT DISTANCES.

27. LOCATING WIRE ON ALL PIPING AND CONDUIT. COPPER TRACER WIRE SHALL BE PLACED CONTINUOUSLY CENTERED JUST ABOVE THE TOP CENTER OF THE PIPE FOR THE PURPOSE OF PROVIDING A CONTINUOUS SIGNAL PATH FOR ELECTRONIC PIPE LOCATIONS USED TO DETERMINE THE PIPE ALIGNMENT AFTER INSTALLATION. THE WIRE SHALL BE ELECTRONICALLY CONTINUOUS THROUGHOUT THE ENTIRE PIPE SYSTEM INCLUDING ADJACENT SERVICE LINE ASSEMBLIES. THE COPPER WIRE SHALL BE NO. 12 GAUGE SOLID STRAND WITH HMWPE INSULATION. THE WIRE SHALL BE BROUGHT TO THE SURFACE AT VALVE LOCATIONS AND SHALL BE ACCESSIBLE BY REMOVING THE VALVE CAN COVER. THE WIRE SHALL BE BROUGHT TO THE SURFACE PER THE AGENCY'S STANDARD DRAWINGS. THE WIRE SHALL ALSO BE TAPED OR SECURED IN PLACE BY MEANS OF A PLASTIC ADHESIVE TAPE, PLACED AT 1-FOOT INTERVALS. ALL SPLICED CONNECTIONS SHALL BE MADE USING A WIRE NUT, GREASE CAP, 3M (DBR/Y6) OR EQUAL. CONTRACTOR SHALL PERFORM ELECTRICAL CONTINUITY TEST AND PROVIDE THE AGENCY WITH THE RESULTS THEREOF.

28. ALL FITTINGS MUST BE C-110 CAST DUCTILE IF DEPTH EXCEEDS 60" OR IF DEPTH IS LESS THAN 36", OTHERWISE USE C-153. ALL FITTINGS SHALL BE DOUBLE CEMENT MORTAR LINED, PER AWWA C104, ASPHALTIC LINING IS NOT ACCEPTABLE.

29. ALL PIPES, FITTINGS, AND FIXTURES CONVEYING WATER SHALL BE "LEAD FREE" AS DEFINED BY AB 1953.

30. PIPE CONNECTIONS MADE BETWEEN DISSIMILAR METALS REQUIRE INSULATOR GASKETS AND BOLT KITS.

31. S.C.E. FACILITIES SHOWN ON THIS PLAN (IF APPLICABLE) ARE FOR BIDDING AND INFORMATIONAL PURPOSES ONLY. REFER TO S.C.E. DRAWINGS FOR S.C.E. FACILITIES CONTRACTOR SHALL BE REQUIRED TO PROVIDE AND INSTALL.

32. ALL RUBBER MATERIAL THAT WILL COME INTO CONTACT WITH WATER, INCLUDING BUT NOT LIMITED TO GASKETS MUST BE E.P.D.M. (OR COMPATIBLE WITH CHLORAMINES).

33. ENCASE ALL DUCTILE IRON PIPE, VALVES AND FITTINGS WITH ONE LAYER OF 8-MIL POLYETHYLENE ENCASEMENT (V-BIO TYPE). POLYETHYLENE FILM SHALL BE MANUFACTURED OF VIRGIN POLYETHYLENE MATERIAL CONFORMING TO THE MATERIAL REQUIREMENTS OF THE LATEST REVISION OF ANSI/AWWA C105/A21.5.

34. TRAFFIC CONTROL SHALL BE IN ACCORDANCE WITH THE CURRENT STATE OF CALIFORNIA MANUAL OF TRAFFIC CONTROLS, OR PER LOCAL JURISDICTION REQUIREMENTS.

35. CONTRACTOR AND ITS SUBCONTRACTORS SHALL MAINTAIN ACCESS TO PRIVATE PROPERTY AT ALL TIMES.

36. ALL CONTRACTORS AND SUBCONTRACTORS PERFORMING WORK SHOWN ON OR RELATED TO THESE PLANS SHALL CONDUCT THEIR OPERATIONS SO THAT ALL EMPLOYEES ARE PROVIDED A SAFE PLACE TO WORK AND THE PUBLIC PROTECTED. ALL CONTRACTORS AND SUBCONTRACTORS SHALL COMPLY WITH THE LATEST SAFETY AND HEALTH REGULATIONS OF CAL-OSHA AND THE U.S. DEPARTMENT OF LABOR, AND WITH THE STATE OF CALIFORNIA DEPARTMENT OF INDUSTRIAL RELATIONS "CONSTRUCTION SAFETY ORDERS".

37. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DAMAGE TO THE EXISTING UTILITIES AND RELATED EQUIPMENT, STRUCTURES, IMPROVEMENTS, AS A RESULT OF ITS OPERATIONS AND WILL BE REQUIRED TO REPAIR OR REPLACE SAME TO THE SATISFACTION OF AND AS DIRECTED BY THE ENGINEER AND/OR SCVWA.

38. ALL UTILITIES AND OTHER STRUCTURES ALONG THE WATER LINES MUST BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO THE START OF CONSTRUCTION. ONCE THESE UTILITIES AND STRUCTURES HAVE BEEN EXPOSED BY THE CONTRACTOR, THE CONTRACTOR SHALL TAKE MEASUREMENTS AND VERIFY THEIR LOCATION WITH SCVWA'S REPRESENTATIVE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROTECT ALL EXISTING FACILITIES, WHETHER OR NOT THEIR EXISTENCE OR APPROXIMATE LOCATIONS ARE SHOWN ON THESE PLANS, FROM DAMAGE DURING CONSTRUCTION. ALL UTILITY CROSSINGS SHALL BE POTHOLED (100' AHEAD) PRIOR TO ANY TYPE OF INSTALLATION IN ORDER TO ADJUST ALIGNMENT IF NEEDED.

39. UNLESS OTHERWISE NOTED ON THE PLANS, ALL DI PIPE AND FITTINGS SHALL BE PRESSURE CLASS 350. UNLESS OTHERWISE NOTED ON THE PLANS, ALL PVC WATER MAINS SHALL BE PRESSURE CLASS 235 PSI PER AWWA C-900.

40. RESTRAINED JOINTS FOR PVC PIPE SHALL USE RIEBERLOK PVC RESTRAINING GASKETS OR APPROVED EQUAL WITH EPDM RUBBER. THE CONTRACTOR SHALL CONTACT RIEBERLOK

(DAVID TAPP AT 303-259-7338) AND ARRANGE FOR A RIEBERLOK REPRESENTATIVE TO BE PRESENT WHEN INITIALLY INSTALLING THIS PRODUCT, PRIOR TO REMOVAL OF THE ORIGINAL GASKET FROM THE PVC PIPE BELL DELIVERED FROM THE FACTORY.

41. MINIMUM HORIZONTAL AND VERTICAL SEPARATION OF PROPOSED WATER PIPELINE FROM EXISTING FACILITIES SHALL BE IN ACCORDANCE WITH SECTION 64572, TITLE 22, CALIFORNIA CODE OF REGULATIONS (CCR) FOR SEPARATION REQUIREMENTS OR SCVWA REQUIREMENTS, WHICHEVER IS MORE STRINGENT. ANY WAIVERS TO THE SEPARATION REQUIREMENTS SHALL BE APPROVED BY THE DIVISION OF DRINKING WATER (DDW) PRIOR TO THE START OF CONSTRUCTION IN ACCORDANCE WITH SECTION 645551.100, TITLE 22, CCR.

42. PRIOR TO PERFORMING ANY INTERCONNECTION WORK, THE CONTRACTOR SHALL SUBMIT A WORKING SCHEDULE AND WORK PROCEDURE PLAN TO SCVWA'S ENGINEER/INSPECTOR. THE CONTRACTOR SHALL NOT PERFORM ANY INTERCONNECTION WORK UNTIL PERMISSION FOR THIS SCHEDULE AND PLAN HAS BEEN APPROVED BY SCVWA'S ENGINEER/INSPECTOR.

43. CONTRACTOR SHALL RESTORE ALL PAINTED STREET MARKINGS IN KIND IF DISTURBED.

44. UPON COMPLETION OF THE PROJECT AND PRIOR TO RETENTION PAYMENT, CONTRACTOR SHALL PROVIDE SCVWA WITH PLANS (PRINTS AND DIGITAL FORMAT) OF ALL "AS-BUILT" CONDITIONS INCLUDING THE STATIONING OF SERVICE LATERAL CONNECTIONS AND PAD ELEVATIONS AS A CONDITION OF FINAL APPROVAL. A SET OF PLANS SHALL BE "REDLINED" SHOWING ALL DEVIATIONS FROM THE ORIGINAL PLANS, QUANTITIES AND TYPES OF ALL MATERIALS, ALIGNMENT AND DEPTH OF PIPELINES AND DIMENSIONS TO ALL FITTINGS. IN ADDITION, THE CONTRACTOR SHALL PROVIDE ELECTRONIC GLOBAL POSITIONING SYSTEM (GPS) DATA POINTS FOR THE PIPELINE AT ALL JOINTS AND AT ALL FITTINGS, VALVES, AIR VALVES, HYDRANTS, BLOWOFFS AND OTHER APPURTENANCES IN ACCORDANCE WITH SCVWA STANDARDS FOR DATA COLLECTION. HORIZONTAL DATA SHALL BE PROVIDED IN NAD 83, CALIFORNIA ZONE 5, AND VERTICAL DATUM SHALL BE NAVD 88.

45. ANY SURVEY MONUMENTS DESTROYED AS A RESULT OF CONSTRUCTION ACTIVITIES SHALL BE RESTORED IN KIND BY A LICENSED LAND SURVEYOR AND THE APPROPRIATE CORNER RECORD MUST BE FILED WITH THE COUNTY OF LOS ANGELES. IT IS THE CONTRACTORS RESPONSIBILITY TO NOTE ANY MONUMENTS DESTROYED DURING CONSTRUCTION ACTIVITIES.

46. FOR ANY NEW FACILITY CONSTRUCTED (I.E., TANK(S), PUMP STATION(S), WATER MAINS, ETC.) THE DEVELOPER MUST PROVIDE SCVWA WITH A RECORD OF SURVEY AND PROPER MONUMENTS MUST BE SET, AT PROPERTY CORNERS, AND ALL EASEMENTS MUST BE STAKED BY A LICENSED LAND SURVEYOR.

47. AT THE END OF DAY CONSTRUCTION, THE CONTRACTOR SHALL COVER THE END OF LINE "WATER PIPELINE" AND ANY WATER APPURTENANCES WITH PLASTIC WRAP AND TAPE AND THE CONTRACTOR SHALL TAKE ANY OTHER MEASURE NECESSARY TO PROTECT THE INTEGRITY, HEALTH AND SAFETY OF THE "WATER PIPELINE" BEING WORKED ON.

48. ALL WATER SYSTEM INSTALLATION MUST BE PERFORMED BY A CONTRACTOR POSSESSING A VALID CLASS "A" OR "C-34" STATE OF CALIFORNIA CONTRACTOR'S LICENSE.

49. ALL WATER SERVICE CONNECTIONS (DOMESTIC, FIRE & IRRIGATION) MUST HAVE APPROPRIATE BACKFLOW PROTECTION DETERMINED BY AN SCVWA CROSS-CONNECTION SPECIALIST INSPECTOR. BACKFLOW ASSEMBLIES MUST BE INSPECTED PRIOR TO INSTALLATION AND AFTER INSTALLATION, NO EXEMPTIONS. ALL BACKFLOWS ASSEMBLIES SHALL BE TESTED BY A LOS ANGELES COUNTY CERTIFIED BACKFLOW TESTER BEFORE SERVICE CAN BE TURNED ON. CONTACT SCVWA'S CHRIS SAENZ (CROSS-CONNECTION CONTROL SPECIALIST) AT 661-705-7261 FOR ADDITIONAL INFORMATION AND COORDINATION ON BACKFLOWS.

50. ENCASEMENTS SHALL BE ONE SACK SLURRY PER LATEST "GREENBOOK" STANDARD, UNLESS OTHERWISE DIRECTED TO USE 2500 PSI CONCRETE PER AGENCY'S REPRESENTATIVE.

51. STATIONING IS BASED ON WATER PIPELINE CENTERLINE AND NOT STREET CENTERLINE.

52. CONTRACTOR SHALL PROVIDE IDENTIFICATION TAGS ON ALL VALVES, BLOWOFFS, HYDRANTS AND AIR VALVE ASSEMBLIES IN ACCORDANCE WITH SCVWA STANDARDS.

Standard Specifications

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PREFACE

The General Notes, Specifications and Standard Drawings contained herein set minimum standards for working relationships, workmanship and quality. These documents are provided as construction standards for proposed improvements or additions to the Santa Clarita Valley Water Agency (SCVWA) water system.

Use of these documents should not be construed as a substitute for engineering each separate project. Each project will have calculations, specifications and drawings prepared by an appropriately State of California licensed engineer

1.0 GENERAL PROVISIONS

1.1 GENERAL

These specifications are to be used to establish standards of work, materials, and construction procedures for improvements to the water system of the Santa Clarita Water Agency (Agency). These specifications are intended to establish general requirements and technical standards for all pipeline work within the Agency. The Agency reserves the right to make changes to these specifications at any time.

1.2 SUPPLEMENTARY SPECIFICATIONS

Wherever reference is made within these documents to certain standard specifications, the reference shall be construed to mean the standards, with all subsequent amendments, changes, or additions as thereafter adopted and published that are in effect at the date of approval of the plans and specifications. Standard specifications and documents referenced herein and their abbreviations include, without limitation, the following:

AASHTO	American Association of State Highway and Transportation Officials
ACI	American Concrete Institute
AI	The Asphalt Institute
AISC	American Institute of Steel Construction, Inc.
AISI	American Iron and Steel Institute
ANSI	American National Standards Institute (formerly USASI, USAS, ASA)
ASCE	American Society of Civil Engineers
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
AWS	American Welding Society
AWWA	American Water Works Association
CDDW	California Department of Drinking Water
EPDM	Ethylene Propylene Dienemonomer Rubber
HMWPE	High Molecular Weight Polyethylene
MIL	Military Specification (leading symbol)
NFPA	National Fire Protection Association
OSHA	Occupational Safety and Health Administration, U.S. Dept. of Labor
SSPC	Steel Structures Painting Council State
SSPWC	Standard Specification for Public Works Construction
Spec.	California Standard Specifications, Department of Transportation, Division of Highways
UL	Underwriters' Laboratories, Inc.

1.3 DEFINITION OF TERMS

Whenever in these specifications or other documents where these specifications govern and the following terms are used, they shall be defined as follows:

- Acceptance
  Shall mean that the water system has been installed to Agency specifications and the agency has issued a notice of completion and has accepted the facilities, starting the one (2) year guarantee period.

- Agreement
  The written Agreement between the Agency and the Applicant providing for the construction of the improvement by the Applicant or his Contractor.

- Applicant
  Shall mean any property owner, firm, or corporation who makes application for Agency service or enters into an Agreement with the Agency.

- Board
  The Board of Directors of the Santa Clarita Valley Water Agency.

- Contract
  A written Agreement executed by and between the Applicant and the Contractor covering the performance of the work.

- Contractor
  The individual, partnership, association, corporation, entity (public or private), or combination thereof, who has entered into a Contract with the Applicant or into a Public Contract with the Agency for performance of the work pursuant to these specifications. Except as to Public Contracts, wherever reference is made to Contractor in the Specifications, such reference shall include the Contractor in his own capacity and in his capacity as authorized agent and representative of the Applicant. Accordingly, where the Specifications require the Contractor to perform certain acts, or hold the Contractor responsible for certain costs, expenses or liabilities, or the like, such requirements and responsibilities shall be equally applicable to and binding upon the Applicant.

- Agency
  Santa Clarita Valley Water Agency

- Engineer
  A registered civil engineer appointed by the Agency acting either directly or through his properly authorized agent, engineers, assistants, inspectors, and superintendents, unless otherwise qualified.

- Final Completion
  Shall mean the water system is complete and active, street improvements are complete and required title insurance policies for easements, if any, are provided. The Developer shall contact the Agency's Inspector and request a punch list.

- Fire System Activation Letter
  The letter informing Los Angeles County Fire Department that the water system and fire hydrants are available for protection. As-built drawings must be submitted, easement and/or deed documents must be recorded, and title insurance policies to said easements and/or deeds provided prior to issuance of letter. Also, pipe identification wires and compound meters shall be tested if included in the project.

- Inspector – Owner's Representative
  The personal representative of the Agency.

- Plans
  The official scale and full-size approved detail drawings, or exact reproductions thereof, which show location, character, dimensions, elevations, and details of the work.

- Specifications
  The STANDARD SPECIFICATIONS FOR CONSTRUCTION published by Santa Clarita Valley Water Agency. Should other specifications used for public contracts conflict with said Standard Specifications, the job-specific specifications will govern.

- Standard Drawings
  The Standard Drawings, a part of the STANDARD SPECIFICATIONS FOR CONSTRUCTION published by Santa Clarita Valley Water Agency, unless otherwise qualified.

- Work
  All labor, materials, equipment, transportation, supervision, or other facilities necessary to complete the improvement provided for in the Agreement.

- Private Contract Work
  Work done pursuant to a Contract between the Contractor and the Applicant.

- Public Contract Work
  Work done pursuant to a Contract between the Contractor and the Agency.

- Private Engineer
  A registered civil engineer employed by the Applicant.

- Approved, Directed, Satisfactory, Proper, Acceptable, Required, Necessary and or Equal
  Shall be defined as considered approved, directed, satisfactory, proper, acceptable, required, necessary, or equal in the opinion of the Agency.

1.4 ABBREVIATIONS

The abbreviations used in the plans and specifications are abbreviations the meanings of which are established by general usage through the industry.

1.5 PLANS SUBMITTED BY PRIVATE ENGINEERS

First submittal of water improvement plans shall include a letter for Agency file and record purposes that transmits the following described documents, drawings, and material:

- A Conceptual Plan showing how the project will be served
- Two (2) prints of an approved tentative map
- One (1) copy of the conditions of approval of said tentative tract map
- Full name, address and telephone number of the developer
- The name of the project engineer representing the firm on the subject project
- Two (2) prints of the tentative map on which the approved, preliminary water system, including required connections to sources of supply, are legibly shown
- One time plan check deposit of five-hundred dollars ($500.00 minimum), but up to one hundred and fifty dollars ($150.00) per sheet, application fee $1000, if required SB610 fee $1,500, and SB221 fee $1,500
- Copies of any other maps, plans, surveys, fire department requirements, improvements, and etc. that will help expedite the preliminary plan check and that will be required by Santa Clarita Valley Water Agency prior to approving plans
- After final plan check is completed, submit two (2) sets of Mylars and an 11 X 17 copy in digital format. (See Section No. 1.5.2)

1.5.1 A complete set of plans shall include the following:

1.5.1.1 A cover sheet containing the following:

- Benchmark
- Basis of Bearing
- General Notes
- Typical street cross section
- One (1) inch equals three-hundred (300) feet map showing lot lines, existing and proposed water mains, water main sizes, valves, fire hydrant locations, sheet numbers and easements
- Vicinity map
- Full list of materials (size and length of pipe)
- Name, address and telephone number of Engineer and Developer
- Approval and revision blocks
- Fire department approval stamped
- Profile side view
- Number of services and size

1.5.1.2 Plan and profile sheets containing, but not limited to, the following:

- Horizontal scale of one (1) inch equal forty (40) feet
- Vertical scale of one (1) inch equal four (4) feet
- Show all existing and proposed utilities
- Existing and future surface profiles

- Approval and revision blocks
- North arrow
- Curb, gutter and sidewalk
- Property lines, lot lines and tract boundaries
- Complete dimensioning for entire right-of-way of subject street and adjoining streets
- Waterline stationing of all fittings, appurtenances, curves and intersections
- All proposed service lines and fire hydrants
- Side profile view showing all sewer and utility crossings, the proposed water main, minimum cover, waterline stationing, and fittings for transitions and invert elevations of conflicting utilities
- Pipe curve data
- Detail views as necessary for transitions, etc.
- Label and dimensioning for proposed water main
- Show all easement and deeds to be dedicated to the Agency
- Curbs, existing and/or proposed curbs shall be identified with dimensions from the street centerline shown
- Existing and proposed improvements shall be shown including but not limited to, curb and gutter, edge or pavement, power poles, driveways, sidewalks and fences
- All submitted plans shall be civil engineering drawings not an architectural or landscape drawing

1.5.1.3 Plans and profile sheets in digital format

- Be in NAD 1983 state plane zone 5 coordinates or current industry standard accepted by the Agency
- Be to actual scale
- In decimal degrees – not architectural units
- The main should not be broken for aesthetic purposes (i.e., gaps at valves, gaps for text) the main should be continuous and broken only at intersections
- Facility points (valves, fire hydrants, blow offs, etc.) should be snapped to the line or the end point of the main line
- The acceptable format for digital submissions shall be AutoCAD (DWG) and ESRI ArcGIS file types

1.5.1.4 Agency design criteria for new water system improvements include the following:

- Water mains shall be five (5) feet from face of curb, five (5) feet horizontal, and one (1) foot vertical separation from other utilities. For sewer, see Standard Drawing No. 124.
- Project shall have two (2) points of connection/sources of supply.
- All water mains must loop (no dead ends).
- Valves shall be located at right-of-way and property line prolongations.
- High points shall have air/vacuum release valves.
- Low points shall have a blow off air release valve.
- All fittings shall have restrained joints; extend restrained joints for at least 2 pipe joints on both sides of the fitting.

- Fire hydrants to be located on the same side of the street as the main wherever possible. Blue dots to be placed six (6) inches from centerline toward fire hydrant.
- Hydrant runs will be fully restrained from valve to bury.

A plan layout shall also be provided in 300 scale per Section 1.5.1 showing all property lines and approved water line locations.

Plans for private contract work shall be checked by the Agency and shall be approved by the Agency prior to starting work.

The plan-checking fee of five hundred dollars ($500.00 minimum), or up to one hundred and fifty dollars ($150.00) per sheet, must be paid to the Agency prior to the first plan check. The remaining plan checking fee must be paid prior to further plan checking. Plan checking costs in excess of the deposit must be paid prior to picking up the approved plans.

Plans submitted to the Agency for approval shall have thereon the name, phone and registration number of the private engineer who prepared the plans and the name and phone number of the engineering firm and the name, phone and registration number of the private engineer under whose direction the plans were prepared and the name and phone number of the developer. Such plans shall be free of advertising, insignia, labels, emblems, seals, or other markings not relevant to the work. Plans are to be presented in a neat, concise, and professional condition.

Upon the approval of the plans, the original tracings and a predetermined number of sets of the plans must be returned to the Agency. Approval of plans by the Agency will not relieve the Applicant or private engineer of any responsibility because of errors in the plans either by commission or omission. Such errors, when brought to the attention of the private engineer by the Agency, shall be promptly remedied as herein provided.

After plans have been approved and filed, changes may be made in the plans only upon approval of the Agency. In order to obtain such approval, the private engineer shall first submit two sets of prints showing the proposed changes. After approval of changes, two sets of Mylar and a digital copy of the approved revised plans shall be submitted to the Agency.

If construction operations are not started within twelve (12) months of the date of approval, the plans must be re-submitted for plan check prior to construction. The re-submitted plans will be checked for conformance with the criteria current at the time of re-submittal. The cost of rechecking plans will be paid by the developer as determined in section 1.5.

The private engineer shall prepare "RECORD DRAWINGS" on prints of the latest revised plans showing clearly all changes in location and elevation of constructed improvement prior to the project being considered complete. These drawings shall show the configuration, manufacturer, and date of manufacture of all valves.

The private engineer shall submit the "RECORD DRAWINGS" to the Agency Manager for final inspection and approval. Upon receipt of such approval, the private engineer shall correct and deliver the "as-built" Mylars and digital plans to the Agency Manager not later than

thirty (30) days after receipt of such approval. If there are multiple pages to the As-Builts, there should be one over all drawing with water facilities.

1.6 EASEMENT DOCUMENTS REQUIREMENTS

All easement documents are to be prepared and submitted on the Agency's approved format and provided along with plans submitted for plan check review per Appendix B and C.

Prior to the approval of water system plans, the easement documents must be approved as to form by the Agency.

Grant deeds for easements are required to be executed by the grantor, resubmitted to the Agency, and have the Affidavit of Acceptance by the Agency attached to same prior to the tie-in of the water system.

All required easements will be recorded and a Title Insurance Policy for same in the minimum amount of $25,000.00 provided to the Agency.

1.7 COMPLIANCE WITH LAWS AND REGULATIONS

The Contractor shall keep himself informed of all laws, ordinances, and regulations in any manner affecting those employed on the work, or the materials used in the work, and of all orders and decrees of bodies or tribunals having any jurisdiction or authority over the same. The Contractor shall at all times and at no expense to the Agency observe and comply with, and shall require all his agents, employees, contractors, and subcontractors to observe and comply with all such applicable laws, ordinances, regulations, orders, and decrees in effect or which may become effective before completion of the work.

Unless otherwise explicitly provided in these specifications, all permits and licenses required by other agencies necessary to the prosecution of the work shall be secured by the Agency.

1.8 PROTECTION OF PERSONS AND PROPERTY

The Contractor shall provide for the protection of all persons and property as herein specified. Attention is called to "General Industry Safety Orders" and "Construction Safety Orders" of the California State Department of Industrial Relations, Division of Industrial Safety, to which the Contractor is required by law to conform. The Contractor shall provide himself with copies of these rules and orders. To the extent applicable, the Contractor shall also comply with the provisions of the Safety and Health Regulations for construction promulgated by the Secretary of Labor under Section 107 of the Contract Work Hours and Safety Standards Act, as set forth in Title 29 C.F.R.

The Contractor shall take all necessary measures to protect the work and prevent accidents during the construction. The contractor shall provide and maintain sufficient night lights, barricades, guards, temporary sidewalks, temporary bridges, danger signals, watchmen, and necessary appliances and safeguards to properly safeguard life and property. The Contractor shall also protect all excavations, equipment, and materials with barricades and danger signals so that the public will not be endangered.

The Contractor shall also take care of drainage water from the construction operations, and of storm water and wastewater reaching the right-of-way from any source, so that no damage will be done to the trench, pipe, or other structures. The Contractor shall be responsible for any damage to persons or property on or off the right-of-way due to such drainage water, or to the interruption or diversion of such storm or wastewater on account of the Contractor's operations.

The Contractor shall so conduct his operations as to offer the least possible obstruction and inconvenience to traffic, and shall have under construction no greater amount of work then can be handled properly with due regard for the rights of the public. All traffic shall be permitted to pass through the work with as little delay and inconvenience as possible unless otherwise authorized by the County of Los Angeles or the City of Santa Clarita.

Convenience of abutting property owners shall be provided for as far as practicable. Convenient access to mailboxes, driveways, houses, and buildings adjoining the work, as well as fire hydrants, shall be maintained and temporary approaches to intersections shall be provided and kept in good condition. When a section of surfacing, pavement or a structure has been completed, it shall be opened for use by traffic at the request of the Agency. In order that unnecessary delay to the traveling public may be avoided, the Contractor, when so ordered, shall provide competent flagmen whose sole duty shall consist of directing traffic either through or around the work.

Care should be taken to preserve and protect all public and private property and facilities in and around the work site. The Contractor shall be liable for the complete cost of repairing or replacing all such property and facilities damaged or destroyed during the progress of the work.

The Contractor shall provide such dust control equipment and methods as may be required to protect adjacent property from annoyance or damage from dust caused by his operations. Failure to control such dust shall be cause for the Engineer (or a designated Representative) to stop the work until said dust is controlled, and the Contractor shall have no recourse to collect from the Agency for any loss of time or expense sustained by him due to such suspension of work.

No valve or other control on the existing system shall be operated for any purpose by the Contractor unless said operation is under the direct supervision of Agency personnel. Any operation of Agency facilities without direct supervision of Agency personnel will be cause for the Agency to stop work on the project and will result in the issuance of an unauthorized use of water fine to the Contractor or Developer responsible. Any damage resulting from said operation will be repaired at the Contractor's expense. Otherwise, the Agency will operate all valves, hydrants, blow-offs, and curb-stops on the existing system. The Agency Inspector shall be notified 48 hours prior to the construction of tie-ins to existing lines.

1.9 PUBLIC NOTICE

- Notice of Starting Work:
  The Contractor shall provide and distribute to all occupants along the streets of the proposed work, printed notices 8-1/2 inches x 11 inches in size, with wording similar to that showing on the following page.

- Notice of Temporary Shutdown:
  Notice shall be given for temporary interruption of service to existing customers no later than forty-eight (48) hours prior to said interruption. Said note to be printed on 8-1/2 inches x 11 inches paper in format to be approved by the Agency prior to distribution.

(Example)

NOTICE

WITHIN THE NEXT FEW DAYS, WORK WILL BE STARTED ON THE INSTALLATION OF A WATER SYSTEM IN YOUR STREET.

The work may cause some inconvenience but will be of permanent benefit.

We shall appreciate your cooperation in the following matters:

1) Please be alert when driving or walking in the construction area.

2) Tools, materials, and equipment are attractive to children. For the safety of children, please keep them away.

3) Please report all inconvenience to the Foreman on the job, or call the office at the number given below.

The work is being performed by:
(Insert firm name, superintendent's name, address, and telephone number in this space.)

We will endeavor to complete this work as rapidly as possible and with a minimum of inconvenience to you.

_____
(Signed) Name of Firm

1.10 MATERIALS AND WORKMANSHIP

Unless otherwise specified, all materials incorporated in the work shall be new. Materials not otherwise designated by detailed specifications shall be of the best commercial quality, suitable for the purpose intended and approved by the Agency.

All workmanship shall be in conformance with the best trade practices. Particular attention shall be given to the appearance of exposed work. Any work or workmanship not conforming to the best practices shall be subject to rejection.

The Agency practices zero tolerance for graffiti, and it is the Contractor's responsibility to protect and ensure facilities are graffiti-free until acceptance.

1.11 PROJECT CLEAN-UP

An orderly job shall be maintained at all times. Tools, rubbish, and materials shall be picked up and stored in a workmanlike manner at all times. All material, etc., used during construction shall be removed from the vicinity of the completed work. Surfaces shall be returned to a condition acceptable to the Agency. All excess material shall be disposed of as directed by the Agency or removed from the work site.

1.12 GUARANTEE

All parts of the work shall be guaranteed against defective materials or workmanship and against settlement of backfill and any resulting damage to resurfacing for a period of one (1) year from the date of acceptance by the Board of Directors.

The expiration of the one (1) year guarantee period does not limit the developer's liability for work, which is done contrary to the plans and specifications.

When such defect or settlement is discovered requiring repairs to be made under this guarantee, all such repair work shall be done at no expense to the Agency within ten (10) days after written notice has been given by the Agency. Should the Contractor or Applicant fail to repair the work as directed within ten (10) days thereafter, the Agency may make the necessary repairs and charge the Developer or Applicant with the actual cost of all labor and materials required.

In the event such defect or settlement is discovered requiring immediate corrective action to be taken in the opinion of the Agency General Manager, the Agency shall have the right to repair or replace same and to take whatever other action the Agency deems appropriate to correct same and to charge the Developer with the actual cost incurred by the Agency.

1.13 FINAL COMPLETION

As a necessary condition to, and prior to Agency recognition of final completion of the work, the Applicant shall submit in duplicate to the Agency:

- An itemized cost breakdown of the work including cost per foot, and total footage installed, for each size and type of pipe installed; cost per each and total number of fire hydrants installed; and cost per each and total number installed for each size of service lateral and meter installed
- A bill of sale conveying, at no cost, to the Agency all facilities installed
- All easement documents recorded and title insurance policies issued
- A letter requesting a final walk-through or punch list and the completion of all items on said punch list

1.14 EQUAL OPPORTUNITY

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

The Contractor will not discriminate against any employee or applicant for employment because of race, color, religion, gender, ancestry, national origin, actual or perceived sexual orientation, marital status, age or disability. The Contractor will take affirmative action to ensure that applicants are employed and that employees are treated during employment without regard to their race, color, religion, gender, ancestry, national origin, actual or perceived sexual orientation, marital status, age or disability. Such action shall include, but not be limited to, the following: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of any or other forms of compensation; and selection for training, including apprenticeship. The Contractor agrees to post in a conspicuous place available to employees and applicants for employment, notices setting forth the provisions of this Equal Opportunity clause.

The Contractor shall, in all solicitations or advertisements for employees placed by or on behalf of the Contractor; state that all qualified applicants will receive consideration for employment without regard to race, color, religion, gender, ancestry, national origin, actual or perceived sexual orientation, marital status, age or disability.

The Contractor shall send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding a notice advising the said labor union or worker's representative of the Contractor's commitments under this section and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

When applicable to the project, the Contractor will comply with all provisions of Executive Order No. 11246 of September 24, 1965 and of the rules, regulations, and relevant orders of the Secretary of Labor.

- The Contractor will furnish all information and reports required by Executive Order No. 11246 of September 24, 1965 and by the rules regulations, and orders of the Secretary of Labor or pursuant thereto and will permit access to his books, records, and accounts by the administering agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

- In the event of the Contractor’s noncompliance with the Equal Opportunity clause of this Section or with any of the said rules, regulations, or orders, the Contract may be declared ineligible for further Government federally assisted construction contracts in accordance with procedure authorized in Executive Order No. 11246 of September 24, 1965 or by rule, regulations, or order of the Secretary of Labor, or as provided by law.

- The Contractor will include this Equal Opportunity clause in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to Section 204 of Executive Order No. 11246 of September 24, 1965 so that such provisions will be binding upon each subcontractor or vendor. The Contractor will take such

action with respect to any subcontract or purchase order as the administering agency may direct as a means of enforcing such provisions including sanctions for noncompliance; provided, however, that in the event the Contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as result of such direction by the administering agency, the Contractor may request the United States to enter into such litigation to protect the interests of the United States.

The Equal Opportunity requirements of Executive Order No. 11246 are not applicable to federally assisted contracts:

- Which do not exceed ten-thousand dollars ($10,000)
- Where work is to be performed entirely outside the United States and no recruitment of workers within the United States is involved; or
- Which are specifically exempt by the Secretary of Labor.

1.15 TRENCH SHORING AND SHEETING

In the event the work will entail construction of any trench or trenches or excavation or excavations that will be five (5) feet or deeper and into which a person will be required to descend, prior to commencing such construction, the Contractor shall obtain a permit from the California Division of Industrial Safety pursuant to Section 6501 of the California Labor Code. Said permit shall be posted at the job site prior to opening of the excavation. A copy of said permit shall be provided to the Agency prior to the start of construction or excavation requiring same.

In addition, and with respect to Public Contract work involving a Public contract price in excess of twenty-five thousand dollars ($25,000.00), if any such trenches or excavations will be entailed in the work, prior to commencing such construction, the Contractor shall also submit to the Agency for Agency approval a detailed plan showing the design of shoring, bracing, sloping, or other provisions to be made for worker protection from the hazard of caving ground during the excavation of such trench or trenches. If such plan varies from the shoring system standards established in Title 8, Article 6, California Division of Industrial Safety Orders, the plan shall be prepared at Contractor's expense by a registered civil or structural engineer.

1.16 PRESERVATION OF MONUMENTS

All historical monuments, bench marks, survey marks, and stakes shall be preserved. If such monuments are damaged or destroyed during construction, they shall be repaired or replaced at no expense to the Agency.

1.17 DUST CONTROL

The Contractor shall perform dust control operations, in an approved manner, whenever necessary including weekends and holidays or when directed by the Owner’s representative, even though other work on the project may be suspended. Dust control shall be generally accomplished by the use of water; however, the use of approved means may be used when necessary to keep dust in the air to a minimum.

The Contractor shall submit dust control plans/procedures for managing/reducing dust and PM10 emissions in accordance with these specifications

The Contractor's methods of controlling dust shall meet all air pollutant standards as set forth by Federal and State regulatory agencies and be in compliance with the South Coast Air Quality Management District Rule 403 – Fugitive Dust, including Best Available Control Measures for High Wind Conditions as contained in Rule 403. Water shall also be sufficient to prevent dust in amounts damaging to property, cultivated vegetables, domestic animals, or as to cause a nuisance to persons living in or occupying buildings in the vicinity.

Dust nuisance during construction shall be abated by cleaning and sweeping paved areas and repeated wetting of exposed soils. During periods of high winds (25 mph or higher) earthmoving types of tasks shall be terminated.

Dirt hauled offsite in trucks shall be watered and covered to reduce construction related dust. All haul trucks shall take measures to prevent haul materials from spilling onto public streets as outlined in State Vehicle Code 23114.

The work shall be conducted to provide control as follows:

- No fuel shall be used nor shall any work be conducted which shall emit into the atmosphere any smoke, which is defined as equal to Ringelmann No. 2, or darker.

- No work shall be conducted which will emit into the atmosphere any flying dust or dirt which is hazardous to humans or which might constitute a nuisance. Any dirt, dust, or mud that accumulates on streets is to be removed by the end of each work day.

1.18 SANITATION

Temporary chemical toilet facilities shall be provided for the use of all workmen. Each toilet building shall be maintained in a sanitary condition at all times, and at the completion of the construction, shall be removed from the site.

Pure, cool drinking water with individual drinking cups or a sanitary bubbler fountain shall be available at all times.

1.19 SHOP DRAWINGS

The Contractor shall submit to the Agency four (4) copies of any shop and erection drawings required by the plans or specifications. The Agency will, within 2-4 weeks, return two copies to the Contractor marked "Disapproved", "Approved", or "Approved as Revised". In the last case, all revisions will be clearly shown on the returned copy, which shall be considered as an approved drawing, and only drawings or prints, which are approved, shall be used for manufacture.

Revisions shown on the shop drawings shall be considered as changes necessary to meet the requirements of the plans and specifications and shall not be taken as the basis of claims for extra charges. When delay is caused by the re-submission of shop drawings, Contractor shall not be entitled to any damages or extension of time on account of such delay. The corrections on prints marked "Approved as Revised" shall be made on the originals as soon

as practicable and new prints submitted. Agency's approval shall be considered as applying only to the general arrangement, and such approval of the criticism of detail shall not relieve the Contractor from entire responsibility for correctness of details and dimensions. Contractor shall correct any misfits due to any errors in the drawings. Any fabrication or other work performed in advance of the receipt of approved shop drawings shall be done entirely at the Contractor's expense.

1.20 CONTRACT BONDS

- Public Contracts
  Simultaneously with the execution of the Agreement, the Applicant shall furnish to the Agency bonds, in a form acceptable to the Agency, insuring performance of and full payment for the work to be performed pursuant to the Agreement, Contract, and Specifications, in an amount equal to one hundred percent (100%) of the contract price. The bonds, commonly referred to as Performance and Payment Bonds, respectively, shall be issued by a surety or sureties acceptable of the work by the Agency and the presentation of satisfactory evidence that all workers and subcontractors on the work have been paid. The Performance Bond shall be released upon expiration of the guarantee period, one (1) year after the Agency's acceptance of the work.

- Other Contracts
  The Contractor shall furnish to the County of Los Angeles any bonds specified in the approval document for the improvements issued by the applicable jurisdiction. The Agency shall notify the appropriate agency upon final completion of the work to allow the agency to release construction bonds held to the extent the agency's policy dictates

1.21 POTHOLING

The Contractor shall pothole utility crossings and expose all joining points to the existing systems for verification of horizontal and vertical locations prior to submitting any shop drawings. The Engineer will notify the Contractor how to modify the design, if necessary, in order to properly join up with the existing facilities.

The Contractor shall collect and provide to the Engineer for review the top of pipe elevation, the bottom of pipe elevation, the coordinates (northing and eastings), the outside diameter of pipe, the pipe material, the condition of pipe, and the ground elevation or depth of pipe cover.

1.22 Watering

All water used for compacting original ground, embankments, structure and trench backfill, subgrade, base and for laying dust caused by grading or traffic, shall be included in the price bid for such items and separate payment will not be allowed for watering.

2.0 PIPELINE MATERIALS

2.1 GENERAL

The work of this section shall include furnishing and installing all pipe, fittings, joints, together with all material, equipment, labor, transportation, supervision, and other items of expense necessary for or incidental to the installation of pressure water mains and appurtenances in accordance with the plans and specifications.

All materials shall be carefully examined at the job site by the Contractor and Inspector. The pipe and appurtenances shall be new.

All pipe, fittings, joints, valves and appurtenances shall be designed to handle the expected internal pressure and external load requirements for the specific job constraints and application including provision for testing and long service life. Unless otherwise approved by the Agency all new main constructions shall be as follow, in accordance with these specifications:

a. Below ground mains up to 30 inches in nominal internal diameter shall be constructed using ductile iron.

b. For below ground mains over 30 inches in nominal internal diameter the pipeline shall be constructed using cement mortar lined and coated welded steel pipe.

c. All above grade piping shall be cement mortar lined and epoxy coated welded steel pipe shop coated in accordance with painting section (3.9).

d. PVC pipe shall be used for below grade mains 10" diameter or less per section 2.5. the use of PVC pipe shall be approved by the Agency.

e. Thickness of fittings shall be equal to or greater than that of adjacent piping.

f. All drain lines 4" or larger shall be PVC type C-900 or SDR 35. All drain lines smaller than 4" shall be SCH 80 PVC.

2.2 SCOPE

This section defines the materials to be used for pipelines, fittings, joints, and appurtenances.

2.3 CEMENT MORTAR LINED AND COATED STEEL PIPE

Cement mortar lined and coated steel pipe (CMLC Pipe) and fittings shall be furnished and installed in accordance with the plans. Pipe, including special fittings and joints, shall be manufactured in accordance with AWWA C200, C205, C206, C208 and Fed. Spec. SS-P-385 except as further specified in these specifications.

The pipe shall consist of the following component parts: a welded sheet steel or plate steel cylinder with joints formed integrally with the steel cylinder or with the steel joint rings welded to the ends; a self-centering bell and spigot joint with a circular pre-formed rubber gasket so designed that the joint will be watertight under all conditions of service.

Steel for cylinders shall be hot-rolled low carbon steel sheets conforming to ASTM A-570 Gr 33 or 36. The minimum acceptable yield strength of the steel shall be 33,000 psi and the minimum wall thickness of any size pipe shall be 10 gauge. Above grade pipe or pipe in vaults shall be minimum standard weight thickness. Diameter indicated or specified shall be net inside diameter plus or minus one-quarter (1/4) inch after cement mortar-lining. Type II cement shall be used for all mortar-linings and coating.

For the following nominal inside diameters, the lining thickness and minimum cement-mortar coating thickness shall be as follows:

	LINING		COATING	
Nominal Pipe Size (inches)	Thickness (inches)	Tolerance (inches)	Thickness (inches)	Tolerance (inches)
4 – 10	¼	-1/32+1/32	1/2	+1/8
12 – 18	3/8	-1/16+1/8	5/8	+1/8
20 – 44	½	-1/16+1/8	3/4	+1/8
45 – 58	¾	-1/16+1/8	1	+1/8
60 and over	¾	-1/16+1/8	1 1/4	+1/8

Cathodic protection for CMLC Pipe is required as specified.

2.3.1 Joints

- Rubber gasket joints shall conform to Fed. Spec. SS-P-385 and made in accordance with Standard Drawing No. 115 for plain end pipe.
- Lap Welded Field Joints. Where indicated on the drawings, lap joints shall comply with AWWA C206.
- Flanged Ends. Pipe section ends required to be fitted with flanges for special fittings and connections, as shown on the drawings, shall utilize flanges, which comply with the requirements of AWWA C207 Class "D" for steel hub flanges. Class "E" or "F" flanges shall be used when required by higher pressures. No plate flanges shall be used. All flanged spools shall be positioned and tack-welded in place prior to completing the weld. Flange bolts installed above ground shall be carbon steel. Flange bolts installed underground shall be carbon steel and coated in accordance with section 3.9. All submerged bolts shall be stainless steel type 304 or 306. Gaskets for flanged joints shall be one sixteenth (1/16) inch thick for up to twenty (20) inch pipe, one eighth (1/8) inch thick for pipe larger than twenty (20) inches. Gaskets shall be either non-asbestos cloth gaskets or EPDM. Rubber gaskets shall not be used for flanged connections. Nuts and bolts shall have hex heads.

2.3.2 Fittings for steel pipe

All bends, elbows, tees, crosses, reducers, and other fittings for mains twelve (12) inches and smaller shall be either Class 150 or Class 250 Cast Iron Flanged Fittings and shall conform to AWWA Standard C110 and shall be cement mortar lined per AWWA Standard C104; or epoxy lined as approved by the Agency. Fittings for mains larger than twelve (12) inches may be fabricated in accordance to AWWA Standard C208. Alternate fittings and adapters may be used where conditions restrict or make impractical the use of cast iron fittings or adapters. The use of any alternative will require the prior approval of the Agency.

2.4 DUCTILE IRON PIPE

Ductile iron pipe shall be manufactured in the USA and be designed in accordance with the latest revision of ANSI/AWWA C150/A21.50 for a minimum Class 53 DIP or class 350 (or project requirements, whichever is greater) rated working pressure plus a 100 psi minimum surge allowance; a 2 to 1 factor of safety.

Ductile iron pipe shall be manufactured in accordance with the latest revision of ANSI/AWWA C151/A21.51. Each pipe shall be subjected to a hydrostatic pressure test of at least 500 psi at the point of manufacture.

Pipe shall have standard asphaltic pipe coating on the exterior and a double thickness cement mortar lining on the interior in accordance with ANSI/AWWA C104/A21.4, of latest revision. Manufacturers' certificates indicating that pipe has been double lined must be submitted with each pipe delivery.

The class or nominal thickness, net weight without lining, and name of manufacturer shall be clearly marked on each length of pipe. Additionally, the letters "DI" or "Ductile" and the country where cast shall be cast or stamped on the pipe.

2.4.1 Joints

All pipe shall be furnished with either Push-On Type Joints, such as "Tyton" or Mechanical Joints. Joints shall be in accordance with ANSI/AWWA C111/A21.11, of latest revision, and be furnished complete with all necessary accessories. All rubber gaskets shall be EPDM.

2.4.2 Mechanically restrained joints

Restrained joints shall be provided at all fittings: tees, crosses, reducers, bends, caps, plugs, and valves such that the pipe is fully restrained for a minimum of two full pipe lengths in all directions unless otherwise indicated on the plans. All rubber gaskets shall be EPDM. 3" through 24" Mechanical Joint Ductile Iron Fittings shall be produced in the USA in accordance with all applicable terms and provision of ANSI/AWWA C153/A21.53 and ANSI/AWWA C111/A21.11.

2.4.3 Fittings for ductile iron pipe – domestic and/or Agency standards

Fittings shall be ductile iron and manufactured in the USA. Ductile iron fittings shall conform to the latest revisions of either ANSI/AWWA C110/A21.10 or ANSI/AWWA C153/A21.53 and to the Agency's General Notes. Fittings shall have a standard asphaltic coating on the exterior and a double thickness cement mortar lining on the interior in accordance with ANSI/AWWA C104/A21.4, of latest revision. All rubber gaskets shall be EPDM.

All fittings and accessories shall be furnished with Mechanical Joints in accordance with ANSI/AWWA C111/A21.11, of latest revision. Restraining glands will be required on all M.J. fittings per section 2.4.2. The design of all connections between ductile iron pipe and other types of pipe shall be submitted to the Agency for approval prior to ordering the connection materials.

Twist-off nuts, sized the same as the tee-head bolts, shall be used to ensure proper activating of restraining devices. The gland shall be manufactured of ductile iron conforming to ASTM A536-80. The retainer-gland shall have a pressure rating equal to that of the pipe on which it is used through 14” with a minimum safety factor of 2:1. Gland shall be Megalug by EBBA Iron, Inc. or Ford not Ford “I” (Import), Ford Domestic is ok, or approved equal.

2.5 PVC PIPE

PVC pipe shall be designed and manufactured in accordance with the latest revision of AWWA C900 for a minimum Standard Dimension Ratio (Pressure Rating) of 18 (235 psi). pipe shall be made from all new rigid unplasticized polyvinyl chloride. Pipe compound meets ASTM D1784, cell class 12454. Pipes shall be certified by Underwriters Laboratories, lnc. to ANSI/NSF Standard 61. PVC pipe shall be furnished in Cast-iron pipe equivalent outside diameters with EPDM gasketed couplings. ln addition to referenced AWWA Standards, pipe handling, storage, and installation shall follow the manufacturer's instructions closely. PVC pipe shall be 10-inch diameter or less. The Standard Dimension Ratio, Pressure class, and the name of manufacturer shall be clearly marked on the length of each pipe. Additionally, the letters "PVC" and the country where manufactured shall be stamped on the pipe.

2.5.1 Joints

All pipe shall be furnished with bell and spigot push-on type joints, in accordance with AWWA C900 with gaskets per ASTM F477 to seal the integral bell socket to the spigot of the next joint, conforming to ASTM D3139. The spigot end is beveled to facilitate joint assembly and referenced marked to ensure proper insertion depth. Gaskets shall be either EPDM formulated to be chlorine resistant.

2.5.2 Mechanically restrained joints

Restrained joints shall be provided at all fittings: tees, crosses, reducers, bends, caps, plugs, and valves such that the pipe is fully restrained for a minimum of two pipe lengths in all directions unless otherwise indicated by the plans. All rubber gaskets shall be EPDM. Mechanical joint restraints shall be certified by the manufacturer as approved for use with PVC to PVC or PVC to Dl, as applicable for the required joint restraint. Mechanically restrained joints for PVC to PVC shall be a rubber restrained gripper inside the pipe; Bulldog Restraint System, Diamond Lok-21, Eagle Loc or approved equal. PVC to Dl shall be Megalug by EBBA Iron, lnc. or Ford not Ford "I" (import), Ford Domestic is ok, or approved equal.

2.5.3 Fittings for PVC pipe – Domestic and/or Agency standards

Fittings shall be ductile iron and manufactured in the USA. Ductile iron fittings shall conform to the latest revisions of either ANSI/AWW AC110/A21.10 or ANSI/AWWA C153/A21.53. Fitting shall have standard asphaltic coating on the exterior and double thickness cement mortar lining on the interior in accordance with ANSI/AWWA c104/A21.4, of the latest revision. All rubber gaskets shall be EPDM. The minimum pressure class for all fittings shall be pressure class 350.

All fittings and accessories shall be furnished with Mechanical Joints in accordance with ANSI/AWWA C111/A21.11, of the latest revision. Restraining glands will be required on all M.J. fittings per section 2.5.2. the design of all connection between ductile iron pipe and

other types of pipe shall be submitted to the agency for approval prior to ordering the connection materials.

Twist-off nuts, sized the same as the tee-head bolts, shall be used to ensure proper activating of the restraining devices. The gland shall be manufactured of ductile iron conforming to ASRM 536-80. The restrainer-gland shall have a pressure rating equal to that of the pipe on which it is used with a minimum safety factor of 2:1. Gland shall be Megalug by EBBA Iron, lnc. or Ford not Ford "l" (lmport), Ford Domestic is ok, or approved equal.

2.6 CATHODIC PROTECTION

The developer's engineer shall design a cathodic protection system in accordance with the recommendations put forth in the project geotechnical investigations and these Standards and Drawings.

2.7 INSULATING BUSHINGS AND UNIONS

Pipe and fittings made of dissimilar metals shall be isolated by nylon insulating pipe bushings or unions as manufactured by Smith Blair, Corrosion Control Products, Co., or approved equal. Insulating unions or bushings shall meet the minimum pressure class of both pipe which they will be isolating.

3.0 PIPELINE INSTALLATION

3.1 SCOPE

This section covers the installation of pipelines and appurtenances, including trenching, laying, backfill, compaction, restoring street surfaces, and clean-up.

3.2 SHOP DRAWINGS

Proposals for alternate methods or materials, special conditions, or the like, require approval of the Agency; detailed shop, fabrication, or erection drawings shall be provided by the Contractor. These drawings shall be submitted to the Agency for approval to accommodate the rate of construction in accordance with Section 1.19. For steel pipe and fittings, the contractor shall submit material lists containing layout schedules, fabrication details, dimensions, and protective coatings to be used prior to pipe fabrication for the Agency's approval. The contractor is responsible for field verifying dimensions and providing all make up pipe required to complete the work at no additional cost to the Agency.

3.3 CONTROL OF WATER

The Contractor shall furnish, install, and operate all necessary machinery, appliances, and equipment to keep excavation sufficiently free from water during construction of the work to permit proper laying and jointing and shall dispose of water so as not to cause injury to public or private property or to cause a nuisance or a menace to the public. All water shall be discharged in accordance with Regional Water Quality Control Board requirements.

3.4 GENERAL

Excavated material suitable for backfilling shall be piled in an orderly manner a minimum of two (2) feet from the excavated banks to avoid overloading and to prevent slides or cave-ins. Such grading shall be done as may be necessary to prevent surface water from flowing into trenches. Any water accumulating therein shall be removed by pumping or other approved means. Such sheeting and shoring shall be installed as may be necessary for protection of the work and safety of personnel in accordance with OSHA requirements. Sheeting and shoring shall be in accordance with Section 1.15. Excavations in earth and in rock shall be carried to six (6) inches below bottom of pipe. Bell holes and depressions for couplings, valves, and the like shall be excavated the same distances below these installations. The materials excavated shall be used in the backfill or removed and disposed of by Contractor as required by Engineer and as specified at no additional cost to the Agency.

All soils testing shall be done in accordance with *SSPWC*, *Section 211*, and by a testing laboratory of the Agency's choice at the Contractor's expense.

Where soil material is required to be compacted to a percentage of maximum density, the maximum density shall be determined in accordance with the requirements of *SSPWC, Subsection 211-2*. In case the tests of the fill or backfill show non-compliance with the required density, the Contractor shall accomplish such remedy as may be required to insure compliance. Subsequent testing to show compliance shall be by a testing laboratory selected by the Agency and shall be at the Contractor's expense.

All rocks or lumps larger than 2-1/2 inches in size in the upper 6-inches of the subgrade which will not break up under the operation of grading equipment shall be removed and the resulting space refilled and compacted with selected material approved by the Engineer (or a designated Representative).

The overnight use of trench plates will be allowed only upon written request by Contractor or Developer subject to approval by the Agency. Trench plates shall be nonskid, a minimum of one-inch thick, and rated for AASHTO – H-20 loading or greater. The excavation beneath the plate shall be shored, and the plates must be counter-sunk flush to the surface. If two or more adjoining plates are to be used, they shall be tack-welded together. If the trench width is 4 feet or greater the plates shall be engineered and approved by the Agency. In the event that pending inclement weather or other conditions as determined by the Agency may adversely affect the use of plates, said plates shall be removed, and the excavation shall be backfilled, and the surface secured with temporary asphalt. The placement of trench plates shall be in accordance with the requirements of and meet the approval of the governmental agencies having jurisdiction.

Unless otherwise approved by the Agency prior to the beginning of construction, the length of open trench shall not exceed 500 feet including excavation, pipeline installing, and backfill in any one location. Minimum trench width shall be as required for proper assembly and joint inspection, but in no case less than twelve (12) inches greater than nominal pipe diameter. Maximum allowable width of trench for all pipelines measured at the top of the pipe shall be the outside diameter of the pipe (exclusive of all bells or collars) plus sixteen (16) inches, and such maximum shall be inclusive of all shoring. All open trenches will be backfilled to the satisfaction of the Agency Inspector by the end of each workday (See Standard Drawing No. 101 for detail). Minimum vertical clearance for all utilities is 12" from water mains.

3.4.1 Trench excavation shall be per Standard Drawing No. 101

3.4.2 Placing of pipe zone bedding and backfill material

All pipe zone backfill from a depth of six (6) inches below the bottom of the pipe to twelve (12) inches above the top of the pipe shall be imported fill sand having a minimum sand equivalency of SE30 and conform to gradation requirements in SSPWC specifications section 217. The six (6) inch bedding layer shall be placed and compacted to a minimum of 90% of the maximum density of the material at optimum moisture content. The pipe shall then be installed after which the remaining imported pipe zone material up to twelve (12) inches above the top of the pipe shall be placed and compacted in lifts no greater than 6 inches, to said relative compaction of 90%.

3.4.3 Backfilling pipe trenches above the pipe zone

Backfill in pipe trenches above the pipe zone shall be a structural fill (per SSPWC specification section 217) accomplished by filling and compacting the trench in lifts of depths that will permit obtaining a minimum compaction of 90% of the maximum density of the material at optimum moisture content.

All backfill materials shall be placed in such a manner as to not disturb the pipe or damage its coating. Impact, free fall, hydro hammer, or similar compaction equipment shall not be used for compaction in water system trenches. Slurry or cement-treated backfill material will not be allowed in trench with the exception of cross gutters, etc. as determined by the Agency Inspector or by written permission of the Agency. Backfill material shall not be compacted by jetting unless approved in the geotechnical report.

3.4.4 Trench backfill compaction tests

The Contractor shall supply samples of the backfill material to the Agency from the supplier a minimum of 24 hours prior to placement of backfill. If the Contractor does not supply samples in a timely manner, then the material and any backfilling will be rejected, and the Contractor will replace the backfill material at no additional cost to the Agency. The Developer will retain the services of an independent soils firm having a State of California licensed laboratory to make soils compaction tests at any point or points or depths as the Agency sees fit after the trench is backfilled. Compaction shall be measured relative to the ASTM D1557 laboratory maximum density and in accordance with *SSPWC, Subsection 211-1*. The minimum number of tests shall be shown on the plans and shall
be performed every 100 linear feet of pipe and at every lateral. In the event any of said tests indicate that the trench compaction is less than the compaction above described, the Contractor will be required, at his own expense, to remove placed trench material in the zone or zones directed by the Agency and to then replace and compact said trench material to meet the requirements of this specification. Retesting at the Contractor's expense will be required on all recompacted material. Unless otherwise noted, refer to SCVWA General NoteS for testing intervals.

- Trench Width
  See Standard Drawing No. 101

- Depth of Pipe

See Standard Drawing No. 101

- Location of Existing Facilities
  Contractor shall excavate and locate existing utilities and culverts prior to excavation. All pavements shall be cut or sawed a minimum of eight (8) inches wider than the trench prior to trenching.

3.4.5 Placement of Asphalt Concrete

Asphalt concrete (AC) shall comply with the requirements as set forth by section 203-1 of the SSPWC and shall be as follows, unless otherwise indicated:

AC III-D-PG-64-10 3/8" maximum.

Materials for Crushed Aggregate Base shall conform to Table 200 of the SSPWC.

Asphalt binder emulsion for use as a binder (tack coat) shall be SS-1h, and shall be applied at the rate of 0.8 gallons per square yard to the entire resurfacing area designated for new pavement. Asphalt emulsion shall comply with the requirements as set forth by 203-3 of the SSPWC.

All work shall conform to 302-5 of the SSPWC. The work shall further consist of preparing sub grade prior to the paving. Such work shall include controlling nuisance water, watering, and removing loose and broken asphalt concrete pavement and foreign material as specified or as required by the Engineer.

Pavement sub grade shall be compacted to 95 percent (95%) relative compaction at least one foot deep prior to placement of the pavement section.

Prior to paving operations, the sub grade shall be check rolled to locate any unstable or pumping areas. The areas identified as unstable or pumping by the Engineer shall be stabilized per the direction of the Engineer.

As shown on the plans, where new asphalt concrete pavement is placed against existing pavement, the existing pavement shall be saw cut along neat vertical lines. AC pavement shall be removed to clean, straight saw cut lines. The exposed edges of the existing pavement surfaces shall be painted with asphalt tack coat in accordance with 302-5.4 of the SSPWC. The new asphalt concrete pavement section shall be composed of 4" of asphalt concrete compacted to 95% relative compaction, over 6" of class II base compacted to 95% relative compaction or shall be 1" thicker than the section of the adjacent existing asphalt concrete pavement, whichever is greater.

3.5 CHANGES IN LINE AND GRADE

The alignment of the pipeline is shown on the plans.

In the event obstructions not shown on the plans are encountered during the progress of the work, which will require alterations to the plans, the Developer's Engineer shall submit proposed changes to the Agency for approval. The Contractor shall not make any deviation from the specified line or grade without prior approval by the Agency.

The Contractor is responsible for verifying points of connection and joins for all items in this contract before starting any construction. All facilities must properly join and connect to improvements that exist at the time the point of connection is constructed. The Contractor

shall notify the Agency's construction manager of any discrepancy between plans, specifications, surveys and the site conditions prior to start of work and shall obtain a clearance from the construction manager regarding resolution of the discrepancies prior to commencement of any work. It is the Contractor's responsibility to coordinate its work with the concurrent work on the site, accommodate other contractors, and complete facility connections in conformance with all governing agency regulations and the directions of the Agency.

3.6 HANDLING AND STORING MATERIALS

During storage, handling, and transporting, every precaution shall be taken to prevent damage to the pipe. Pipe shall be handled only by means of fabric slings or other approved methods for the pipe used.

Valves, fittings, hydrants, and other accessories shall be loaded and unloaded by lifting with hoist or skidding, so as to avoid shock or damage. Under no circumstances shall such materials be dropped. Any disapproved materials shall be removed from the job site immediately. In distributing the material at the site of work, each piece shall be unloaded opposite the place where it is to be laid in the trench. Steel and ductile iron pipe shall be so handled that the lining and coating will not be damaged. If, however, any part of the coating is damaged, repair shall be made by the Contractor at his expense to the manufacturer's specifications.

3.7 INSTALLING PIPE

The Contractor is required to coordinate all installation of the various utilities so that the storm drain and sewer are constructed prior to the water main installation. The Contractor shall, after excavating the trench and preparing the proper bedding for the pipe, furnish all necessary facilities for properly lowering and placing sections of the pipe in the trench without damage and shall properly install the pipe. The sections of pipe shall be fitted together correctly and shall be laid true to line and grade in accordance with elevations established by the Engineer. In the absence of curb and gutter, construction stakes shall be set by a registered civil engineer or licensed land surveyor indicating line and grade and location of all valves and appurtenances. The maximum stake interval shall be fifty (50) feet. The full length of the barrel of the pipe shall have a uniform bearing upon six (6) inches of bedding material, but if the pipe has a projecting bell, suitable excavation shall be made to receive the bell, which shall not bear on the subgrade. The requirement for closely fitting the bottom of the pipe to the bedding material for the width shown on the drawings will be strictly enforced.

Restrained joints are required for pipes laid on slopes 10% or greater.

Pipe installed on slopes greater than 33% shall have slope anchors in accordance with Standard Drawing 120. Weld #6 bars to the steel pipe swith 1/8"max. welding rod. Do not try to fill the entire space in one or two passes. Use short overlapping weld passes to lessen the heat build-up on the pipe and avoid damaging the cement mortar lining of the of the pipe. Keep interpass temperatures down – allow to cool between passes; weld one bar, then the next, then the third, then come back to the first and continue the cycle until complete. The lining should be inspected after the exterior welding is done and repaired if necessary.

Pipe shall be laid uphill. Pipe shall be true in alignment, both vertical and horizontal, and shall not show any undue settlement after laying. No pipe shall be laid which is damaged, cracked, checked, or spalled, or has any other defect deemed by the Agency to make it unacceptable. All such sections shall be permanently removed from the work.

At all times when the work of installing pipe is not in progress, all openings into the ends of the installed pipelines shall be kept tightly closed with suitable bulkheads to prevent the entrance of animals, foreign materials, and water. The Contractor shall maintain the inside of the pipe free from foreign materials and in a clean and sanitary condition until its acceptance by the Agency.

The pipe trench shall be kept free from water at all times, and the Contractor shall take all necessary precautions to prevent the pipe from floating due to water entering the trench from any source, shall assume full responsibility for any damage due to this cause, and shall, at his expense, restore and replace the pipe to its specified condition and grade if it is displaced due to floating or due to any other reason.

All pipelines adjoining concrete structures shall have a flexible joint at eighteen (18) inches from the face of such concrete structures.

Before lowering and while suspended or standing vertically at trench side, the pipe shall be inspected for defects. Any defective, damaged, or unsound material shall be rejected.

3.7.1 Ductile iron – All Clear Polyethylene Film

Pipe shall be laid true to line and grade. Pipe shall be installed in accordance with AWWA C600. All pipe on curves shall be assembled straight and laid over. The maximum joint deflection shall be obtained from the pipe manufacturer. The rubber rings shall be checked after installation with a gauge supplied by the manufacturer to ensure that the ring is properly seated. If, for any reason, the ring is not properly seated, the joint shall be pulled apart and satisfactorily remade.

Encase all ductile iron pipe with clear polyethylene encasement. At all locations where pipe is to be encased or cradled in concrete, the pipe shall be wrapped with a minimum of two (2) layers of 8-mil polyethylene in such a manner that the concrete does not form a bond with the pipe. Clear Polyethylene film shall be manufactured of virgin polyethylene material conforming to the material requirements of the latest revision of ANSI/AWWA C105/A21.5 and the following requirements of the latest revision of ASTM Standard Specification O-2148, Polyethylene Plastics, Molding and Extrusion Materials:

Class:	A (Natural/Clear Color)
	C (Black)

Polyethylene film shall have a nominal thickness of 0.008 in. (8 mils) or 0.010 in. (10 mils) if specified. The minimum tolerance thickness shall not exceed 10% of the normal thickness.

Locating wire shall be installed with all pipe. The wire shall be insulated, 12-gauge copper, with HMWPE insulation and shall be installed as detailed on Standard Drawing No. 101. The wire shall be placed on the top of the pipe and the centerline of the pipe. The wire shall be fastened securely at each joint or fitting with an eight (8) inch length of two (2) inch wide

duct tape or other approved method. Locating wire shall be located on the outside of the poly wrap.

Soil Testing and Evaluation: Representative soil testing shall be conducted for evaluating potential soil corrosivity for ductile iron pipe. Soil corrosivity testing shall be done in conformance with the Soil Evaluation System described in Appendix A of the latest revision of the ANSI/AWWA C105/A21.5 standard. Soil resistivity testing shall be done in conformance with ASTM G187, latest revision. Corrosion control methods shall be consistent with those found in ANSI/AWWA C105/A21.5, latest revision or the Design Decision Model, both of which are specific to ductile iron pipe.

3.7.2 Steel pipe

Steel pipe shall be welded, unless otherwise shown on the Drawings. Jointing sections of welded steel pipe with rubber gasket joints shall be accomplished by placing the rubber gasket in the spigot groove before the section is lowered into the trench and lubricating the bell end of the last section laid with an approved lubricant to reduce the friction of the entering gasket. The spigot end shall then be inserted in the bell end of the pipe in place and forced into position without injury to the pipe or gasket. Care shall be taken to ensure that the spigot is fully entered into the bell and a "feeler" gauge used to check the position of the rubber gasket. Just prior to joining the two ends together, each end of pipe shall be "buttered" with cement mortar in such a manner and in sufficient quantity to completely fill the space between the respective mortar linings. The mortar shall be composed of one (1) part of portland cement of the same type used in the lining and coating, two (2) parts of sand by volume, and one-eighth (1/8) part fire clay with sufficient water added to give the mixture a stiff consistency. The mixture shall not be held over one (1) hour, then shall be discarded and no re-tempering by addition of water shall be allowed. Epoxy concrete adhesive shall be applied to the metal prior to coating of field fabrications or minor repairs on both coating and lining that the Agency may allow. After the jointing is completed, the pipe interior shall be swabbed to remove all excess mortar by drawing an approved type swab or squeegee through the pipe. After the field joints have been completed and inspected, the joint exterior shall be thoroughly cleaned.

Pipe bonding devices to provide electrical continuity shall be provided in accordance with the approved plans and pipe manufacturer’s recommendations.

The outside joint recess shall be grouted with cement mortar after a fabric diaper has first been placed around the joint and tightened securely to prevent leakage while the mortar is being poured. The diaper shall be made of heavy-duty polyethylene fabric or other approved material of sufficiently close weave to prevent cement loss from the mortar. The fabric shall be hemmed on each edge and shall contain a metal strap within each hem sufficiently longer than the circumference of the pipe to allow a secure attachment of the diaper to the pipe. The diaper shall be centered on the joint and positioned to provide a mortar coating of the pipe ends equal in thickness to the mortar coating on the pipe. The mortar shall be the same as for the interior joints except that it shall contain sufficient water to produce a creamy consistency. Prior to placing the mortar, the joint and diaper shall be moistened with water. The joints shall be poured and rodded or manipulated by hand to remove air bubbles from one side only until the mortar comes up to the top of the diaper on the opposite side. The mortar shall completely fill the outside annular space between the ends of the pipes around the entire circumference of the joint. If required by the Agency, the diaper shall be removed and the grouted joint inspected after the adjacent pipe sections

have been sufficiently covered with backfill material to bring the pipe to a normal in-place temperature. The joint shall be repaired, if necessary, and given a heavy coating of Hunt, or equal, curing compound at the earliest practicable time after the mortar has hardened sufficiently.

Field welded joints shall be in conformance with AWWA C206 and ANSI B31.3. Pipe with 30-inch diameter or less shall be welded on the outside. Pipe with 36-inch dimeter or greater shall be welded on the inside and outside.

Butt-strap closure joints, in accordance with Standard Drawing 139, shall be completed in the trench after the pipe has been laid to the alignment and grade shown on the Drawings. They shall be field welded by full-circumferential fillet welds or one of the edges may be shop welded and the other field welded. Welding shall be done in the same manner as specified for welded joints.

3.7.3 PVC pipe

PVC pipe shall be installed per Uni-Bell's Hanbook of PVC pipe.

Changes in direction may be achieved by bending of the pipe. A general rule of thumb for the minimum bending radius (Rb) calculation is Rb = 250 OD. The manufacturer should be consulted for specific product information. Bending should be accomplished manually. It is not recommended to attempt bending pipes greater than 12" in diameter.

Changes in in direction may also be achieved through joint deflection. Allowable joint deflection should be obtained from the pipe manufacturer.

PVC pipe should not be dragged on the ground or abused. Care shall be exercised to avoid damage to the pipe. The Contractor shall be liable for the complete cost of replacing all damaged or destroyed pipe during the progress of the work.

3.8 FOUNDATION ROCK

Where ground water is encountered or the native material does not afford a solid foundation for pipe subgrade as specified herein, the Contractor shall excavate to such depths below the subgrade as the decides is necessary and shall construct a stable base by placing foundation rock upon which pipe bedding can be prepared. Foundation rock shall be three-quarter (3/4) inch aggregate base material or crushed rock in accordance with SSPWC Section 200-1.2.

3.9 PROTECTIVE COATINGS

All otherwise uncoated buried steel surfaces, including nuts and bolts, shall receive two (2) coats of NO-OX-1D Protective Coatings, or approved equal, for a minimum dry film thickness of 30 mils and then be wrapped with 8 mil polyethylene sheet per AWWA C-105.

3.9.1 Surface preparation

Prepare all surfaces to be painted in accordance with the manufacturer's recommendations. All rust, loose scale, sharp edges and foreign matter shall be removed from surfaces to be coated by wire brushing (SSPC-2), using power tools (SSPC-3) or sandblasting (SSPC-10). The

metal shall be cleaned after sandblasting with clean, dry compressed air. Oil and grease shall be removed with cleaning solvent (SSPC-1), and surfaces shall be dried with clean dry rags.

3.10 SHOP PAINTING

All buried and above ground exposed piping shall be coated by the manufacture or have shop or field coating applied in accordance with these Specifications. Products are those manufactured by Tnemec Company or Devoe or approved equal and are specified as the standard of quality. Fusion Bonded Epoxy shall be Skotchote 134 by 3M or approved equal.

Materials shall comply with all current federal, state, and local environmental laws and regulations, including, but not limited to the laws and regulations of the NSF International in accordance with ANSI/NSF. Std. 61, U.S. Environmental Protection Agency (USEPA), South Coast Air Quality Management District (AQMD) and the California Air Resources Board (CARB).

Unless noted otherwise, colors for finish coats shall be as indicated on the Project Drawings, SCVWA Standard Drawings and as approved by the Agency.

Prepare all surfaces and apply all coatings in accordance with the Manufactures published recommendations.

3.10.1 System No. C-1--Exposed Metal, Corrosive Environment

Type: Aromatic Urethane zinc rich, high build epoxy, water borne urethane.

Service Conditions: Use on metal structures, piping, valves, fittings, and appurtenances subjected to continuous water condensation (such as in vaults or trenches or above ground), or occasional immersion or splashing.

Surface Preparation: SSPC SP-10.

Shop Prime Coat: Aromatic urethane zinc rich primer. Apply to a dry-film thickness of 3 mils Tnemec 90-97, or approved equal.

Intermediate Coat: Apply to a dry-film thickness of 4-6 mils:

Coating shall be Tnemec L69, or approved equal.

Finish Coat: 2-3 mil dry-film thickness:

Coating shall be Tnemec 1081, or approved equal.

3.10.2 System No. D-1 -- Buried Metal

Type: Epoxy having a minimum volume solids of 65%

Service Conditions: Use to coat buried metal (flanges, bolts and nuts, fittings, flexible pipe couplings, structural steel etc.).

Surface Preparation: SSPC SP-10.

Prime Coat: Apply to a dry-film thickness of 5-7 mils:

Finish Coats: Two coats of 5-7 mils dry-film thickness for each coat.

Coating shall be Tnemec L69, or approved equal.

3.10.3 System No. G-1--Interior Surface of Ferrous-Metal Valves

Type: Fusion Bonded epoxy coating.

Service Conditions: Use to coat interior surfaces of ferrous metal valves, excluding seating areas and bronze and stainless-steel pieces.

Surface Preparation: Minimum SSPC SP-5. Remove protuberances which may produce pinholes in the coating. Round sharp edges. Remove surface contaminants, which may prevent bonding of the coating, shall be removed.

Coating: Within 10 hours of cleaning apply coating to a dry-film thickness of 12 mils in accordance with manufacturer's recommendation:

Coating shall be Skotchkote 134 by 3M, or approved equal.

3.10.4 Coating System for Steel surfaces (Not Including Reservoirs)

System No. I-3—Interior and/or Exterior Surface of Steel Pipe

Type: Fusion Bonded epoxy coating.

Service Conditions: Use to coat surfaces of specified steel pipe.

Surface Preparation: Minimum SSPC SP-10. Remove protuberances, which may produce pinholes in the coating. Round sharp edges. Remove surface contaminants, which may prevent bonding of the coating, shall be removed.

Coating: Apply to a minimum dry-film thickness of 15 mils in accordance with manufacturer's recommendation:

Coating shall be Skotchkote 134 by 3M, or approved equal.

3.11 ANCHOR AND THRUST BLOCKS

Anchor and thrust blocks shall be installed at fittings and valves and, where directed by the Agency, in accordance with details shown on Standard Drawing No. 102. Excavations and forms for thrust and anchor blocks shall be examined by the Agency's authorized representative prior to placement of concrete. Thrust blocks shall be constructed of five-sack concrete and shall bear against undisturbed soil and shall be allowed to cure for at least forty-eight (48) hours prior to pressurizing the pipe. No quick setting additives shall be used. Any flanged fittings coming in contact with concrete shall have the bolts and nuts covered with a layer of 8 mil polyethylene film. Formwork shall be constructed wherever necessary to confine the concrete to the prescribed dimensions for the block. All form lumber shall be removed prior to testing. All concrete anchor block shall be allowed to cure until an adequate strength has been obtained prior to pipeline pressure tests.

3.12 HYDROSTATIC TEST

After the pipe backfill has been completed and accepted, the pipe shall be subjected to a hydrostatic pressure test as hereinafter specified. Contractor shall flush all pipelines and appurtenances proceeding from higher ground elevations to lower ground elevations and/or in the manner and with the procedure prescribed by Agency. Flushing shall continue until all chlorine, debris and foreign materials have been removed from pipelines and appurtenances. A minimum flushing velocity of 3 fps should be achieved. If so directed by Agency, Contractor shall remove portions of certain appurtenances, such as air valve installations, blow-off installations, and service installations, in order to accomplish complete flushing. Appurtenances so removed shall be replaced. The Agency shall be notified twenty-four (24) hours prior to testing. An Inspector shall be present.

A certified backflow device approved by the Agency shall be used when filling, flushing and chlorinating. Contractor shall dechlorinate water while flushing.

Each water main shall be filled with potable water and shall be tested in sections of convenient lengths as determined by the range of elevations within the test section, which shall result in test pressure within the limits hereinafter specified. Testing against valves will not be permitted. Pressure test shall have air gap isolating pipe being tested from pipe in service, with a bulkhead or test plate.

The test pump gauge and gpm meter shall be connected to the water main at a location other than the highest point in the line in order to facilitate release of air from the high point. The gauge shall be approved by the Agency.

The test pressure shall be in accordance with AWWA standards or per the following requirements, whichever is more stringent. The test pressure at the location of the testing equipment shall be 150% of system pressure and be tested for a minimum of 4 hours. The test pressure at the highest point in the pipe test section shall not be less than 110% of pressure classification.

Contractor shall furnish and install, at his own expense, all corporation stops, test plates, temporary pipe, fittings, connections, equipment, bulkheads, RPBDs, and bracing required for the tests and shall be responsible for any and all damage resulting from failure under test of material furnished and installed by Contractor, or from faulty workmanship, negligence, or improper test methods.

If pipeline fails hydrostatic testing, Contractor shall make corrections and retest as required at no additional expense to the Agency.

All defective joints, cracked, or defective pipe, fittings, valves, hydrants, or service connections shall be removed and replaced by Contractor with sound material. Tests shall be rejected until satisfactory results are obtained as determined by the inspector.

Before applying the specified test pressure, care shall be taken to ensure the expulsion, through hydrants, air release valves, services, or by other suitable means, of all air within the pipe and appurtenances to be tested. Pressure test shall be completed and accepted prior to start of Disinfection.

3.13 DISINFECTION OF WATER MAINS AND SERVICES

All water mains, water services, attached appurtenances, and temporary connections, if any, shall be disinfected in accordance with AWWA C651-99 and the following requirements:

Chlorine shall be applied to the water in sufficient quantity to produce a dosage of not less than 50 ppm in all sections of the line, services, and appurtenances. Treated water shall be retained in the system for a period of twenty-four (24) hours minimum and shall produce not less than half of ppm added in all sections being disinfected at the end of the twenty-four (24) hour period. Chlorine dosage is not-to-exceed one hundred (100) ppm under normal conditions.

After the required period of retention of the chlorine or hypochlorite solution, an Agency representative will test the water for residual chlorine and any further tests that may be required.

After chlorination, the water shall be dechlorinated and flushed from the line at its extreme ends until the replacement water is chemically and bacteriologically equal to the permanent source of water supply. The chlorinated water shall be dechlorinated to 0.019 mg/l or less prior to discharging it. Two sets of samples for bacterial analysis will be taken 24 hours apart by the Agency and sent to the Agency's laboratory for analysis. The number of samples required will be as determined by the Agency, and the cost of processing will be borne by the Developer.

If the tests are not satisfactory, Developer shall provide additional disinfection as required at no extra cost to the Agency and new tests will be conducted.

Should the initial treatment fail to produce satisfactory disinfection of the pipeline, as evidenced by the chlorine residual, the chlorination procedure shall be repeated until acceptable results are obtained. The pipeline shall be flushed before starting the treatment procedure and after every failed procedure. Contractor shall discharge water at approved locations and manner in accordance with Regional Water Quality Control Board requirements.

As another optional procedure, the new pipe, fittings and valve(s) required for the connection may be spray-disinfected or swabbed with a minimum 1 percent solution of chlorine just prior to being installed, if the total length of connection from the end of a new main to the existing main is equal to or less than 18 feet. This option must be approved by the Agency prior to implementation.

3.14 WATER FOR CONSTRUCTION PURPOSES

Agency rules and regulations apply.

3.15 HOT TAPPING OF EXISTING WATER LINE

Pressure taps are allowed only as shown on approved plans.

All hot taps shall either be performed by the Agency or an experienced licensed contractor specializing in said work. Contractors must have a proven ability to perform hot taps, hold a current underground contractor's license, and carry sufficient insurance as determined by the Agency and be approved by the Agency prior to commencing said work.

Existing mains to be tapped must be cleaned. The area required to be cleaned shall be either the diameter of the hot tap plus seven (7) inches or the full diameter of the main to be tapped when full circle reinforcement is required. The following steps are then required prior to hot tapping:

3.15.1 Steel mains

The nozzle shall be welded to the main after cleaning. It shall then be blind flanged and air tested to 100 psi. The pressure must hold for a minimum of three minutes. The test must be done in the presence of an Agency Inspector.

After passing the air test, the reinforcement ring shall be placed and welded continuously on edges to the existing main and to the nozzle pipe.

3.15.2 Ductile iron

A mechanical stainless-steel tapping tee with stainless steel flanges is required (Muller H304 tapping sleeve) or approved equal. After cleaning the main, the sleeve shall be bolted to the main and a blind flange placed on the nozzle. An air test shall then be performed as described above.

3.15.3 PVC pipe

A mechanical tapping tee is required per standard drawing 126 or approved equal. The tapping sleeve shall be installed per the manufacturers recommendations and per standard drawing 125. For saddle taps on PVC pipe see section 5.7.

4.0 VALVES, FIRE HYDRANTS, AND APPURTENANCES

4.1 VALVES

All main line valves shall be located on the property line or utility easement prolongation in the street unless otherwise indicated by the Agency.

All valve box risers shall be of eight (8) inch SDR 35 pipe. The entire valve box assembly shall be per Standard Drawing No. 107A and 107B. Valve lids shall be in accordance with Standard Drawing No. 107A, stamped with SCVWA logo and powder coated. All valve risers shall be adjusted so that the valve box will be flush with the finished street grade per Standard Drawing No. 107A and 107B.

Valves shall be installed plumb and in alignment with the pipe. Each valve shall be operated prior to its installation to assure proper functioning.

Valves two and one-half (2 1/2) inches and smaller shall be brass or stainless-steel ball valves.

Valves between 3 inches and 12 inches shall be gate valves. Gate valves above 12” resilient wedge gate valves per Section 4.2

Unless otherwise specified, all valves above twelve (12) inch shall be butterfly valves. Valves are not to be located in curb or gutter.

4.2 GATE VALVES

All gate valves must equal or exceed the requirements of the latest revision of AWWA C500 or AWWA C509, standards for gate valves and resilient-wedge gate valves. The body shall further be coated with 10 mil epoxy, the trim 316 stainless steel and all rubber be EPDM and shall be Mueller, Clow, Kennedy, or approved equal.

Valves supplied shall be resilient wedge, resilient wedge, with O-ring seals, non-rising stems, two (2) inch operation nut, opening left.

Valves specified "with hand wheels" shall be supplied with operating hand wheels instead of two (2) inch operating nut.

Valve ends shall conform to AWWA standard; flanged ends per AWWA C110 as required for steel pipe; or mechanical joints as required for ductile iron.

Valves shall be suitable for buried service and horizontal mounting. Valves shall be adequately anchored for thrust in accordance with the requirements of these specifications and as shown in Standard Drawing No. 107A and 107B.

4.3 CONTROL AND CHECK VALVES

4.3.1 Standard Check

Standard check valves shall be slanting disc bottom buffer type valves to prevent slamming during instantaneous shutoff. The area through the valve shall equal that of the full area of the pipe. Use Val Matic Swing Flex or approved equal and be of EPDM rubber.

4.3.2 Automatic Control Type Valves

Automatic control valves shall be Cla-Val only and hydraulically operated, diaphragm-actuated, globe pattern valve. Valves shall contain a resilient disc, EPDM, having a rectangular cross-section, contained on three and a half sides by a disc retainer and forming a tight seal against a single removable seat insert. The diaphragm assembly contacting a valve stem shall be fully guided at both ends by a bearing in the valve cover and an integral bearing in the valve seat. This diaphragm assembly shall be the only moving part and shall form a sealed chamber in the upper portion of the valve, separating operating pressure from line pressure. The diaphragm shall consist of nylon fabric bonded with synthetic rubber and shall not be used as a seating surface. Packing glands and/or stuffing boxes are not permitted and there shall not be pistons operating the valve.

Valve shall be of indicated size and shall be of manufacturer's standard cast iron or ductile iron with Type 303 stainless steel trim (seat, disc guide, cover bearing, stem nut and stem). Valve shall have a 200-psi pressure rating with Class 250 ductile iron flanges. Interior ferrous surfaces shall be factory lined with liquid epoxy per the painting section. Also, all exterior ferrous surfaces shall be coated per the painting section.

The design shall precluded cavitation erosion, fouling of working surfaces, and other effects adverse to reliability. Seats and other trim shall be secured by means precluding their loosening by hydraulically induced vibrations; and the fit of stems in guides and guide lengths shall preclude any binding, scraping, or deviation from true alignment affecting the free movement of working parts.

Diaphragm-actuated, hydraulically controlled valves shall have an unrestricted opening with an adjustable controlled closure rate so that valve slamming is reduced to an absolute minimum upon instantaneous shut-off. Valve shall be hydraulically operated and pilot controlled. Valves shall be CLA-VAL or approved equal. If put into vaults, all pilot controls must be stainless steel.

4.4 PLUG VALVES

Plug valves shall be used only where specified.

Plug valves shall be lubricated, have a semi-steel body, and tapered plug with dry film coating on seating surface with adjustable 3-bolt gland assembly sealed by double O-rings. The plug shall be removable through the top of the valve. The valves shall be designed for

the working pressures shown on the plans. Plug valves shall be Rockwell, Dezurick, or approved equal.

Unless approved otherwise, plug valves shall have flanged ends and shall be equipped for totally enclosed worm gear operating with a two (2) inch square operating nut where called for on plans. Other valves shall be lever operated. Plug valves shall be equipped with lubricator extensions as indicated on the plans.

Plug valves shall be coated and painted per sections 3.9 and 3.10.

4.5 BUTTERFLY VALVES

Butterfly valves shall meet the provisions of AWWA C504 for rubber seated, tight closing valves and must use EPDM rubber. Butterfly valves shall be flanged-pattern short body, and shall be cast iron ASTM A126 class B, shaft or stainless steel 18-8 Type 304, disc of Ni-Resist Type 1. They shall be Class 150 unless noted on the plans. The valve manufacturer's name, year of manufacturer, valve size, model number and rated design pressure shall be cast on the body of the valve. Butterfly valve operators shall be waterproof, suitable for buried service and equipped with a two (2) inch square operating nut. Open and close stops shall be provided to limit valve disc travel. Handwheel operators shall be equipped with position indicators. The operating direction to open shall be right and to close shall be left. The direction of open shall be cast on the operating hand-wheel. Where possible, operators shall be placed on the side of the pipeline nearest the curb, opposite centerline of street. Butterfly valves shall be adequately anchored for thrust in accordance with the requirements of these specifications and as shown in Standard Drawing No. 107A and 107B. Concrete pads shall be poured under butterfly valves adequately anchored for thrust.

All butterfly valves shall be field tested in the presence of the inspector prior to installation for compliance with Section 5 of AWWA C504. This includes performance, leak, and hydrostatic testing. Factory certification is not an acceptable substitute for the field testing. Any valves not tested will be rejected. Contractor shall coordinate with pipe manufacture to ensure free movement of valve disc within the pipe.

4.6 COMBINATION AIR/VACUUM RELEASE VALVE AND BLOW-OFF ASSEMBLIES

Combination air/vacuum release valve assemblies shall be installed at all highpoints along the pipeline and at locations shown on the plans. The tap for the air valves and/or blow-off valves shall be made in a level section of pipe, no closer than eighteen (18) inches from any machined section of pipe, rubber gasketed joint, or flanged joint. Where practical, connections to steel pipe for combination valve assemblies and/or blow-off assemblies shall be made with a coupling welded to the pipe in the shop at time of fabrication. Where it is necessary to make the connection in the field, additional care shall be exercised to minimize the damage to mortar-linings in accordance with the Standard Drawings. Wherever connections can be made dry, the coupling shall be welded to the pipe and the mortar lining repaired in accordance with Standard Drawing 141. The exterior cement mortar lining shall be repaired in accordance with the specifications and the Standard Drawings. Paint all (buried and above grade) exposed metal in conformance with the painting section of these specifications. Locate blow-off risers within street ROW where possible or behind curb in accordance with Standard Drawing 106 and as shown on the Plans. Locate air release valve covers in accordance with Standard Drawing 106 and as shown on the Plans.

4.6.1 Air and Vacuum Release Valve Assembly

The Contractor shall install a combination air and vacuum release valve assembly as shown on Standard Drawing No. 110 and 111 at locations detailed on the plans and the engineer preparing the plans shall design the size of the air release valve based on industry standards and in accordance with the manufacturer's recommendations. Generally, one (1) inch assemblies are used for eight (8) inch and smaller mains, and two (2) inch assemblies are used for larger mains up to twelve (12) inch. The engineer designing the Plans shall also determine the proper spacing intervals, the placement of above grade assembly, and the size of the enclosure to fit all appurtenances necessary for maintenance of the assembly.

4.6.2 Blow-Off Valve Assembly

The Contractor shall install blow-off assemblies as detailed on the plans. Valves and fittings shall equal or exceed the pressure rating of the pipe to which they are attached. Materials and required fittings are shown on Standard Drawing No. 112, 113 and 114. The blow-off assembly shall be adequately sized for draining and flushing of water lines. All valve boxes and riser covers shall be placed in the street ROW and designed for full AASHTO H-20 loading when in a trafficked way unless otherwise approved by the Agency.

4.7 FIRE HYDRANT ASSEMBLIES

Fire hydrant assemblies shall include the connection to the main and shall consist of fire hydrant and appurtenances in accordance with these specifications and as shown on the Standard Drawing No. 103.

4.7.1 Location

Hydrants shall be located as shown or as directed and, in a manner, to provide complete accessibility and in such a manner that the possibility of damage from vehicles or injury to pedestrians will be minimized. All fire hydrants must have 3 feet of clearance around them with no obstructions (See Standard Drawing No. 106).

4.7.2 Position

All hydrants shall stand plumb and shall have their nozzles facing the curb or street at an angle of forty-five (45) degrees.

4.7.3 Fire Hydrant Barricades

When required, fire hydrant barricades shall not obstruct the outlets and shall be constructed per Standard Drawing No. 105.

4.7.4 Materials

Fire hydrants shall be six (6) inches by four (4) inches by two and one half (2-1/2) inches Jones No. J-4040BRE or Clow 850. All valve operating stem ends shall be equipped with pentagonal dummy nuts the same size as the nozzle cap ends.

Fire hydrants shall be brass or bronze. All hydrants must conform to AWWA C503 and in all cases must be approved by the County of Los Angeles, Forester, and Fire Warden. Fire hydrant tops shall be tapped for two and one-half (2 1/2) inch I.P.T. Fire hydrant location and maximum spacing interval shall be in accordance with the governing agency and approved by the Agency.

Fire hydrant risers shall be provided with Class 150 cast iron flanges and shall be installed four (4) inches to six (6) inches above grade.

Fire hydrant risers and runners shall be a full six (6) inches inside diameter pipe. The run shall be ductile iron as described in Standard Drawing No. 103. The bury shall be Jones No. J-4040BRE or Clow 850 flange unless otherwise specified.

All required bolts, nuts, and gaskets shall be provided. Bolt (8) hole flange 3/4" diameter holes bolts 5/8" x 3" long, and (8) hole flange 7/8" diameter holes bolts 3/4" x 3" long. Bolts at hydrant flange shall be installed with nuts on bottom. Only hexagonal nuts and bolts will be permitted. All bolts provided must be a minimum length of at least three threads past nut when tightened.

All hydrants shall be painted with one (1) coat of primer and two (2) finish coats of School Bus Yellow or approved equal. The Contractor shall apply an additional finish coat after installation.

4.8 LOCATION OF APPURTENANCES

The Agency reserves the right to direct the location of all valve marker posts, air release valve assemblies, and blow-off valve assemblies within the road right-of-way or easement to ensure proper drainage and to minimize interference with traffic.

4.9 FLEXIBLE COUPLINGS

Flexible couplings shall have all stainless-steel nuts and bolts and be either stainless steel bodies or all epoxy lined and coated. They shall be Rockwell, Smith-Blair, Baker, Dayton, or approved equal. Flanged couplings adapters shall be Rockwell, Smith-Blair, Baker, Dayton, or approved equal. Clamp type mechanical couplings shall be as manufactured by the Victaulic Company of America, Gustin-Bacon, or equal and shall be for pipe with grooved ends for water service and able to withstand a pressure equal to the strength of the pipe to which they are attached. All flexible couplings shall be protected by coating in accordance with the painting section of these Specifications.

4.10 FIRELINE METERS

All projects that are required to provide on-site fire protection will be required to install a fire department and SCVWA approved fire service meter that is sized appropriately to meet the projects on-site fire protection and domestic requirements. Assemblies shall be completely contained in a vented vault and include sufficient valving and bypass capabilities to allow the meter to be serviced, removed, or tested without interrupting water service to the customer. The serial number shall be stamped on the body of the meter. The compound meter and vault must be fully detailed on improvement plans. The vault shall be in accordance with Standard Drawing No. 123D.

4.11 WATER METERS

4.11.1 Water Meters- AMR Water Meters

All new domestic, commercial, industrial and land development will be required to install AMR water meters approved by the Agency.

4.12 DOMESTIC COMPOUND METERS

Projects that are not required to provide on-site fire protection will be required to install a domestic AMR water meter approved by the Agency that is sized appropriately to meet the projects on site domestic requirements. Domestic compound meters shall be completely contained in a vented vault and include sufficient valves and bypass capabilities to allow the meter to be serviced, removed, or tested without interruptions of water service to the customer. Serial number of meter shall be stamped on body of meter. The meter and vault must be fully detailed on improvement plans.

5.0 SERVICE LINES

5.1 LOCATION OF SERVICE LINE

- The trench for the services shall have a minimum width of ten (10) inches and a depth of thirty (30) inches below the existing or finished grade throughout the length of service up to two (2) inch services. Services larger than two (2) inches shall be detailed in supplementary drawings, which will be furnished to the Agency if such larger size is specified. Services two (2) inches and larger shall have a USC certified backflow device installed maintained by owner/customer.

- Size of services shall be shown on the plans, as specified, or as determined by the Agency.

- In general, each service shall start at the new water main and shall extend to the meter location at an elevation determined by Standard Drawing No. 108 and the existing grade at the meter location. Each service shall be connected to the corporation stop at the main and an angle stop shall be installed at its end in the meter box location. Service laterals shall be perpendicular to the water main.

- The locations of the meter boxes shall be as indicated on the plans or as directed by the inspector. No meter box shall be installed closer than five (5) feet from the edge of a driveway apron. Services shall not be installed in driveways and/or customer's hardscape.

- Single service lines shall not be less than ten (10) horizontal feet from sewer laterals.

- In no case shall a service or other tap be made in a main closer than twenty-four (24) inches to a bell, coupling, joint, fitting, or another service tap. Multiple taps shall be staggered.

- A single service line is required for each metered connection. However, two individual services may be installed in a single twenty-four (24) inch trench excavated approximately along the projection of a lot line common to any two (2)

lots. In such cases, service taps on the main shall not be less than two (2) feet apart. Service lines shall not exceed twenty (20) feet unless otherwise specified by the Agency.

- The meter shall be purchased from and installed by the Agency. Water services shall be installed by Contractor only when indicated on the plans.

- Services shall be tested and disinfected in the same manner as specified elsewhere herein for water mains. These operations shall be performed concurrently with the testing and disinfecting of the water mains where practicable.

- Dielectric connections shall be provided where dissimilar metals are joined.

5.2 CORPORATION STOPS AND ANGLE STOPS

All corporation stops and angle stops shall be same size as the service size. Corporation stops shall be Mueller 300 ball type or equal, have male iron pipe threads on the inlet and a pack joint on the outlet. All stops shall have a circular waterway of service line diameter. All nuts, washers, and contact surfaces shall be faced to a true fit. All tapers shall be carefully ground and show no leakage under hydrostatic test. All stops shall be finished in a neat manner, and the thickness of metal shall be equal around the axis of the circular way. All burrs on the inside of stops shall be carefully removed leaving a clean, smooth waterway. All stops, including copper tubing connections, shall be field tested with the water main as noted above. Ball type corps shall only be Jones, Ford, Mueller or equal.

5.3 1” AND 2” SERVICES

If using copper tubing for services, it shall be seamless copper water tube, Type K, cold drawn, and annealed of the size shown on the plans. It shall be true, smooth, clean on both inside and outside, and free from any cracks, seams, or other defects. It shall be truly cylindrical, of the full specified outside and inside diameters and of uniform thickness of metal, and shall conform to ASTM B88. The tubing shall be continuous between the main line and the meter with no splices permitted. Any repairs made must be sweated or may have to be replaced entirely as specified by the inspector. No compression fittings are to be used on 2” copper. All fittings shall be sweat fittings. Buried copper pipe shall be wrapped with 10 mil. minimum tape wrap.

If using Municipex tubing for services, it shall meet or exceed the following industry standards:

- Manufactured to SDR9 copper tube sizes (CTS) according to ASTM F876, AWWA C904 and CSA B137.5
- Certified to AWWA C904 Crosslinked Polyethylene (PEX) Pressure Pipe, 1/2 in. (13 mm) Through 3 in. (76 mm), for Water Service
- Certified to CSA B137.5 Crosslinked Polyethylene (PEX) Tubing for Pressure Applications
- Certified to NSF/ANSI Standards 14 and 61 (NSF-pw-g) for potable water applications
- Certified to PPI TR-3 Category 3306 for long-term hydrostatic strength, chlorine and UV resistance
- Tested in accordance with ASTM F2023 for chlorine resistance

- Tested in accordance with ASTM F2657 for UV resistance; provides superior UV resistance

5.4 CONNECTIONS TO ASBESTOS CEMENT MAINS

5.4.1 Health Hazard

The Contractor is warned that asbestos is a known human carcinogen when inhaled and poses serious health risks. Asbestos fibers are easily inhaled and can result in chronic respiratory illness, cancer and other severe adverse health effects.

5.4.2 General

Asbestos materials may be encountered in the Work. The Contractor shall account for removal of all existing asbestos cement pipe in the total bid price shown on the bid schedule. All removed asbestos pipe becomes property of the Contractor and must be double wrapped in polyethylene certified as meeting RQ (Asbestos), Class 9, NA 2212, III. Removal of existing pipe shall extend to the nearest joint to prevent cutting of the pipe. Cutting of asbestos cement pipe is prohibited unless approved in writing by the Agency. Removal of asbestos pipe shall comply with the latest EPA regulations. If materials containing asbestos other than ACP are encountered, a contractor registered by CAL/OSHA and certified by the State Contractors Licensing Board for asbestos removal shall perform removal of existing asbestos material. Copies of the certification shall be submitted to the Engineer prior to the commencement of any asbestos removal activities. The Contractor or subcontractor shall comply with all State and Federal laws regarding handling and removal of asbestos materials. The Contractor shall be responsible for the proper identification, removal and disposal of all asbestos materials.

5.4.3 Joining Existing Asbestos Cement Pipe

In the specific instance of making piping connections to existing asbestos cement pipe, the Contractor shall connect at the nearest joint. Cutting of asbestos cement pipe is prohibited unless otherwise approved in writing by the Agency.

5.4.4 Tapping Existing Asbestos Cement Pipe

If approved by the Agency, tapped connections for water services shall be made with a bronze double strap service clamp as shown on the Standard Drawings. All connections for water services shall be made with a bronze double strap service clamp as shown on the Standard Drawings. Taps shall be spaced at a minimum distance of 3 times the main line diameter. Taps may be spaced closer per the approval of the Agency Engineer.

5.4.5 Handling Asbestos Cement Pipe

The Contractor shall perform all handling of asbestos cement pipe in strict conformance with all applicable CAL/OSHA, CAL/EPA, US/EPA and other governing and environmental health and safety agency requirements.

5.5 CONNECTIONS TO CEMENT MORTAR LINED AND COATED MAINS

Where practical, connections for water services shall be made with high pressure coupling welded to the pipe in the shop at time of pipe fabrication. After coupling is welded to the pipe, it shall be covered by mortar coating so no bare metal is left exposed. Where it is

necessary to make the connection in the field, additional care shall be exercised to minimize the damage to mortar linings. Refer to Standard Drawing 141.

5.6 CONNECTIONS TO DUCTILE IRON MAINS

All connections for water services shall be made with double strapped malleable iron service saddles positioned as shown in Standard Drawing No. 108. Saddles shall have female iron pipe thread of the same standard size as the service tubing. Tapping saddles shall be spaced at a minimum distance of 24" per section 5.1 or spaced in such a way to allow proper installation of the saddle, whichever is greater. Tapping saddle spacing may be less than 24" per the approval of the Agency Engineer.

5.7 CONNECTIONS TO PVC MAINS

The use of saddles to make taps is recommended for all sizes and classes of PVC pipe. Service connections up to 2-inch size may be made using a service saddle. The saddle chosen shall be designed and sized for the PVC main and shall provide full support around the circumference of the pipe. For 12" PVC mains or smaller the tap should not be located closer than 24 inches from the back of the bell, the spigot insertion line, or joint-restraint hardware. For 14" PVC mains or larger, the tap should not be located closer than 36 inches from the back of the bell, the spigot insertion line, or joint-restraint hardware. For all PVC mains, multiple saddle taps should be staggered and kept at least 18" apart lengthwise. Thus, the minimum spacing along the same line is 36 inches.

5.8 CROSS CONNECTION PROTECTION

See Appendix A SCVWA – Backflow and Cross Connection Control Program.

5.9 PRECAST CONCRETE VAULTS

Precast concrete vaults and covers shall be manufactured in a plant especially designed for that purpose and shall conform to the size, shape and dimensions indicated on the detailed plans.

Design loads are those anticipated for use within a public parkway and/or traffic area, *AASHTO H-20*, live loads of 8000 lbs. with a 30% impact factor. The minimum compressive concrete strength shall be 4000 psi at 28 days.

Unless noted otherwise, vault access hatches and frames shall be fabricated in accordance with the project drawings and as approved by the Agency. Hatch lids shall be adequately designed for the vault and shall be spring loaded to assist opening. The hatch lid shall be aluminum or a material approved by the Agency.

Pre-cast concrete vaults shall be furnished in one or more sections without a base. The bottom of the structure shall be placed on compacted, crushed rock sub-base, graded level and to the proper elevation as shown in the Standard Drawings or on the plans.

Openings or "knockouts" in precast concrete vaults shall be located as shown on the drawings and shall be filled with concrete grout or mechanical seals such as link seals for pipes larger than 3-inches outside diameter. Provide sleeves and water stops.

All joints and wall penetrations between precast concrete vault sections shall be made watertight. The sealing compound shall be installed according to the manufacturer's recommendations to provide a watertight joint.

APPENDIX A

BACKFLOW AND CROSS-CONNECTION CONTROL PROGRAM

AUTHORITY

Public health protection from contamination from backflow and cross-connection is regulated by the California Code of Regulations Title 17, Division 1, Chapter 5, Subchapter 1, Group 4, Articles 1-2. Water purveyors must maintain an adequate backflow and cross-connection program or risk the revocation of certification to supply public potable water.

Santa Clarita Valley Water Agency diligently operates a backflow and cross-connection program with a conscientious effort to protect and prevent the public water supply from contamination by backflow or cross-connection and to immediately rectify any deficiencies discovered in the system. Accordingly, the Board of Directors of Santa Clarita Valley Water Agency mandated a cross-connection control program by the establishment of Ordinance No. 79 on November 21, 1978, which was revised ten years later on July 19, 1988 by Ordinance No. 97.

RESPONSIBILITIES

A. State of California Department of Drinking Water:

Department of Drinking Waters' primary responsibility is ensuring that water system is free of actual or potential sanitary hazards, including unprotected backflow or cross-connections. The Department of Drinking Water (DDW) has the further responsibility of ensuring that water purveyors provide an approved water supply at the point of delivery to the consumer's water system. Furthermore, the DDW ensures that the water purveyors require that their consumers install, test and properly maintain an approved backflow prevention device at the service connection when required.

B. Santa Clarita Valley Water Agency:

The Agency's primary responsibility is to prevent water from unapproved sources, or any other substance, from entering the public water supply system. The Agency is prohibited by State laws and regulations from installing and maintaining a water service connection to a consumer's water system within its service area where a health, system, plumbing, or pollutional hazard exists, or will probably exist, unless the public potable water supply is protected against backflow by an approved prevention device installed at the service connection.

C. Consumer:

The Consumer has the primary responsibility of preventing pollutants and contaminates from entering their potable water system(s) or the public potable water system. The Consumer's responsibility starts at the point of delivery from the public potable water system and includes all of his water system. The Consumer, at his own expense, shall install, operate, test and maintain approved backflow preventers as directed and approved by the Agency in accordance with CCR, Title 17. Such assemblies shall be installed in an accessible location and in a manner approved by the Agency. The Consumer shall maintain accurate records of tests and repairs made to backflow preventers and provide the Agency and the Department of Drinking Water with copies of such records. The records must be made on forms approved by the Agency and shall include the lists of materials or replacement parts used.

Following any repair, overhaul, re-piping or relocation of a backflow preventer, the Consumer shall have the backflow preventer tested to ensure that it is in good operating condition and will prevent backflow. Testing, maintenance and repairs of backflow prevention devices shall be made by a certified backflow prevention device tester. Refer to TABLE 4 for a list of approved certified backflow prevention device testers.

D. User Supervisor (Reference CCR, Title 17, §7586)

Santa Clarita Valley Water Agency may, at their discretion, require an industrial water user to designate a user supervisor when the water user's premises has a multi-piping system that convey various types of fluids, some of which may be hazardous and where changes in the piping system are frequently made. The user supervisor is responsible for conformance with all applicable laws, rules and regulations pertaining to backflow and cross-connection control. The user supervisor shall be responsible for the avoidance of cross-connections during the installation, operation and maintenance of the water user's pipelines, backflow preventers and water using equipment on the premises.

SCOPE OF PROGRAM (Reference CCR, Title 17, § 7584)

For the purpose of satisfying the requirements of Title 17, the Agency operates the backflow and cross-connection program under the following guidelines:

A. The adoption of operating rules or ordinances to implement the cross-connection program (as stated in Authority, Paragraph 2 – Page 1);

B. The conducting of annual surveys to identify water user premises where cross-connections are likely to occur;

C. The provision of backflow protection by the water user at the user's connection or within the user's premises or both;

D. The provision of at least one person trained in cross-connection control to carry out the backflow and cross-connection program;

E. A procedure for testing backflow preventers (as stated in Testing and Maintenance of Backflow Preventers – Page 3); and

F. The maintenance of permanent records of locations, tests, and repairs of backflow preventers.

EVALUATION OF THE HAZARD (Reference CCR, Title 17, § 7585)

Santa Clarita Valley Water Agency shall evaluate the degree of potential health hazard to the public water supply, which may be created as a result of conditions existing on a water user's premises. The Agency, however, shall not be responsible for abatement of cross-connections, which may exist within a user's premises. At a minimum, the evaluation should consider the existence of cross-connections, the nature of materials handled on the property, the probability of a backflow occurring, the degree of piping system complexity and the potential for piping system modification. Special consideration shall be given to the premises of the following types of water users:

A. Premises where substances harmful to health are handled under pressure in a manner that could permit their entry into the public water system. This includes chemical or

biological process waters and water from public water supplies that have deteriorated in sanitary quality.

B. Premises having an auxiliary water supply, unless the auxiliary supply is accepted as an additional source by the Agency and is approved by the Department of Drinking Water.

C. Premises that have internal cross-connections that are not abated to the satisfaction of the Agency or the Department of Drinking Water.

D. Premises where cross-connections are likely to occur and entry is restricted so that cross-connection inspections cannot be made with sufficient frequency or at sufficiently short notice to assure that cross-connections do not exist.

E. Premises having a repeated history of cross-connections being established or re-established.

TYPE OF PROTECTION REQUIRED (Reference CCR, Title 17, § 7604)

The type of protection that shall be provided to prevent backflow into the public water supply shall be commensurate with the degree of hazard that exists on the consumer's premises. The type of protective device that may be required (listed in an increasing level of protection) includes: Double Check Valve Assembly (DC), Reduced Pressure Principle Backflow Prevention Device (RP), or an Air-Gap Separation (AG). The water user may choose a higher level of protection than required by the Agency. The minimum types of backflow protection required to protect the public water supply, at the water user's connection to premises with various degrees of hazard are given in TABLE 1. Situations that are not covered in TABLE 1 shall be evaluated on a case-by-case basis and the appropriate backflow protection shall be determined by the Agency or Department of Drinking Water.

APPROVAL OF BACKFLOW PREVENTERS (Reference CCR, Title 17, § 7601)

Santa Clarita Valley Water Agency requires that backflow preventers shall have passed laboratory and field evaluation tests performed by a recognized testing organization, which has demonstrated their competency to perform such tests to the Agency. Any backflow prevention device required herein shall be of a model approved by the Agency. The term approved backflow prevention device or assembly shall mean an assembly that has been manufactured in full compliance with standards established by State and County laws and regulations.

CONSTRUCTION OF BACKFLOW PREVENTERS (Reference CCR, Title 17, § 7602)

A. Air-Gap Separation. An air-gap separation (AG) shall be at least double the diameter of the supply pipe, measured vertically from the flood rim of the receiving vessel to the supply pipe; however, in no case shall this separation be less than one inch.

B. Double Check Valve Assembly. A required double check valve assembly (DC) shall, as a minimum, conform to the AWWA Standard C506-78 (R83) adopted on January 28, 1978 for Double Check Valve Type Backflow Preventive Devices, which is herein incorporated by reference.

C. Reduced Pressure Principle Backflow Prevention Device. A required reduced pressure principle backflow prevention device (RP) shall, as a minimum, conform to the AWWA

Standard C506-78 (R83) adopted on January 28, 1978 for Reduced Pressure Principle Type Backflow Prevention Devices, which is herein incorporated by reference.

LOCATION OF BACKFLOW PREVENTERS (Reference CCR, Title 17, § 7603)

All backflow prevention devices shall be installed in an accessible location and in a manner approved by the Agency according to State laws and regulations, as follows:

A. Air-Gap Separation. An air-gap separation shall be located as close as practical to the user's connection and all piping between the user's connection and the receiving tank shall be entirely visible unless otherwise approved in writing by the Agency and the Department of Drinking Water.

B. Double Check Valve Assembly. A double check valve assembly shall be located as close as practical to the user's connection and shall be installed above grade, same as RP device, and in a manner where it is readily accessible for testing and maintenance.

C. Reduced Pressure Principle Backflow Prevention Device. A reduced pressure principle backflow prevention device shall be located as close as practical to the user's connection and shall be installed a minimum of twelve inches (12”) above grade and not more than thirty-six inches (36”) above grade measured from the bottom of the device and with a minimum of twelve inches (12”) side clearance.

TESTING AND MAINTENANCE OF BACKFLOW PREVENTERS (Reference CCR, Title 17, § 7605)

A. Santa Clarita Valley Water Agency shall ensure that adequate maintenance and periodic testing are provided by the water user to ensure proper operation of the backflow preventer(s).

B. Backflow preventers shall be tested at least annually or more frequently if determined to be necessary by the Department of Drinking Water or the Agency. When devices are found to be defective, they shall be repaired or replaced in accordance with the provisions of this program.

C. The Agency shall notify in advance the water user when testing of backflow preventers is needed. The notice shall contain the date when the test must be completed.

D. The inspection and test of backflow preventers shall be at the water user’s expense.

E. Backflow preventers shall be tested by persons who have demonstrated their competency in testing of these devices to the Agency or Department of Drinking Water.

F. Backflow preventers shall be tested immediately after they are installed, relocated, or repaired and not placed in service unless they are functioning as required.

G. Reports of testing and maintenance shall be maintained by the Agency for a minimum of three years.

BACKFLOW OR CROSS-CONNECTION EVENT

In accordance with the Santa Clarita Valley Water Agency Emergency Disinfection Plan, a cross-connection event or emergency will be approached in a manner similar to a bacterial contamination problem. The principal differences being that the source of contamination

can usually be identified as to approximate location and the flow pattern can be more precisely determined. In addition, a cross-connection may be bacterial or chemical. A chemical cross-connection problem does not necessarily require chlorine. It may require some other type of testing, and/or neutralizing. SCVWA's laboratory has the facilities to test for chemical contamination problems.

In the event of accidental contamination by backflow or a cross-connection, the owner or user supervisor shall promptly take steps to confine further spread of the contamination within their system. The event or emergency will require immediate notification of Santa Clarita Valley Water Agency, the Department of Drinking Water – Field Operations Branch, and the Los Angeles Regional Water Quality Control Board. Refer to TABLE 2 for a listing of emergency telephone numbers.

Appropriate measures must be taken immediately to free the water system of contamination, flush out the contaminated water and, if necessary, notify affected consumers.

ENFORCEMENT

The consumer's water system shall be open for inspection at all reasonable times to authorized representatives of the Agency to determine whether cross-connections or other structural or sanitary hazards, including violations of these regulations, exist.

Service of water to any premise(s) found to be in violation of this backflow and cross-connection program shall be discontinued by Santa Clarita Valley Water Agency after written notice of the violation to both the owner and consumer, if different; or, if necessary, discontinued immediately to protect the health and safety of the consumer where such a condition exists.

A violation exists if:

A. If a backflow prevention device required by this program is not installed, tested and maintained, as required herein.
B. If it is found that a backflow prevention device has been removed or bypassed.
C. If unprotected cross-connections exist on the premises.
D. If the periodic system inspection required herein has not been conducted.
E. If there is inadequate backflow protection at the service connection.
F. If a false report or false information is provided to the Agency by or on behalf of the owner or consumer, with regard to the backflow prevention device.

Water service will not be restored until such conditions or defects are corrected.

APPENDIX B

PROVIDING REQUIRED EASEMENTS

Pipe shall be located in the public right-of-way where possible to ensure easements are avoided and minimized as much as possible. If an easement is required for construction and/or maintenance of water mains, the minimum width shall be 15 feet, unless otherwise determined by the Agency.

In areas where facilities are to be located in private streets, the easement width shall be 2 times the depth to the bottom of the pipe and rounded up the nearest 5 feet or shall be the pipe diameter plus 10 feet, whichever is greater, but shall have a minimum width of 15 feet (20 feet if two pipelines are located in the street). In addition, 10-foot-wide easements shall be provided for all fire hydrants and meter services with easements extending a minimum of 3 feet beyond the hydrants or meters. Easements 15 feet wide minimum are required for facilities that must pass through a residential lot. The easement shall be located on one lot and in no case will the Agency accept an easement split upon two lots. Buildings shall not be located within 5 feet of the Agency's easement. Trees and shrubbery shall not be located in Agency's easement.

The following is the suggested procedure, which should be followed when processing easements with the Agency:

1. Developer's Engineer shall submit three copies of the easement description and sketch to the Agency Engineer for review. If acceptable, two copies of the document will be submitted to the Agency for further processing. If not acceptable, the Agency Engineer will return the description and sketch with the required corrections noted thereon.

   All blanks in the documents, such as tract numbers, project identification, title report number, map and book numbers and pages, dates, etc., must be filled in as required by the Agency Engineer. If the tract map has not been recorded at the time of easement processing, the book and page number shall be left blank. The Agency will fill in the appropriate numbers following recording of the map and sketch shall be signed by licensed land surveyor or stamped by the Engineer who prepared the description. Sufficient space shall be provided of each page of the description and sketch for the Agency Engineer's easement review stamp (3"x 3" square). The easement sketch must contain a vicinity map showing the location of the easement in relation to major streets and highways, as well as the sketch depicting the easement boundaries with bearings, distances, points of beginning, north arrow, and any other information required by the Agency Engineer.

2. Once the Agency receives the acceptable easement documents from the Agency Engineer, the Agency, with the assistance of their attorney, will request the Developer to submit the following information:

   a. Grant of Easement on Agency form executed and notarized. Since the printed form is for a Corporate Grantor, a new jurat attachment must be used for individuals, partnerships, and joint ventures. Each notary jurat must correspond with the entity granting the easement.

   b. The easement description and sketch referred to in Item 1, which shall have on it the stamped approval of the Agency.

c. Agreement subordinating the Grant of Easement to each encumbrance (Deed of Trust) upon the property.

d. A preliminary title report dated within 30 days of date of submission reflecting the current status of the subject property.

NOTE: A preliminary subdivision report will not be accepted since it does not contain sufficient information.

All blanks in the documents, such as project identification, title report numbers, and pages, dates, etc., must be filled in if available. The Developer may request an appointment in order to have the package reviewed at the time of submittal by calling the office of the attorney for the Agency.

3. After approval by the attorney, the Grant of Easement will be initialed and returned to the Agency.

4. After the Agency has accepted the Grant of Easement and recorded same, the Developer shall be notified so that he may obtain an update of the preliminary title report showing the recordation of the Grant of Easement and verifying the fact that no new liens have been recorded on the property in the interim between the date of the previous title report and the date of recording of the easement.

5. Normally, the Agency will not record the Grant of Easement until after the tract has been recorded by the Developer. Consequently, the grantee named in the easement should be the entity who will hold title at the time the tract map is recorded.

NOTE: APPROVAL BY THE AGENCY WILL NOT BE GIVEN FOR THE WATER SYSTEMS UNTIL ALL EASEMENTS HAVE BEEN OBTAINED.

APPENDIX C

When recorded, return to:

Santa Clarita Valley Water Agency
27234 Bouquet Canyon Rd,
Santa Clarita, CA 91350
Attn: General Manager

GRANT OF PERMANENT AND NON-EXCLUSIVE EASEMENT

For a valuable consideration, receipt and sufficiency of which are hereby acknowledged, _____ ("Grantor"), grants and conveys to SANTA CLARITA VALLEY WATER AGENCY, a public corporation, its successors and assigns ("Grantee"), a permanent easement and right of way, including the right to remove any improvements, trees, shrubs and any other growth thereon, unless herein otherwise provided, and at any time and from time to time to locate, construct, install, alter, inspect, remove, replace and maintain a line or lines of pipe of whatever nature, valves, and meter structures, service connections, services and/or connections, with all and every appendage, structure and equipment necessary or convenient to be installed or used by Grantee, or its successors, at any time or from time to time in connection with any of the aforementioned facilities for water transportation and for any and all other uses and purposes of the Grantee and its successors and assigns, in, under, upon, over, across and through those certain parcels of land situated in the County of Los Angeles, State of California, and more particularly described as follows:

The Grantor agrees for itself, its successors and assigns, not to erect, place or maintain, nor to permit the erection, placement or maintenance of any building, planter boxes, earth fill or other structures, except walls and fences, on the above-described real property. The Grantee and its contractors, agents and employees, shall have the right to trim or cut tree roots as may endanger or interfere with said systems and shall have free access to said systems and every part thereof, at all times, for the purpose of exercising the rights herein granted; provided, however, that in making any excavation on said property of the Grantor, the Grantee shall make the same in such a manner as will cause the least injury to the surface of the ground around such excavation, and shall replace the earth so removed by it and restore the surface of the ground to as near the same condition as it was prior to such excavation as it practicable.

This Grant of Easement shall bind and inure to the benefit of the respective heirs, personal representatives, successors, and assigns of the parties hereto.

Any subsequent removal, replacement or realignment of facilities located within the easement granted shall be accomplished at the expense of the person or entity requiring the same and at no expense to Grantee.

IN WITNESS WHEREOF, the Grantor has caused its name to be hereunto subscribed as of the _____day of _____, 2007.

_____

State of California)
) ss.
County of Los Angeles)

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

WITNESS my hand and official seal.

_____

CERTIFICATE OF ACCEPTANCE
OF GRANT OF EASEMENT

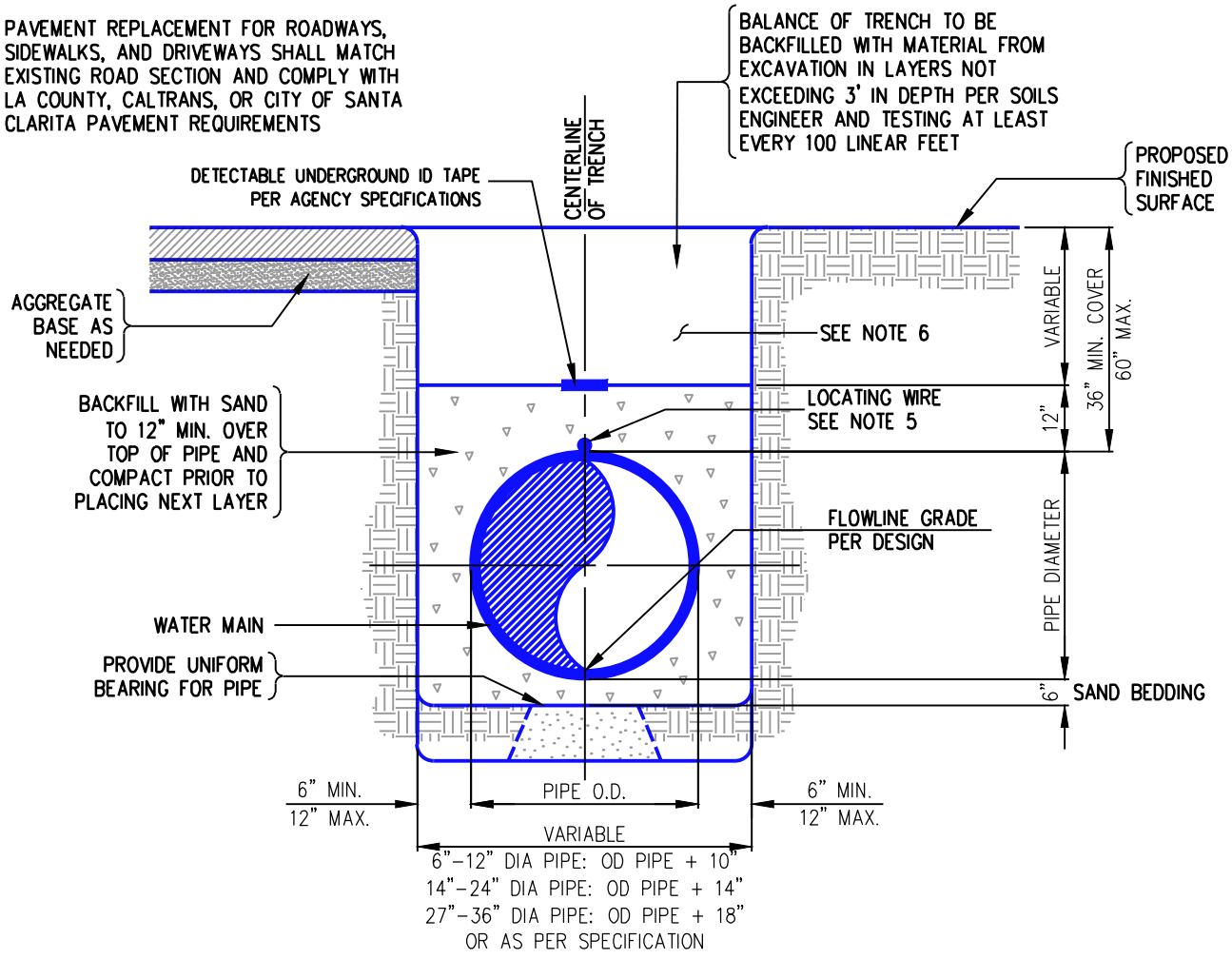
This is to certify that the undersigned Secretary of the Board of the Santa Clarita Valley Water Agency has accepted on behalf of the said Agency the interest in real property conveyed by the within instrument and consents to the recordation of said instrument.

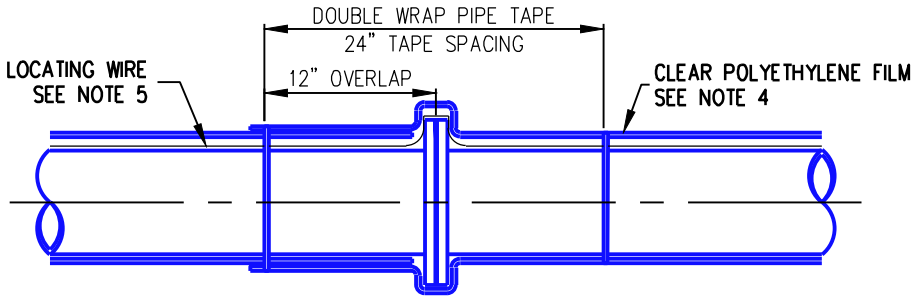
Dated: _____

_____
Secretary of the Board
Santa Clarita Valley Water Agency

TABLE OF CONTENTS
DRAWINGS

PAVEMENT REPLACEMENT FOR ROADWAYS, SIDEWALKS, AND DRIVEWAYS SHALL MATCH EXISTING ROAD SECTION AND COMPLY WITH LA COUNTY, CALTRANS, OR CITY OF SANTA CLARITA PAVEMENT REQUIREMENTS





NOTES:

1. ALL PAVEMENT SHALL BE CUT NEATLY PRIOR TO TRENCHING.
2. IMPORTED BACKFILL MATERIAL TO BE INSTALLED AS DIRECTED IN THE FIELD BY THE AGENCY'S INSPECTOR.
3. ALL MATERIALS SUPPLIED BY SCV WATER OR OTHERS SHALL MEET OR EXCEED AWWA SPECIFICATIONS.
4. ENCASE FERROUS OR METALLIC PIPE AND FITTINGS WITH ONE LAYER OF CLEAR 8-MIL POLYETHYLENE FILM.
5. LOCATING WIRE MUST BE HMWPE 12 GAUGE AND SHALL BE INSTALLED ON ALL PIPE. ATTACH WIRE WITH 2" WIDE TAPE AND TAPED AT 12" INTERVALS.
6. COMPACT BACKFILL TO 95% RELATIVE COMPACTION WHEN PIPE IS IN PAVED AREAS AND COMPACT TO 90% RELATIVE COMPACTION WHEN PIPE IS IN UNPAVED AREAS.
7. PROVIDE HAND EXCAVATABLE ONE SACK SLURRY PER GREENBOOK STANDARDS (LATEST EDITION) FOR ANY PIPE WITH LESS THAN 3' COVER. BACKFILL WITH ONE SACK SLURRY FROM INVERT TO SUBGRADE.
8. 12" MINIMUM VERTICAL CLEARANCE SHALL BE MAINTAINED BETWEEN WATER MAIN AND ALL OTHER UTILITIES.
9. WATER MAIN DEPTH SHALL BE 60" MAXIMUM AND 36" MINIMUM UNLESS OTHERWISE DIRECTED BY THE AGENCY.
10. COMPACTION REPORTS MUST BE PROVIDED DAILY TO AGENCY'S INSPECTOR OR AGENCY REPRESENTATIVE.

REV.	DATE	DESCRIPTION	BY

TRENCH DETAIL

SCV WATER

SANTA CLARITA VALLEY WATER AGENCY
ENGINEERING SERVICES SECTION

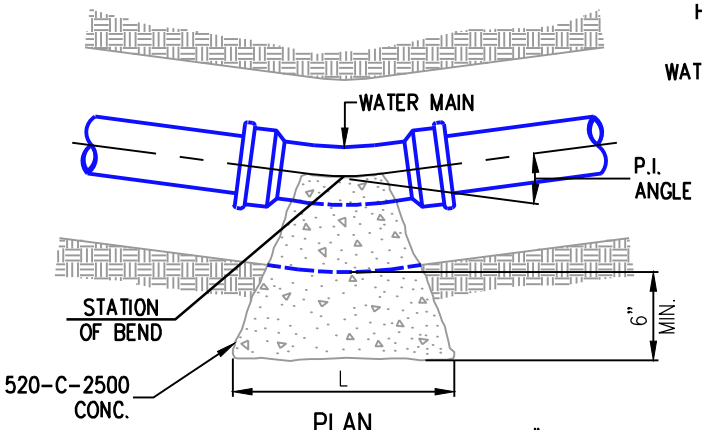
APPROVED BY:

BRIAN J. FOLSOM, R.C.E. 44723
CHIEF ENGINEER

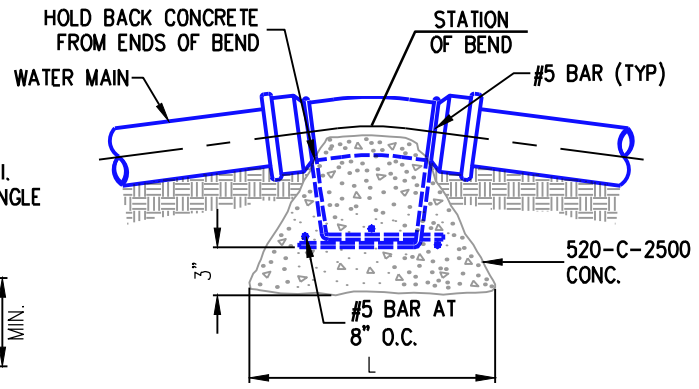
5/15/19
DATE

STD. DWG.
101

SHEET 1 OF 1



PLAN



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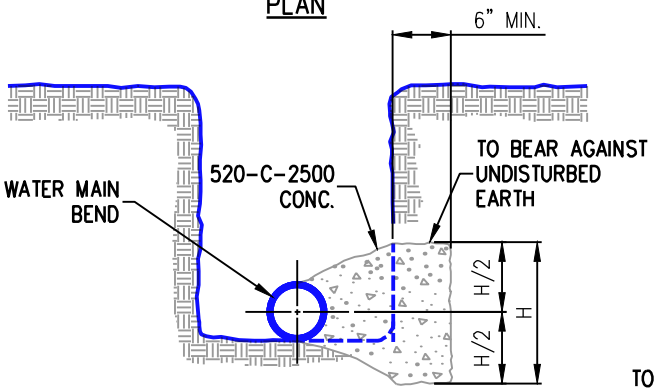
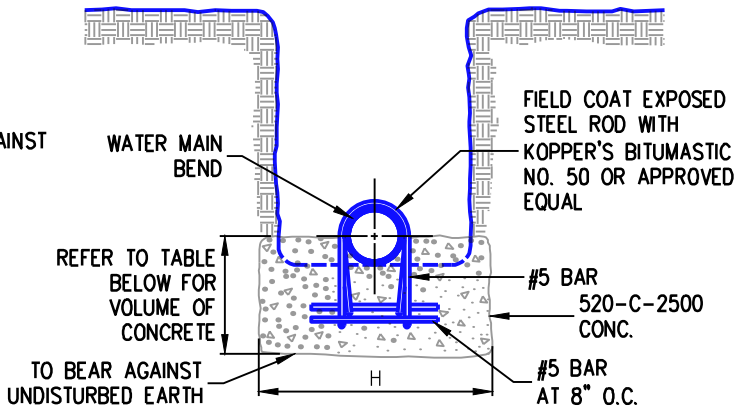




NOTES:

1. CONCRETE PLACED AGAINST THE PIPE FITTING SHALL NOT EXTEND BEYOND THE JOINTS.
2. THRUST BLOCK REQUIREMENTS TABLE IS DESIGNED FOR A TEST WATER PRESSURE OF 200 PSI AND A SOIL BEARING PRESSURE OF 2000 PSF.
3. CONCRETE THRUST BLOCKS SHALL BE INSTALLED TO THE DIMENSIONS AND CONFIGURATIONS SHOWN HEREON.
4. CONCRETE THRUST BLOCKS SHALL BE PLACED SOLIDLY AGAINST FIRM UNDISTURBED NATIVE SOIL.
5. THE RATIO OF THRUST BLOCK HEIGHT TO LENGTH SHALL BE AT A MINIMUM 1:2 AND AT A MAXIMUM 1:1, WITH PREFERENCE TOWARD 1:1.
6. ALL THRUST BLOCKS SHALL EXTEND A MINIMUM OF 24" OUTWARD FROM THE PIPE. EXCEPTIONS FOR SMALL SIZED THRUST BLOCKS MAY BE MADE AT AGENCY ENGINEER'S DISCRETION.
7. IN LOCATIONS WHERE THE WATER TABLE IS HIGHER THAN THE THRUST BLOCK, SPECIAL DESIGN IS REQUIRED.
8. CONCRETE SHALL BE 520-C-2500, AND SHALL HAVE A DESIGN STRENGTH OF 2,500 PSI UNLESS OTHERWISE DIRECTED BY AGENCY'S ENGINEER.
9. VALUES LISTED BELOW WERE CALCULATED WITH A F.S. OF 1 AND ASSUMING PIPE JOINTS ARE RESTRAINED. IF PIPE JOINTS ARE NOT RESTRAINED THE F.S. VALUE SHALL BE INCREASED PER AGENCY ENGINEER'S RECOMMENDATIONS.

	HORIZONTAL BENDS (REQUIRED S.F. BEARING AREA)															VERTICAL BENDS (REQUIRED C.Y.)		
	11.25°			22.5°			45°			90°			TEES/PLUG					
PIPE DIA. (IN.)	SQ. FT.	L	H	SQ. FT.	L	H	SQ. FT.	L	H	SQ. FT.	L	H	SQ. FT.	L	H	11.25°	22.5°	45°
4	0.2	0.5	0.5	0.5	0.7	0.7	1.0	1.0	1.0	1.8	1.3	1.3	1.3	1.2	1.2	0.1	0.2	0.5
6	0.6	0.8	0.8	1.1	1.1	1.1	2.2	1.5	1.5	4.0	2.0	2.0	2.8	1.7	1.7	0.3	0.5	1.1
8	1.0	1.0	1.0	2.0	1.5	1.5	3.8	1.9	1.9	7.1	2.7	2.7	5.0	2.3	2.3	0.5	1.0	1.9
10	1.5	1.3	1.3	3.1	1.8	1.8	6.0	2.5	2.5	11.1	3.4	3.4	7.9	2.9	2.9	0.8	1.5	3.0
12	2.2	1.5	1.5	4.4	2.2	2.2	8.7	2.9	2.9	16.0	4.0	4.0	11.3	3.4	3.4	1.1	2.2	4.3
14	3.0	1.8	1.8	6.0	2.5	2.5	11.8	3.4	3.4	21.8	4.7	4.7	15.4	4.0	4.0	1.5	3.0	5.8
16	3.9	2.0	2.0	7.8	2.8	2.8	15.4	3.9	3.9	28.4	5.3	5.3	20.1	4.5	4.5	1.9	3.9	7.6
18	5.0	2.3	2.3	9.9	3.2	3.2	19.5	4.4	4.4	36.0	6.0	6.0	25.4	5.1	5.1	2.5	4.9	9.6
24	8.9	3.0	3.0	17.7	4.2	4.2	34.6	5.9	5.9	64.0	8.0	8.0	45.2	6.8	6.8	4.4	8.7	17.1
30	13.9	3.8	3.8	27.6	5.3	5.3	54.1	7.4	7.4	100	10.0	10.0	70.7	8.5	8.5	6.8	13.6	26.7

REV.	DATE	DESCRIPTION	BY

THRUST BLOCKS - 200 PSI MAIN PRESS MAX (BASED ON 2000 LB/SF SOIL)

SCV WATER

SANTA CLARITA VALLEY WATER AGENCY
ENGINEERING SERVICES SECTION

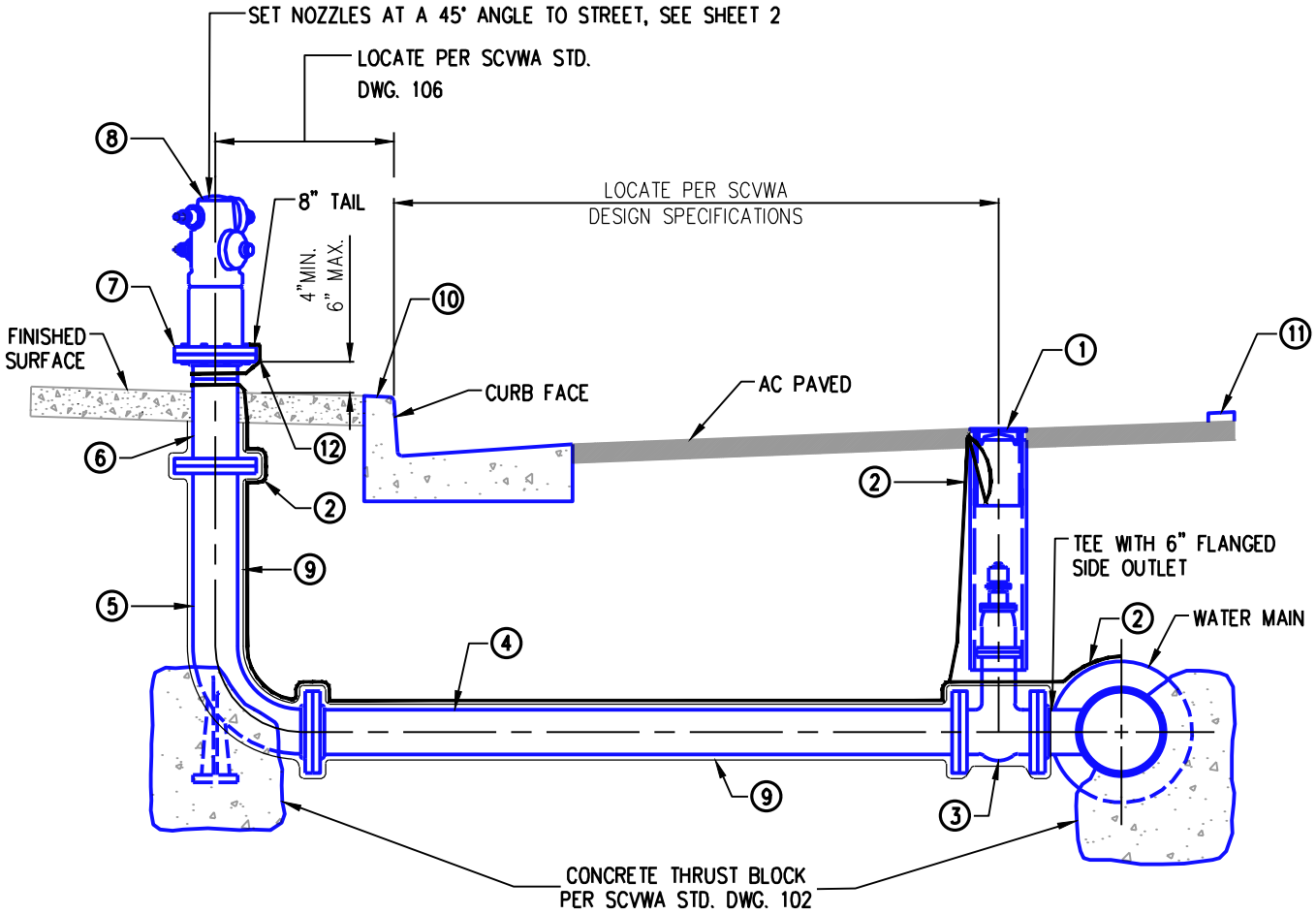
APPROVED BY:

BRIAN J. FOLSOM, R.C.E. 44723
CHIEF ENGINEER

5/15/19
DATE

STD. DWG.
102

SHEET 1 OF 1



ITEM	MATERIALS
1	VALVE LID SLIP CAN PER SCVWA STD. DWG. 107A, 107B.
2	LOCATING WIRE, 12 GAUGE HMWPE SOLID STRAND WITH 3M GREASE TUBE NUT (DBR/Y6) OR EQUAL. TAPE WIRE AT 12" INTERVALS.
3	6" FLANGED OR MECHANICAL JOINT GATE VALVE (RESILIENT WEDGE) WITH OPERATING NUT.
4	6" DIP RESTRAINED MECHANICAL JOINT.
5	6" CAST IRON FIRE HYDRANT BURY-FLANGED OR RESTRAINED MECHANICAL JOINT.
6	BREAK-OFF SPOOL, LOCATE SHEAR GROOVE ABOVE HARDSCAPE.
7	8 HOLE FLANGES WITH BREAK-OFF BOLTS, WITH HEADS ON TOP.
8	6"x4"x2-1/2" FIRE HYDRANT, CLOW 850 OR JONES J-4040BRE DI 8 HOLE.
9	ENCASE PIPE AND FITTINGS WITH ONE LAYER OF CLEAR 8-MIL POLYETHYLENE FILM.
10	GRIND FOOTAGE TO CENTER OF VALVE WITH ARROW ON TOP OF CURB.
11	BLUE REFLECTOR, SEE NOTE 10 ON SHEET 2.
12	WRAP LOCATING WIRE TWICE AROUND FIRE HYDRANT.

REV.	DATE	DESCRIPTION	BY

6" FIRE HYDRANT ASSEMBLY

SCV WATER

SANTA CLARITA VALLEY WATER AGENCY
ENGINEERING SERVICES SECTION

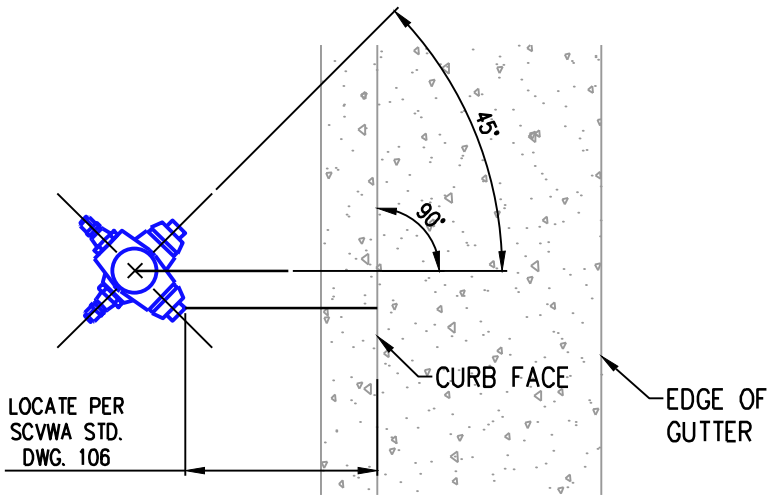
APPROVED BY:

BJ Folsom

BRIAN J. FOLSOM, R.C.E. 44723
CHIEF ENGINEER

5/15/19
DATE

STD. DWG.
103



TOP VIEW

LOCATE HYDRANT AS SHOWN
N.T.S

NOTES:

1. ALL MATERIALS SUPPLIED BY SCVWA OR OTHERS SHALL MEET OR EXCEED AWWA SPECIFICATIONS.
2. COAT FIRE HYDRANT SCHOOL BUS YELLOW.
3. FIRE HYDRANT SHALL BE AFFIXED TO BREAK-OFF SPOOL WITH BREAK-OFF BOLTS (BOLT HEAD MUST BE ON TOP).
4. PROVIDE GUARD POSTS PER SCVWA STD. DWG. 105 OR AS REQUIRED BY AGENCY INSPECTOR.
5. DOUBLE OUTLET HYDRANTS SHALL BE INSTALLED WITH OUTLETS FACING CURB AT A 45 DEGREE ANGLE TO THE CURB LINE, SEE ABOVE.
6. PROVIDE A THREE FOOT UNOBSTRUCTED CLEARANCE ON ALL SIDES.
7. NO-OX-ID BITUMASTIC PROTECTIVE COATING SHALL BE APPLIED TO ALL FITTINGS, NUTS, AND BOLTS.
8. ALL RUBBER/GASKET MATERIAL SHALL BE E.P.D.M.
9. AC PAVEMENT, CURB AND GUTTER AND SIDEWALK SHALL BE REPLACED PER CITY, COUNTY OR CAL TRANS STANDARDS/REQUIREMENTS.
10. THE CONTRACTOR SHALL INSTALL REFLECTORIZED, RAISED PAVEMENT MARKERS (STIMSONITE HYDRANT SPOTTER), ALSO CALLED "BLUE DOTS". A TWO PART EPOXY ADHESIVE SHALL BE USED TO INSTALL THE MARKERS. ONE MARKER SHALL BE INSTALLED OPPOSITE EACH FIRE HYDRANT, APPROXIMATELY 6 INCHES OFFSET FROM STREET CENTERLINE ON THE HYDRANT SIDE OF THE STREET.

REV.	DATE	DESCRIPTION	BY

6" FIRE HYDRANT ASSEMBLY

SCV WATER

SANTA CLARITA VALLEY WATER AGENCY
ENGINEERING SERVICES SECTION

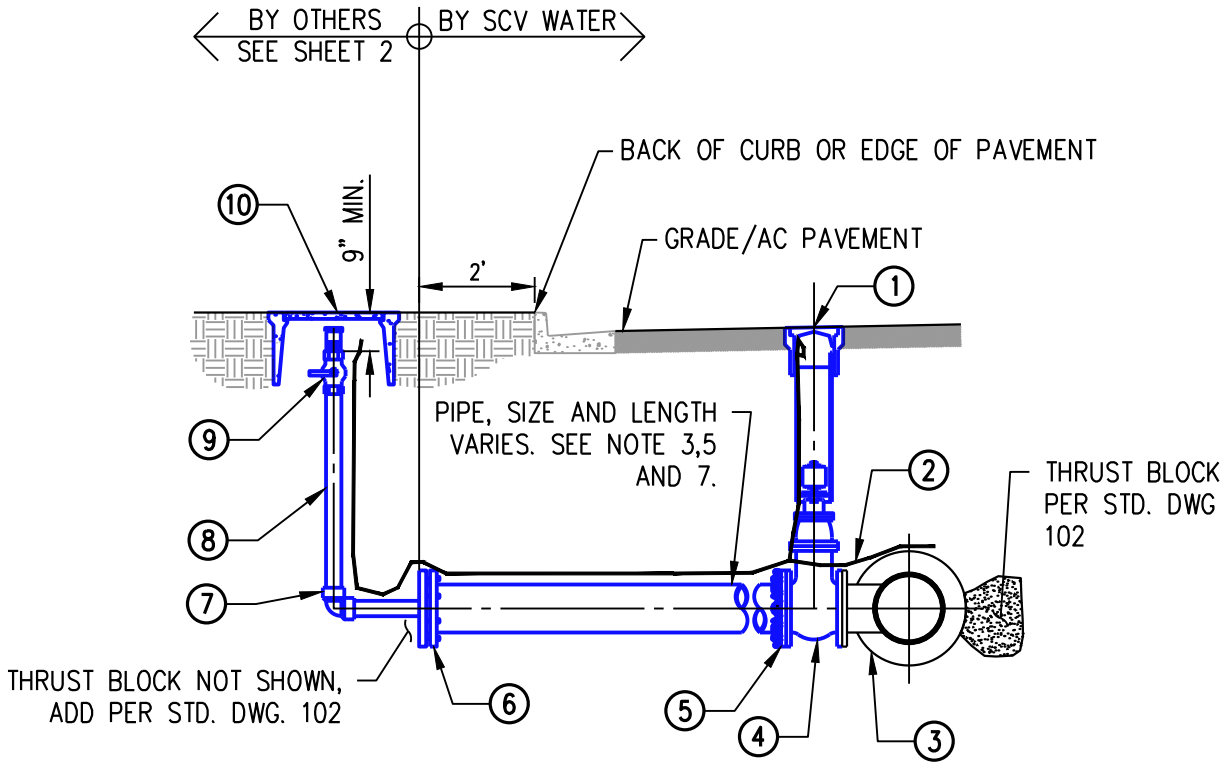
APPROVED BY:

BJ Folsom — 5/15/19

BRIAN J. FOLSOM, R.C.E. 44723
CHIEF ENGINEER

DATE

STD. DWG.
103



ITEM	MATERIALS
1	VALVE LID SLIP CAN PER SCVWA STD. DWG. 107A/B.
2	LOCATING WIRE, 12 GAUGE HMWPE SOLID STRAND WITH 3M GREASE TUBE NUT (DBR/Y6) OR EQUAL. TAPE WIRE AT 12" INTERVALS.
3	TAPPING SLEEVE OR TEE, PER PLAN.
4	VALVE, SEE NOTE 1 & 2 HEREON.
5	FLANGE X MEGA LUG ADAPTER W/TEST PLATE, SIZE PER PLAN.
6	MECHANICAL JOINT END CAP, RESTRAINED WITH 2" TAP.
7	2"x 90° COMPxCOMP CTS-PJ.
8	2" MUNICIPEX WITH INSERTS.
9	2" BALL VALVE WITH HANDLE/FIPT OUTLET AND 2" PLUG MIPT.
10	METER BOX AND LID, USE A6000485/A6000484.

NOTES:

1. IF FIRE SERVICE PIPE DIAMETER IS 10" OR LESS USE A GATE VALVE. IF THE FIRE SERVICE PIPE DIAMETER IS 12" OR GREATER USE A BUTTERFLY VALVE, NO EXCEPTIONS.
2. FIRE SERVICE SHALL BE MINIMUM OF SIZE 6", FOR A 4" SERVICE USE A 6" GATE VALVE AND 6"X4" REDUCER.
3. RESTRAIN ALL JOINTS ALONG FIRE SERVICE LATERAL LINE WITH MEGALUG OR EQUIVALENT.
4. SIZE OF FIRE SERVICE SHALL NOT BE GREATER THAN THE SIZE OF THE MAIN.
5. IF USING DIP ENCASE WITH ONE LAYER OF CLEAR 8-MIL POLYETHYLENE FILM. TAPE FILM WITH 2" WIDE TAPE AT 12" INTERVALS SEE SCVWA STD. DWG. NO 101.
6. FIRE LATERAL LINE TO BE PRESSURE TESTED AND DISINFECTED PER SCVWA STANDARDS AND APPLICABLE AWWA STANDARDS PRIOR TO THE INSTALLATION OF THE BACKFLOW ASSEMBLY.
7. IF PIPE DIAMETER 10" OR LESS USE PVC C900 (235 PSI) AND USE EBAA RESTRAINING HARNESS FOR C900 PVC JOINTS. IF PIPE DIAMETER IS 12" OR GREATER USE DUCTILE IRON PIPE PRESSURE CLASS 350.

REV.	DATE	DESCRIPTION	BY

FIRE SERVICE

SCV WATER

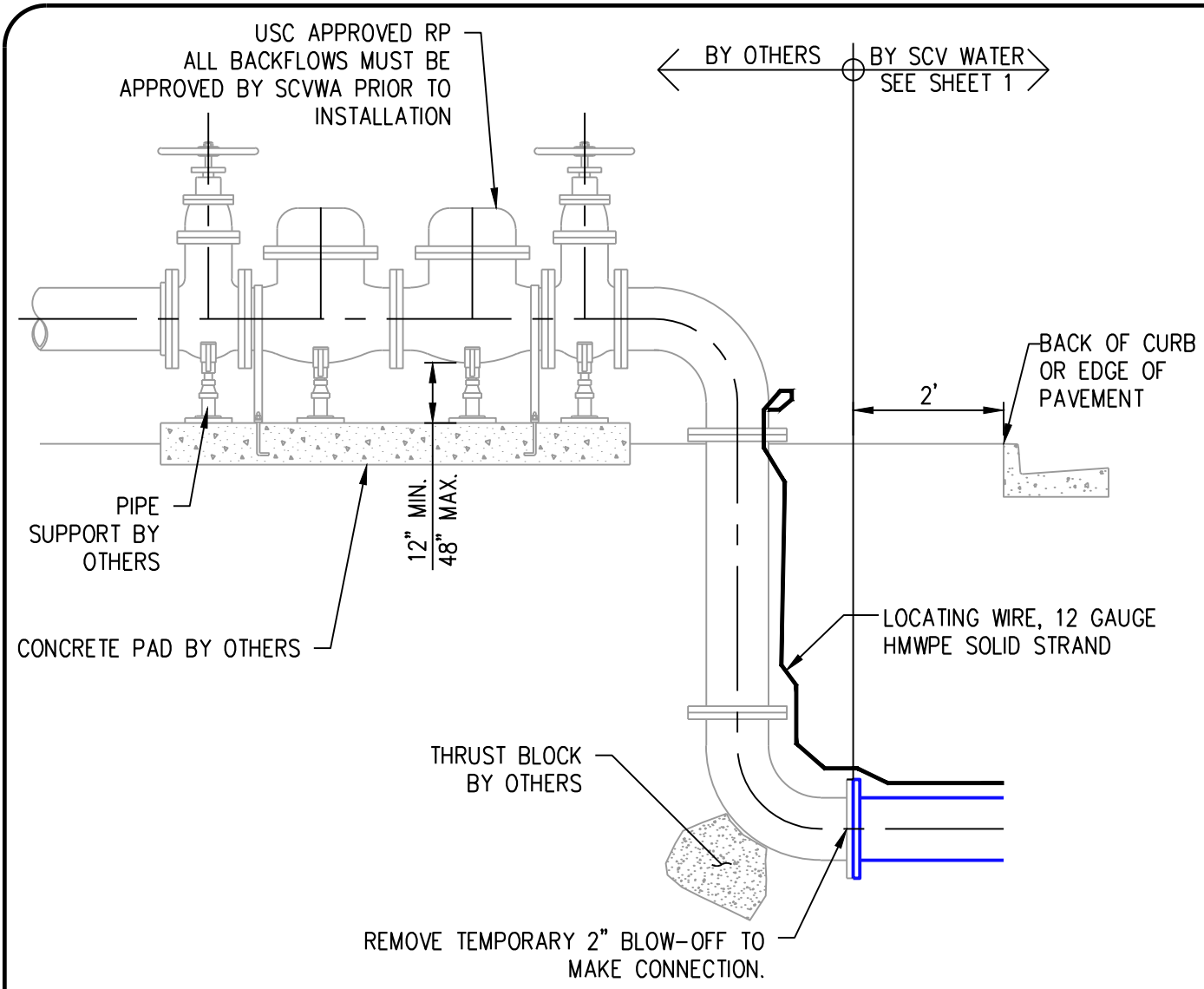
SANTA CLARITA VALLEY WATER AGENCY
ENGINEERING SERVICES SECTION

APPROVED BY:

BRIAN J. FOLSOM, R.C.E. 44723
CHIEF ENGINEER

5/15/19
DATE

STD. DWG.
104A



NOTES:

1. SIZE OF SERVICE SHALL NOT BE GREATER THAN THE SIZE OF THE MAIN.
2. LOCATION, TYPE, AND INSTALLATION OF BACKFLOW ASSEMBLY SHALL BE APPROVED BY SCVWA BACKFLOW SPECIALIST. INSTALL BACKFLOW ASSEMBLY AS CLOSE TO THE POINT OF CONNECTION AS POSSIBLE. TO BE FIELD VERIFIED.
3. ALL ASSEMBLIES MUST BE USC AND STATE WATER RESOURCE CONTROL BOARD (SWRCB) APPROVED.
4. A REDUCED PRESSURE PRINCIPLE BACKFLOW ASSEMBLY WILL BE REQUIRED IF EITHER CONDITION IN THE SCVWA APPLICATION FOR FIRE SERVICE SECTIONS (B) AND (C) IS APPLICABLE OR IF REQUIRED BY THE SCVWA BACKFLOW SPECIALIST.
5. BACKFLOW ASSEMBLY MUST BE TESTED BY AN APPROVED BACKFLOW TESTER PRIOR TO START OF SERVICE.
6. INSTALL TRACER WIRE ALONG THE SERVICE LATER PER SCVWA STANDARD SPECS. EXTEND THE TRACER WIRE TO THE BACKFLOW ASSEMBLY.
7. IF USING DIP ENCASE WITH ONE LAYER OF CLEAR 8-MIL POLYETHYLENE FILM. TAPE FILM WITH 2" TAPE AT 12" INTERVALS SEE SCVWA STD. DWG. NO 101.
8. LATERAL LINE TO BE PRESSURE TESTED AND DISINFECTED PER SCVWA STANDARDS AND APPLICABLE AWWA STANDARDS PRIOR TO THE INSTALLATION OF THE BACKFLOW ASSEMBLY.
9. IF PIPE DIAMETER IS 10" OR LESS USE PVC C900 DR-14 (305 PSI) AND USE EBAA RESTRAINING HARNESS FOR C900 PVC JOINTS. IF PIPE DIAMETER IS 12" OR GREATER USE DUCTILE IRON PIPE PRESSURE CLASS 350.
10. PROVIDE A MINIMUM CLEARANCE OF 12" ALL AROUND THE DCDA.
11. ALL SPLICED CONNECTIONS SHALL BE MADE USING A WIRE NUT, GREASE CAP, 3M (DBR/Y6) OR EQUAL.
12. BACKFLOW PREVENTER SHALL BE 5' FROM PROPERTY LINE OR STREET RIGHT OF WAY. IF THE ASSEMBLY IS TO BE LOCATED MORE THAN 5' FROM PROPERTY LINE OR STREET RIGHT OF WAY, A GATE VALVE SHALL BE INSTALLED AT PROPERTY LINE.

REV.	DATE	DESCRIPTION	BY

FIRE SERVICE

SCV WATER

SANTA CLARITA VALLEY WATER AGENCY
ENGINEERING SERVICES SECTION

APPROVED BY:

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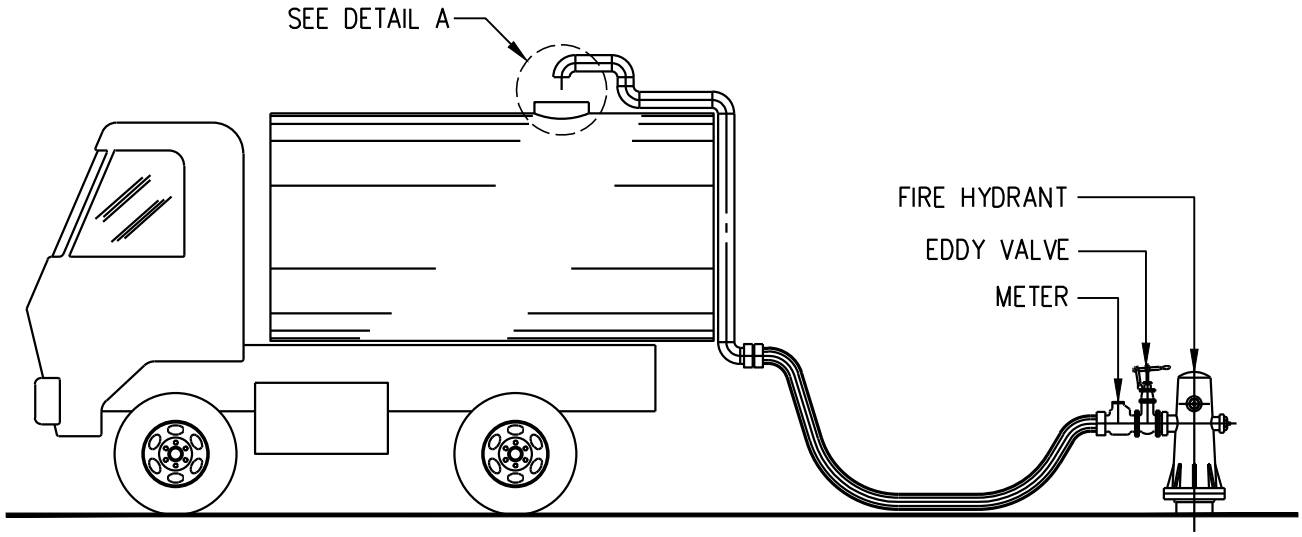
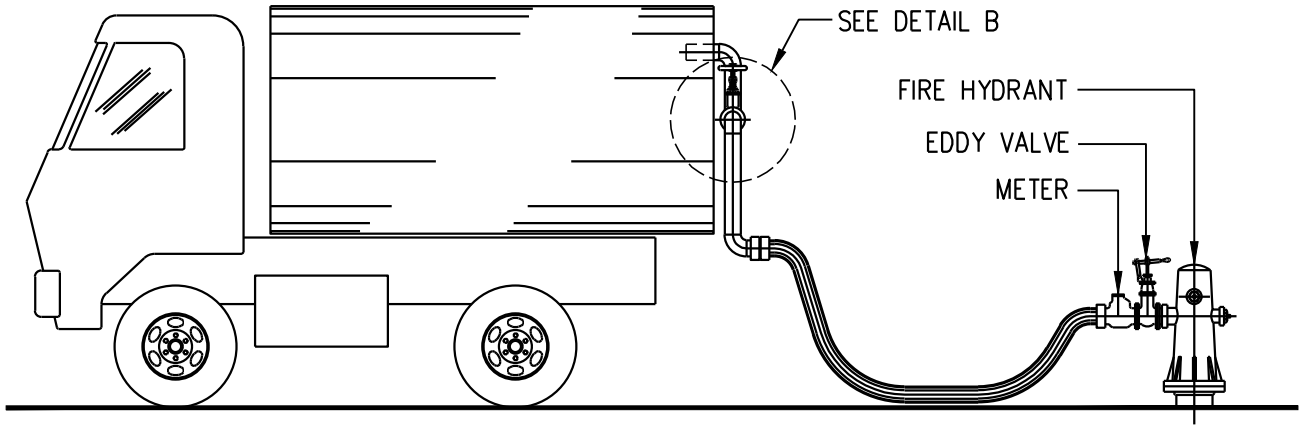
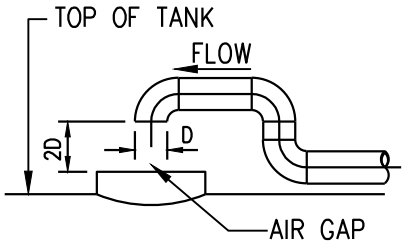


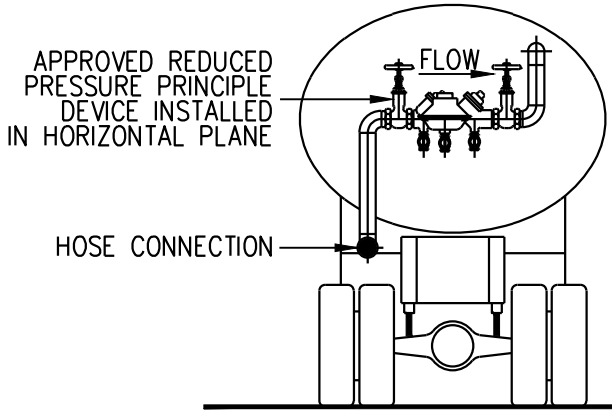
AIR-GAP SEPARATION METHOD



APPROVED REDUCED PRESSURE PRINCIPLE DEVICE METHOD



DETAIL A



DETAIL B

NOTE:
1. BACKFLOW MUST HAVE CURRENT TEST RESULTS.

REV.	DATE	DESCRIPTION	BY

BACKFLOW PREVENTION REQUIREMENTS FOR TANKER TRUCKS AND POTABLE SPRAY RINGS

SCV WATER

SANTA CLARITA VALLEY WATER AGENCY
ENGINEERING SERVICES SECTION

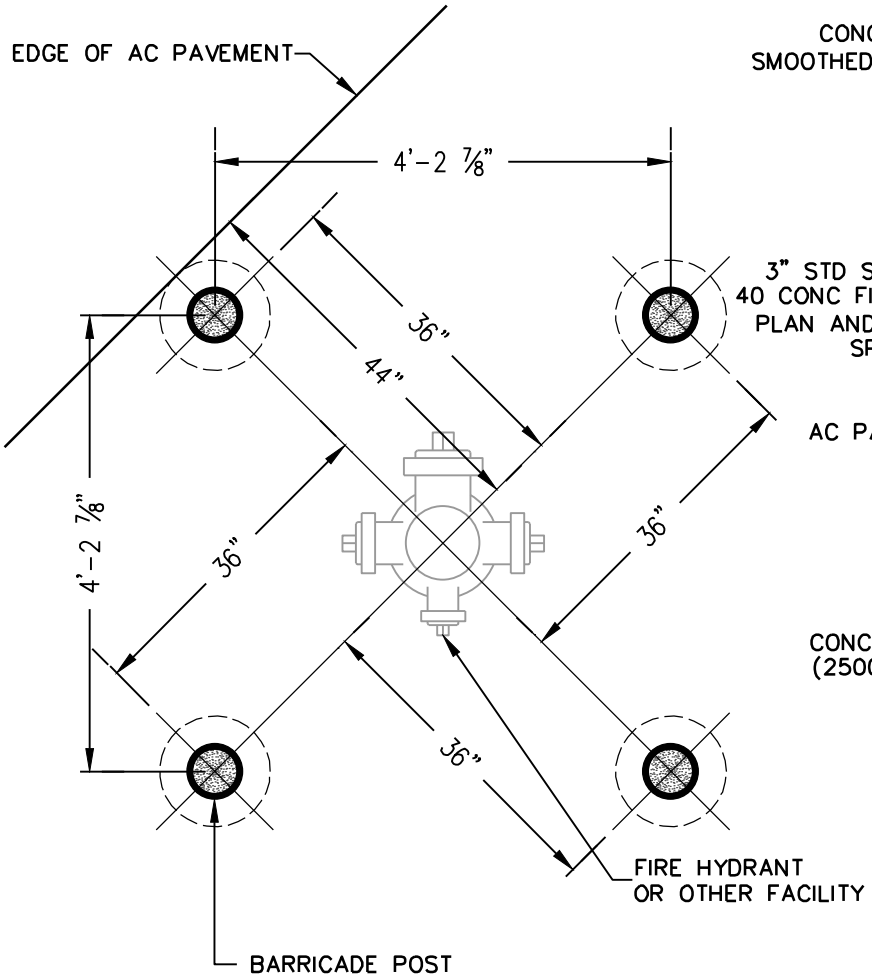
APPROVED BY:

BRIAN J. FOLSOM, R.C.E. 44723
CHIEF ENGINEER

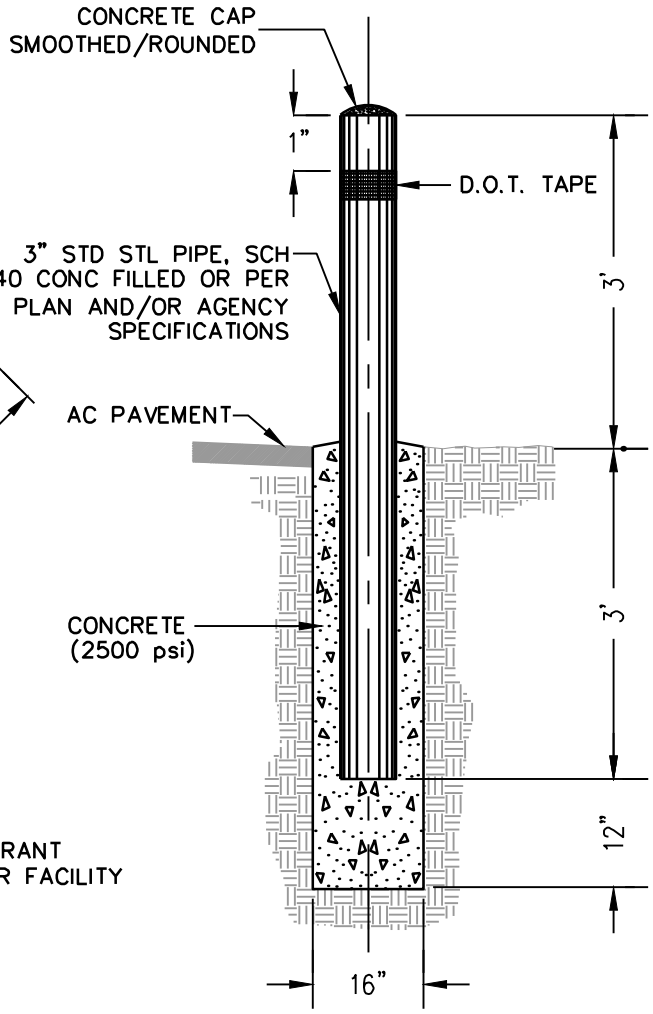
5/15/19
DATE

STD. DWG.
104B

SHEET 1 OF 1



PLAN



DETAIL

NOTES:

1. PROVIDE BARRICADES FOR PROTECTION OF ABOVE GROUND FACILITIES NOT LOCATED BEHIND STANDARD CURBFACE OR AS DIRECTED BY AGENCY INSPECTOR.
2. SEE PLANS FOR NUMBER OF BARRICADES TO BE USED.
3. THE EXACT LOCATION OF BARRICADES MAY BE CHANGED IN THE FIELD.
4. THE STEEL PIPE BARRICADES ABOVE GROUND SHALL BE PAINTED WITH TWO FINISH COATS OF SCHOOL BUS YELLOW.

REV.	DATE	DESCRIPTION	BY

FIRE HYDRANT/FACILITY BARRICADES

SCV WATER

SANTA CLARITA VALLEY WATER AGENCY
ENGINEERING SERVICES SECTION

APPROVED BY:

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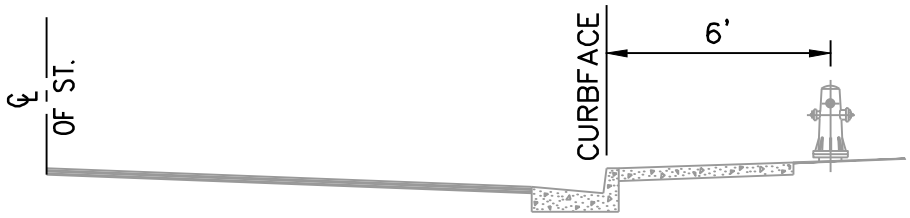
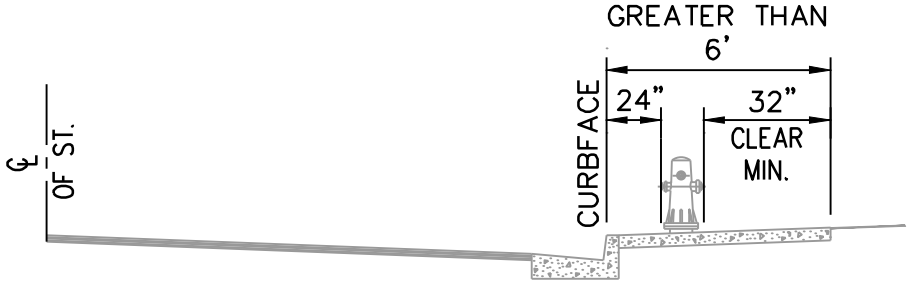
5/15/19
DATE

STD. DWG.
105

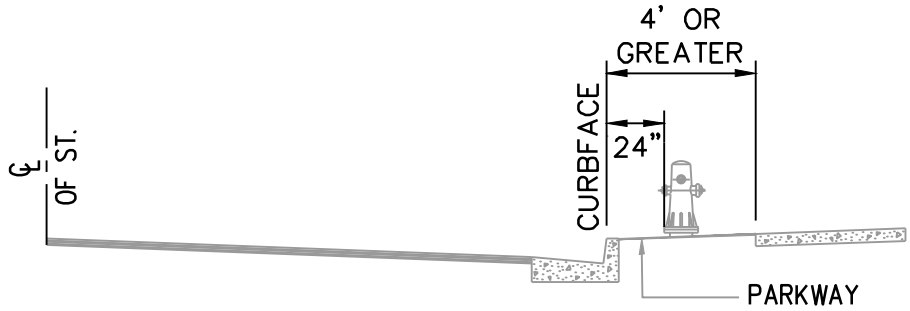
SHEET 1 OF 1



(A) WHEN 5 FT. SIDEWALKS ARE ADJACENT TO THE CURB, HYDRANTS SHALL BE CENTERED 6 FT. FROM CURB FACE. LONGITUDINAL AXIS PARALLEL TO AND DIRECTLY BEHIND CURB.



(B) WHEN SIDEWALKS ARE CONSTRUCTED WITH WIDTHS GREATER THAN OR EQUAL TO 6 FT. FROM CURB FACE TO OUTSIDE (i.e., AROUND SCHOOLS, PARKS, COMMERCIAL OR INDUSTRIAL AREAS), HYDRANTS SHALL BE PLACED IN THE NORMAL LOCATION 24" FROM THE CURB FACE.



(C) WHEN SIDEWALKS ARE CONSTRUCTED BACK FROM CURB, IN PARKWAYS HYDRANT SHALL BE PLACED IN THE NORMAL LOCATION 24" FROM CURBFACE IN PARKWAY.

(D) WHEN INVERTED SHOULDER SECTION IS PERMITTED AND CURB, GUTTER AND SIDEWALKS ARE WAIVED, THE HYDRANT SHALL BE CENTERED 44" BEHIND THE EDGE OF THE PAVEMENT. PROVIDE GUARD POST AS REQUIRED PER PLAN OR PER SCVWA STD. DWG. 105.

NOTE: USE THE SAME GUIDELINES AS SHOWN ABOVE TO LOCATE AIR VACUUM CANS.

REV.	DATE	DESCRIPTION	BY

LOCATION OF SCV WATER ABOVE GROUND APPURTENANCES

SCV WATER

SANTA CLARITA VALLEY WATER AGENCY
ENGINEERING SERVICES SECTION

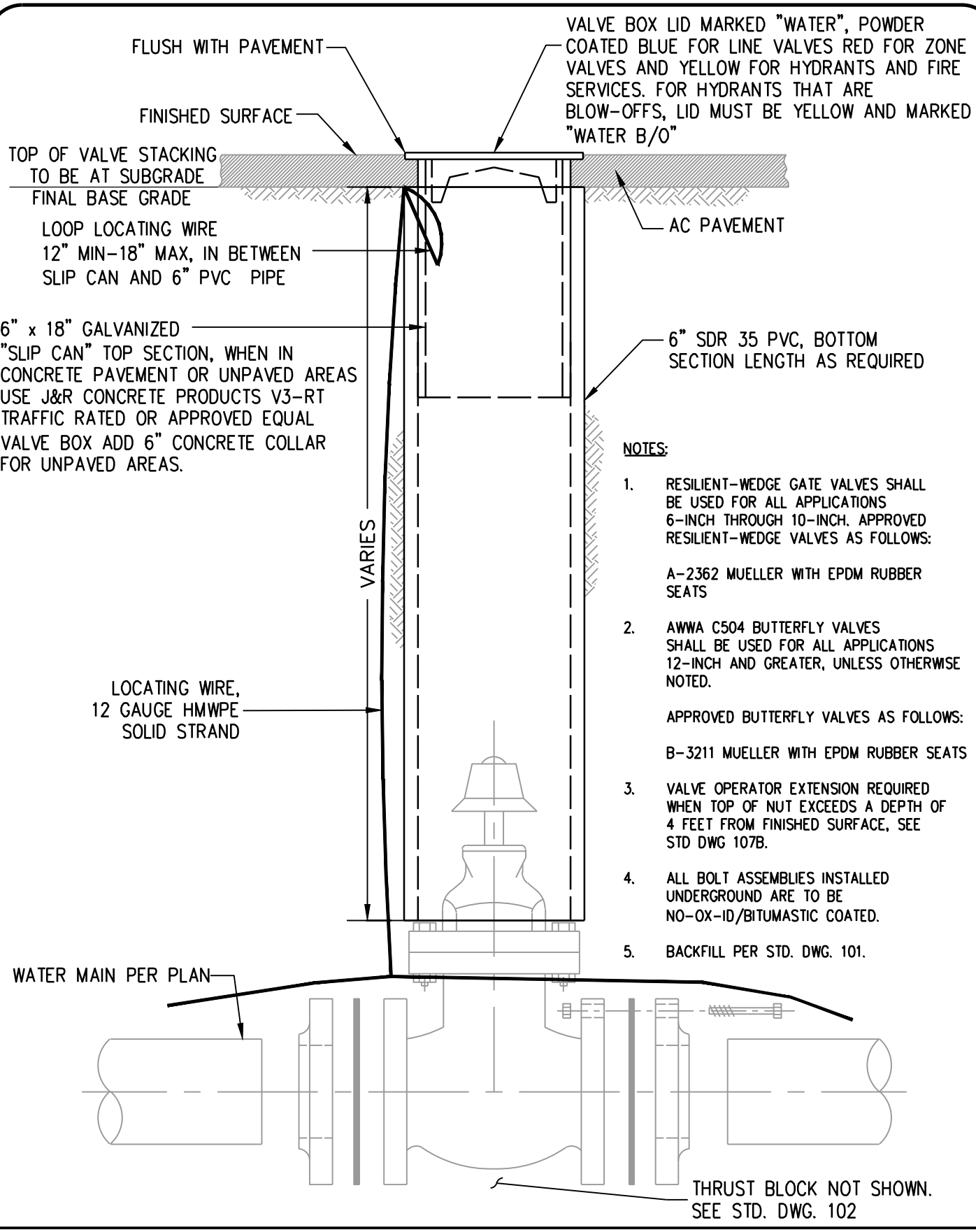
APPROVED BY:

BRIAN J. FOLSOM, R.C.E. 44723
CHIEF ENGINEER

5/15/19
DATE

STD. DWG.
106

SHEET 1 OF 1



NOTES:

1. RESILIENT-WEDGE GATE VALVES SHALL BE USED FOR ALL APPLICATIONS 6-INCH THROUGH 10-INCH. APPROVED RESILIENT-WEDGE VALVES AS FOLLOWS:

   A-2362 MUELLER WITH EPDM RUBBER SEATS

2. AWWA C504 BUTTERFLY VALVES SHALL BE USED FOR ALL APPLICATIONS 12-INCH AND GREATER, UNLESS OTHERWISE NOTED.

   APPROVED BUTTERFLY VALVES AS FOLLOWS:

   B-3211 MUELLER WITH EPDM RUBBER SEATS

3. VALVE OPERATOR EXTENSION REQUIRED WHEN TOP OF NUT EXCEEDS A DEPTH OF 4 FEET FROM FINISHED SURFACE, SEE STD DWG 107B.

4. ALL BOLT ASSEMBLIES INSTALLED UNDERGROUND ARE TO BE NO-OX-ID/BITUMASTIC COATED.

5. BACKFILL PER STD. DWG. 101.

REV.	DATE	DESCRIPTION	BY

VALVE SLIP CAN ASSEMBLY

SCV WATER

SANTA CLARITA VALLEY WATER AGENCY
ENGINEERING SERVICES SECTION

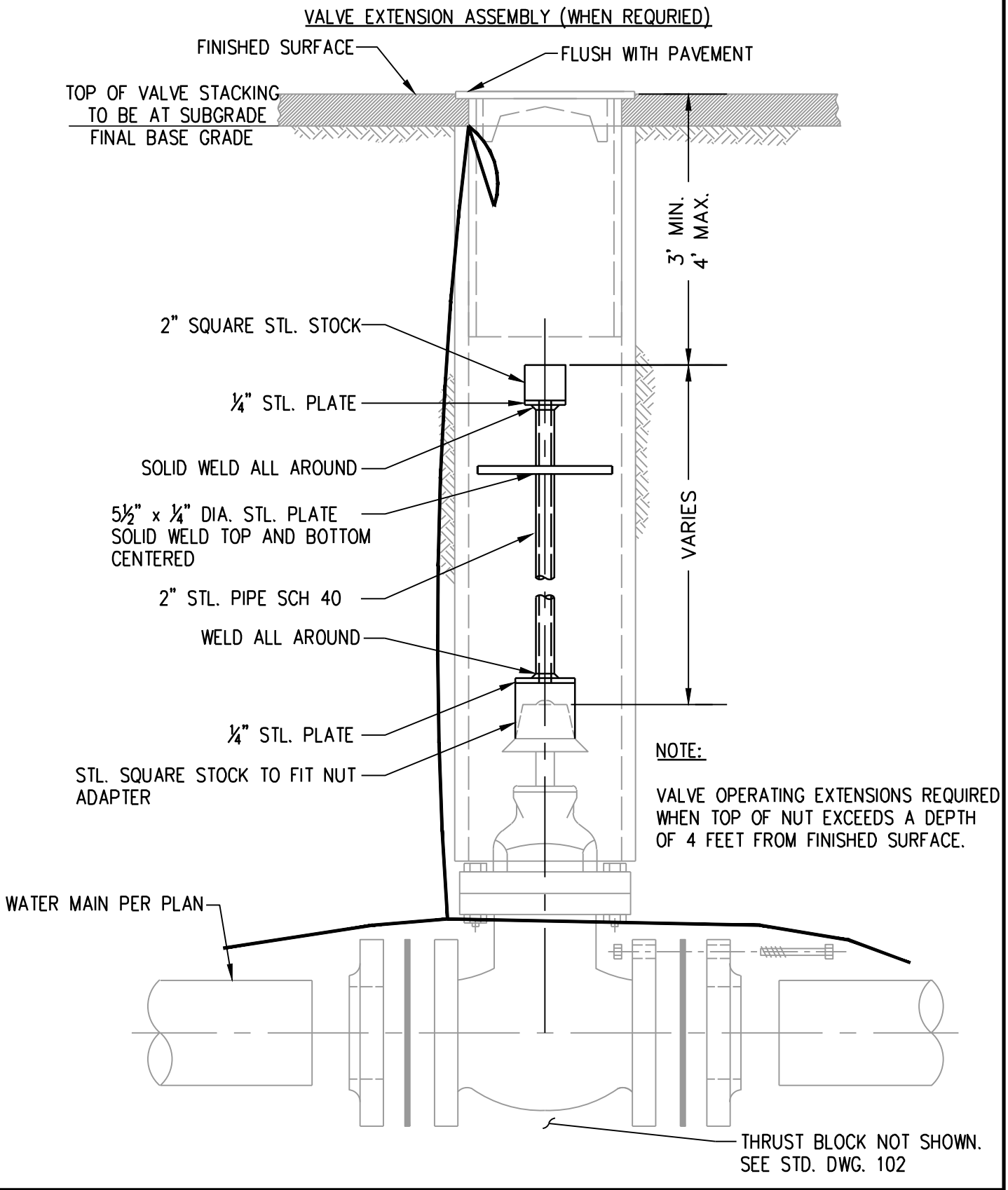
APPROVED BY:

BRIAN J. FOLSOM, R.C.E. 44723
CHIEF ENGINEER

5/15/19
DATE

STD. DWG.
107A

SHEET 1 OF 1



REV.	DATE	DESCRIPTION	BY

VALVE SLIP CAN ASSEMBLY OPERATING EXTENSION

SCV WATER

SANTA CLARITA VALLEY WATER AGENCY
ENGINEERING SERVICES SECTION

APPROVED BY:

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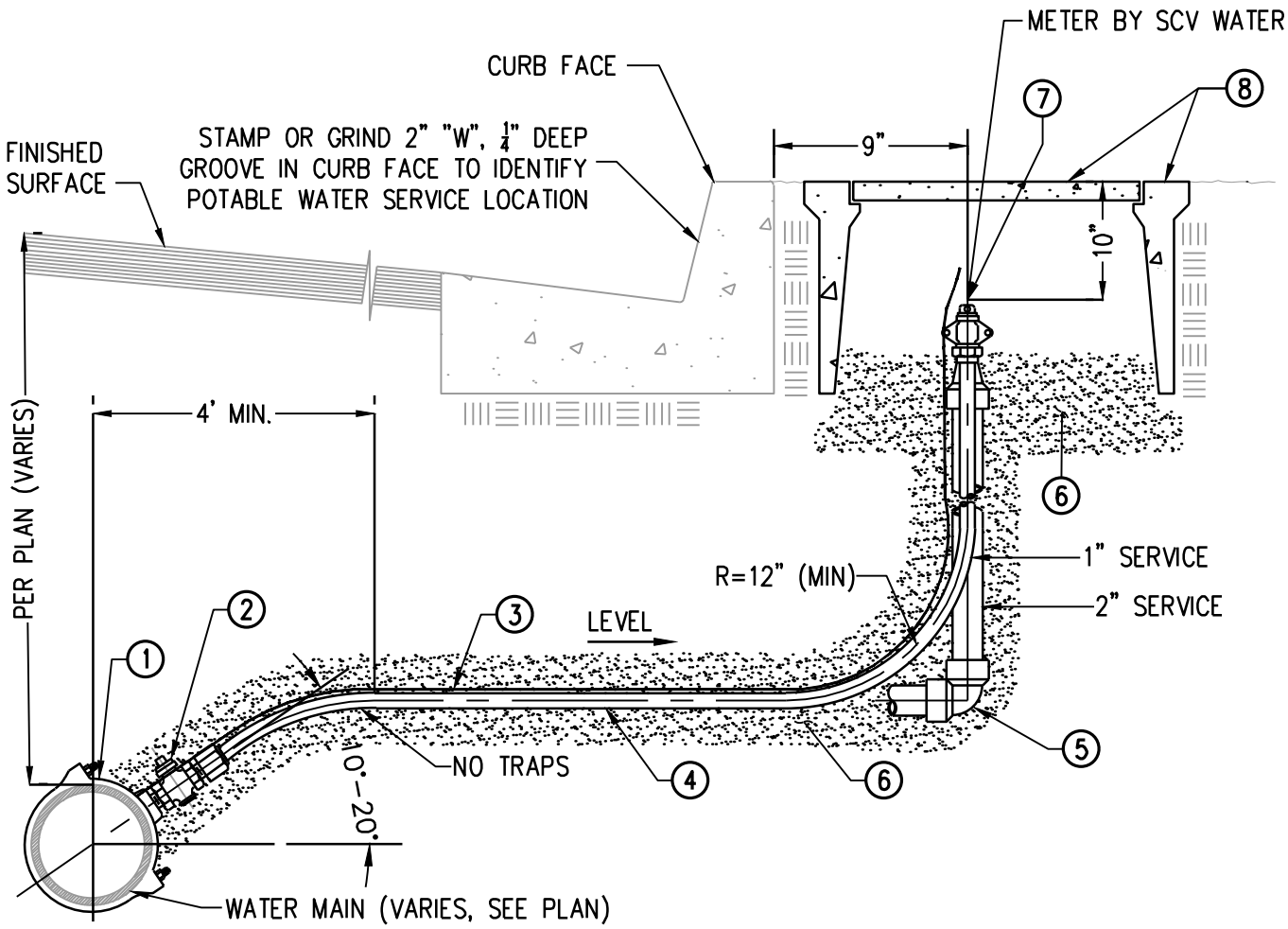
5/15/19
DATE

STD. DWG.
107B

SHEET 1 OF 1



○	ITEM
1	SADDLE/OUTLET (VARIES BY PIPE) FIPT, SEE SHEET 2
2	1"–2" MIPTxCOMP CTS–PJ BALL TYPE, CORP STOP, ROTATE TOP OF NUT 90°
3	LOCATING WIRE, 12 GAUGE HMWPE
4	1"–2" MUNICIPEX–REHAU WITH INSERTS
5	2"x 90° COMPxCOMP CTS–PJ FOR 2" SERVICE
6	BED & FILL SAND FROM WATER MAIN TO METER, 6" COVER.
7	1"–2" ANGLE METER STOP, BALL TYPE ANGLE STOP PACK JOINT OR EQUAL EPDM.
8	FOR 1" SERVICE USE ARMORCAST BOX (A6000485) AND FOR 1.5"–2" SERVICE USE ARMORCAST BOX (A60001640PCX12). SEE NOTE 7 ON SHEET 2 FOR LID INFORMATION.

REV.	DATE	DESCRIPTION	BY

1" & 2" METER SERVICE ASSEMBLY

SCV WATER

SANTA CLARITA VALLEY WATER AGENCY
ENGINEERING SERVICES SECTION

APPROVED BY:

BRIAN J. FOLSOM, R.C.E. 44723
CHIEF ENGINEER

5/15/19
DATE

STD. DWG.
108

PIPE TYPE	*SADDLE/OUTLET TYPE
ACP (ASBESTOS CEMENT PIPE)	1"–2" FORD #202B SERIES
C–900 (POLYVINYL CHLORIDE PIPE)	1"–2" MUELLER BR2S SERIES
DIP (DUCTILE IRON PIPE)	1"–2" FORD #202B SERIES
STEEL PIPE	1"–2" WELD O LET
CML&S	1"–2" WELD O LET

*OR EQUAL EPDM

NOTES:

1. ALL MATERIALS SUPPLIED BY SCV WATER OR OTHERS SHALL MEET OR EXCEED AWWA SPECIFICATIONS.
2. ALL FITTINGS MUST BE NO LEAD AND SHALL BE COMPRESSION FITTINGS, FORD/MUELLER OR EQUAL PER AWWA STANDARDS.
3. LOCATING WIRE, 12 GAUGE HMWPE SOLID STRAND WITH 3M GREASE TUBE NUT (DBR/Y6) OR EQUAL.
4. SERVICE SADDLES SHALL NOT BE INSTALLED WITHIN 24" OF VALVES, COUPLINGS, JOINTS, OR FOOTINGS. TAPPED COUPLINGS OR DIRECT TAPS ARE NOT PERMITTED.
5. INSTALL CORPORATION VALVE PER ITEM 2, WITH KEY SIDEWAYS IN OPEN POSITION.
6. CONSTRUCT WATER SERVICE LINE PER ITEM 4. THE WATER SERVICE SHALL EXTEND PERPENDICULAR TO THE CENTERLINE OF STREET, FROM WATER MAIN TO METER STOP. CONSTRUCT METER BOX PER ITEM 8. METER BOX TO BE SET FLUSH WITH SIDEWALK OR CURB AS SHOWN AND IN ACCORDANCE WITH CITY/COUNTY STANDARDS. METER BOX SHALL BE SET BEHIND SIDEWALK, WHERE SIDEWALK IS ADJACENT TO CURB, OR IN PARKWAY, BETWEEN CURB AND SIDEWALK, ALL WITHIN DEDICATED PUBLIC RIGHT–OF–WAY. NO METERS ALLOWED IN DRIVEWAY AREAS OR CUSTOMER WALKWAYS. FOR METERS SET IN TRAFFIC AREAS USE ARMORCAST (20K) LOAD RATED BOX AND COVER.
7. FOR LIDS, USE THE FOLLOWING:

   SANTA CLARITA SYSTEM INSTALLATION

   FOR 1" USE ARMORCAST LID A6000484–TH7 (20K)

   FOR 1.5"–2" USE ARMORCAST LID A6001947T–H7 (20K)

   NEWHALL AND/OR VALENCIA SYSTEM INSTALLATION

   FOR 1" USE ARMORCAST LID A6000484T (20K) W/3M LOCATOR

   FOR 1.5"–2" ARMORCAST LID A6001947T (20K) W/3M LOCATOR
8. METER BOXES ARE TO BE LOCATED ADJACENT TO CURB. UNDER NO CIRCUMSTANCES SHALL THE METER BOXES BE PLACED IN HIGH TRAFFIC AREAS, INCLUDING DRIVEWAYS AND DRIVEWAY APRONS, UNLESS AUTHORIZED BY THE AGENCY'S ENGINEER.
9. METER BOXES SHALL BE INSTALLED WITHIN THE PUBLIC RIGHT OF WAY OR ONLY WITHIN WATERLINE EASEMENTS.
10. HOSE BIBS SHALL NOT BE INSTALLED ABOVE METER BOXES.
11. IN ALL CASES THERE SHOULD BE A MINIMUM SEPARATION OF 5' BETWEEN WATER SERVICES AND SEWER LATERALS. THERE SHALL ALSO BE A MINIMUM SEPARATION OF 5' BETWEEN THE CENTER OF A TREE AND THE NEAREST EDGE OF THE METER BOX.
12. IRRIGATION METERS:

    12.1. WHERE PARKWAYS OR SIDE LANDSCAPING STRIPS ALONG STREETS ARE TO BE IRRIGATED, A SEPARATE METER SHALL BE INSTALLED ON EACH SIDE OF THE STREET. RUNNING AN IRRIGATION LINE FROM THE METER TO THE OPPOSITE SIDE OF THE STREET IS PROHIBITED.

    12.2. WHERE A MEDIAN STRIP MUST BE IRRIGATED, THE METER SHALL BE IN THE SIDE PARKWAY. METERS ARE NOT ALLOWED IN THE CENTER MEDIAN STRIP. METER LOCATION SHALL EASILY BE ACCESSIBLE AND PROTECTED FROM BEING COVERED BY LANDSCAPE MATERIALS OR OTHER OBSTRUCTIONS. THE AGENCY ENGINEER RESERVES THE RIGHT TO DETERMINE AND/OR SELECT ALL METER LOCATIONS.

REV.	DATE	DESCRIPTION	BY

1" & 2" METER SERVICE ASSEMBLY

SCV WATER

SANTA CLARITA VALLEY WATER AGENCY
ENGINEERING SERVICES SECTION

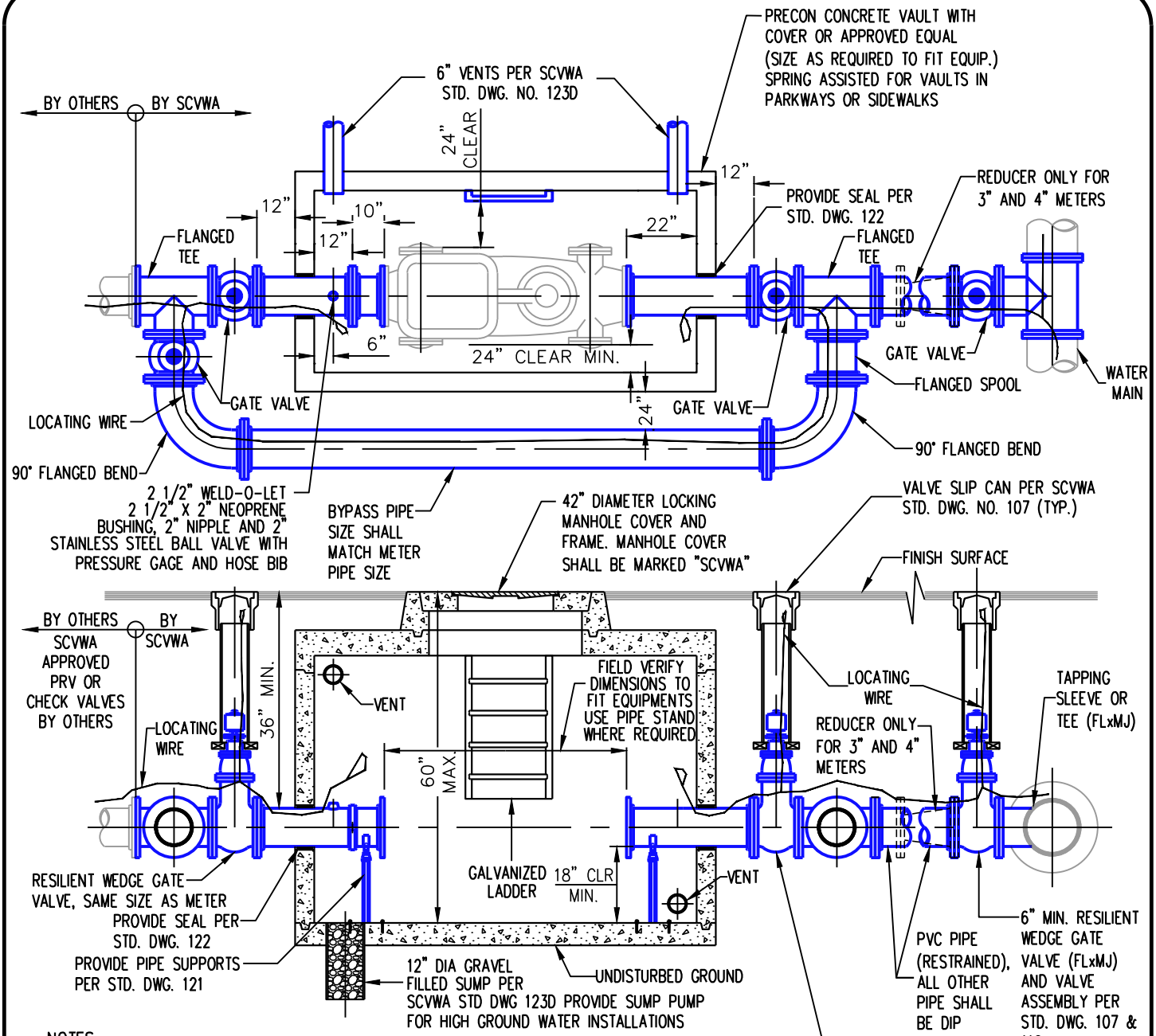
APPROVED BY:

BJ Folsom — 5/15/19

BRIAN J. FOLSOM, R.C.E. 44723
CHIEF ENGINEER

DATE

STD. DWG.
108



NOTES:

1. SUBSTITUTIONS IN MATERIAL MAY NOT BE MADE WITHOUT THE APPROVAL OF SCVWA.
2. FOR 3" AND ABOVE WATER SERVICE IN NON TRAFFIC AREAS SEE STANDARD DRAWING 109B.
3. THE VAULT MUST BE H-20 TRAFFIC RATED.
4. ALL MATERIALS SUPPLIED BY SCVWA OR OTHERS WILL MEET OR EXCEED AWWA SPECIFICATIONS.
5. EXACT PIPE LENGTH TO BE DETERMINED IN THE FIELD.
6. 24" MINIMUM CLEARANCE IS REQUIRED FROM WALL OF VAULT TO PIPING AND APPURTENANCES AND 7' MINIMUM CLEARANCE FROM FLOOR TO RAILING.
7. TWO 6" VENTS ARE REQUIRED PER SCVWA STD. DWG. NO. 123D.
8. SLEEVE AND WATER STOP IS REQUIRED ON ALL OPENINGS PER SCVWA STD. DWG. NO. 122.
9. LOCATING WIRE, 12 GAUGE HMWPE SOLID STRAND WITH 3M GREASE TUBE NUT (DBR/Y6) OR EQUAL.
10. A 6-INCH TYPICAL SERVICE IS SHOWN HEREON. OTHER SIZE SERVICES SHALL BE SIMILAR.
11. ALL BOLT ASSEMBLIES INSTALLED UNDERGROUND ARE TO BE SPRAYED WITH A NO-OX-ID COATING OR APPROVED EQUAL.
12. METER SHALL BE OCTAVE FROM MASTER METER OR APPROVED EQUAL.
13. ALL PIPE SHALL BE COATED AND PAINTED PER SCVWA SPECIFICATIONS.
14. ALL NUTS & BOLTS AND OTHER STEEL PARTS SHALL BE GALVANIZED WITH THE EXCEPTION OF THREADED PARTS.

REV.	DATE	DESCRIPTION	BY

3" AND ABOVE WATER SERVICE FOR TRAFFIC

SCV WATER

SANTA CLARITA VALLEY WATER AGENCY
ENGINEERING SERVICES SECTION

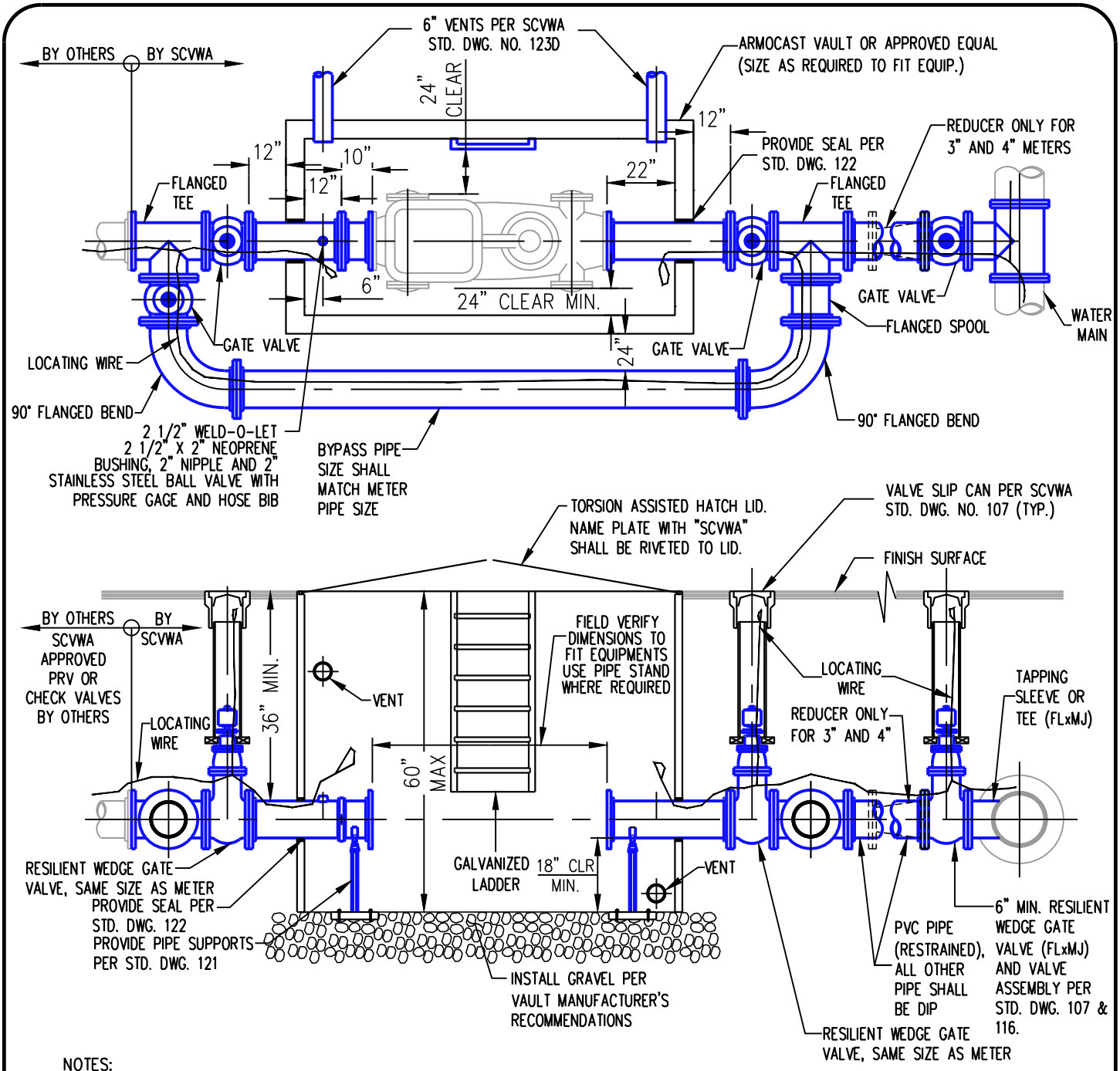
APPROVED BY:

BRIAN J. FOLSOM, R.C.E. 44723
CHIEF ENGINEER

5/15/19
DATE

STD. DWG.
109A

SHEET 1 OF 1



NOTES:

1. SUBSTITUTIONS IN MATERIAL MAY NOT BE MADE WITHOUT THE APPROVAL OF SCVWA.
2. FOR 3" AND ABOVE WATER SERVICE IN TRAFFIC AREAS SEE STANDARD DRAWING 109A.
3. ALL MATERIALS SUPPLIED BY SCVWA OR OTHERS WILL MEET OR EXCEED AWWA SPECIFICATIONS.
4. EXACT PIPE LENGTH TO BE DETERMINED IN THE FIELD.
5. 24" MINIMUM CLEARANCE IS REQUIRED FROM WALL OF VAULT TO PIPING AND APPURTENANCES AND 7' MINIMUM CLEARANCE FROM FLOOR TO RAILING.
6. TWO 6" VENTS ARE REQUIRED PER SCVWA STD. DWG. NO. 123D.
7. LOCATING WIRE, 12 GAUGE HMWPE SOLID STRAND WITH 3M GREASE TUBE NUT (DBR/Y6) OR EQUAL.
8. A 6-INCH TYPICAL SERVICE IS SHOWN HEREON. OTHER SIZE SERVICES SHALL BE SIMILAR.
9. ALL BOLT ASSEMBLIES INSTALLED UNDERGROUND ARE TO BE SPRAYED WITH A NO-OX-ID COATING OR APPROVED EQUAL.
10. METER SHALL BE OCTAVE FROM MASTER METER OR APPROVED EQUAL.
11. ALL PIPE SHALL BE COATED AND PAINTED PER SCVWA SPECIFICATIONS.
12. ALL NUTS & BOLTS AND OTHER STEEL PARTS SHALL BE GALVANIZED WITH THE EXCEPTION OF THREADED PARTS.

3" AND ABOVE WATER SERVICE FOR NON-TRAFFIC

SCV WATER

SANTA CLARITA VALLEY WATER AGENCY
ENGINEERING SERVICES SECTION

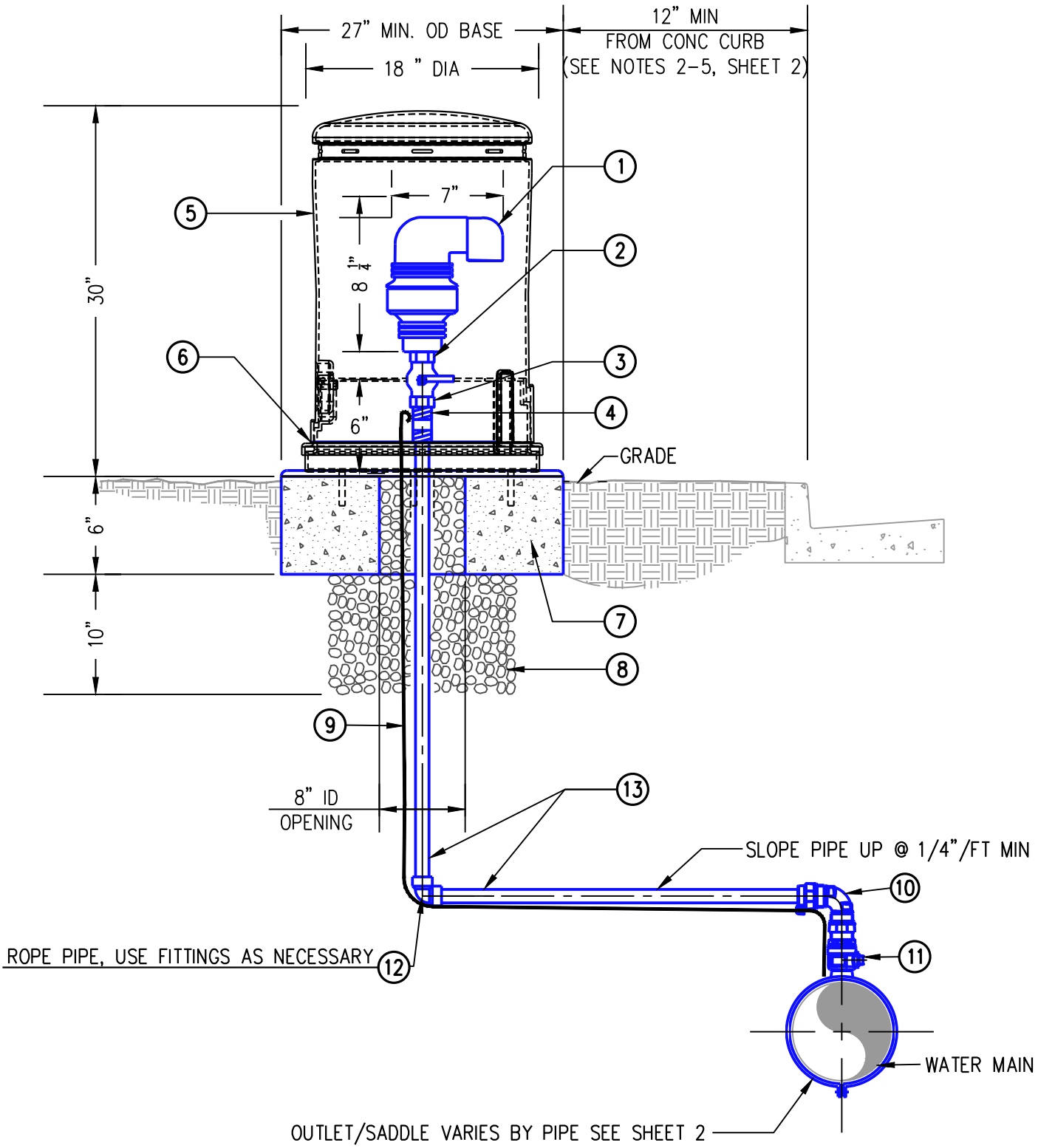
APPROVED BY:

BRIAN J. FOLSOM, R.C.E. 44723
CHIEF ENGINEER

5/15/19
DATE

STD. DWG.
109B

SHEET 1 OF 1



REV.	DATE	DESCRIPTION	BY
1	10/29	REV. MAT. NOTE 10 & 11.	JJM
2	11/12	REV. MAT. NOTE 3, 10 & 11.	JJM

1" & 2" AIR/VAC RELEASE VALVE ASSEMBLY

SCV WATER

SANTA CLARITA VALLEY WATER AGENCY
ENGINEERING SERVICES SECTION

APPROVED BY:

BRIAN J. FOLSOM, R.C.E. 44723
CHIEF ENGINEER

5/15/19
DATE

STD. DWG.
110

PIPE TYPE	*SADDLE/OUTLET TYPE
ACP (ASBESTOS CEMENT PIPE)	1"–2" FORD #202B SERIES
C–900 (POLYVINYL CHLORIDE PIPE)	1"–2" MUELLER BR2S SERIES
DIP (DUCTILE IRON PIPE)	1"–2" FORD #202B SERIES
STEEL PIPE	1"–2" WELD–O–LET
CML&S	1"–2" WELD–O–LET

*OR EQUAL EPDM

ITEM	MATERIALS
1	2"–ARI D–040 AIR RELEASE VALVE, 40 MESH STAINLESS STEEL SCREEN ON THE OUTLET.
2	1" CLOSE NIPPLE WITH 2"x1" BRASS BELL REDUCER (TO BE USED FOR 1" AIR VACUUM ASSEMBLY).
3	1" (B11–444–HT–34–NL)–2" (B11–777–HB–67–NL) FIPTxFIPT CTS–PJ BALL VALVE CURB STOP W/HANDLE.
4	1"–2" BRASS NIPPLE PROVIDE INSULATION AND 1"–2" COMPxFIPT CTS–PJ COUPLING.
5	POLYETHYLENE VALVE ENCLOSURE, BY PIPELINE PRODUCTS #VCAS–1830, SANDSTONE MIX COVER.
6	LOCK PLATE AND BASE WITH RED HEAD CONCRETE ANCHOR BOLTS.
7	CLASS B CONCRETE BASE, 2500 PSI.
8	PEA GRAVEL (3/4").
9	LOCATING WIRE, 12 GAUGE HMWPE SOLID STRAND WITH 3M GREASE TUBE NUT (DBR/Y6) OR EQUAL.
10	2"x90° MIPTxCOMP CTS–PJ FORD (L84–77–NL). FOR 1"x90° MIPTxCOMP CTS–PJ FORD (L84–44–NL).
11	2" FORD CORP STOP MIPTxFIPT FB1700–7–NL. FOR 1" ASSEMBLY USE FORD FB1700–4–NL.
12	1"–2"x 90° COMPxCOMP CTS–PJ. 1" L44–44–NL FOR 2" ASSEMBLY L44–77–NL.
13	1" OR 2" MUNICIPEX–REHAU WITH INSERTS, USE FOR 1" FORD #52 OR FOR 2" USE FORD #55.

NOTES:

1. USE FORD OR MUELLER COMPRESSION FITTINGS. ALL PARTS MUST BE NO LEAD.
2. PROVIDE BARRICADES FOR PROTECTION IF ASSEMBLY IS NOT LOCATED BEHIND A STANDARD CURB FACE, SEE STANDARD DRAWING 105.
3. IF SIDEWALK IS ADJACENT TO CURB FACE AND LESS THAN 6.5' WIDE, LOCATE ASSEMBLY CONCRETE BASE 12" FROM BACK OF SIDEWALK.
4. IF SIDEWALK IS ADJACENT TO CURB FACE AND 6.5' WIDE OR MORE, LOCATE CONCRETE BASE 12" FROM CURB FACE. PROVIDE A MINIMUM OF 36" CLEARANCE FROM CONCRETE BASE TO BACK OF SIDEWALK.
5. IF THERE IS A PARKWAY BETWEEN CURB FACE AND SIDEWALK AND IT IS 4.5' WIDE OR MORE LOCATE CONCRETE BASE 12" FROM CURB FACE. IF PARKWAY IS LESS THAN 4.5' LOCATE CONCRETE BASE 12" FROM THE BACK OF SIDEWALK.
6. ITEM NUMBER 2 REFERENCES THE 2" PART FOR 1" ASSEMBLY USE FORD B84–444–NL OR MUELLER EQUAL.

REV.	DATE	DESCRIPTION	BY
1	10/29	REV. MAT. NOTE 10 & 11.	JJM
2	11/12	REV. MAT. NOTE 3, 10 & 11.	JJM

1" & 2" AIR/VAC RELEASE VALVE ASSEMBLY

SCV WATER

SANTA CLARITA VALLEY WATER AGENCY
ENGINEERING SERVICES SECTION

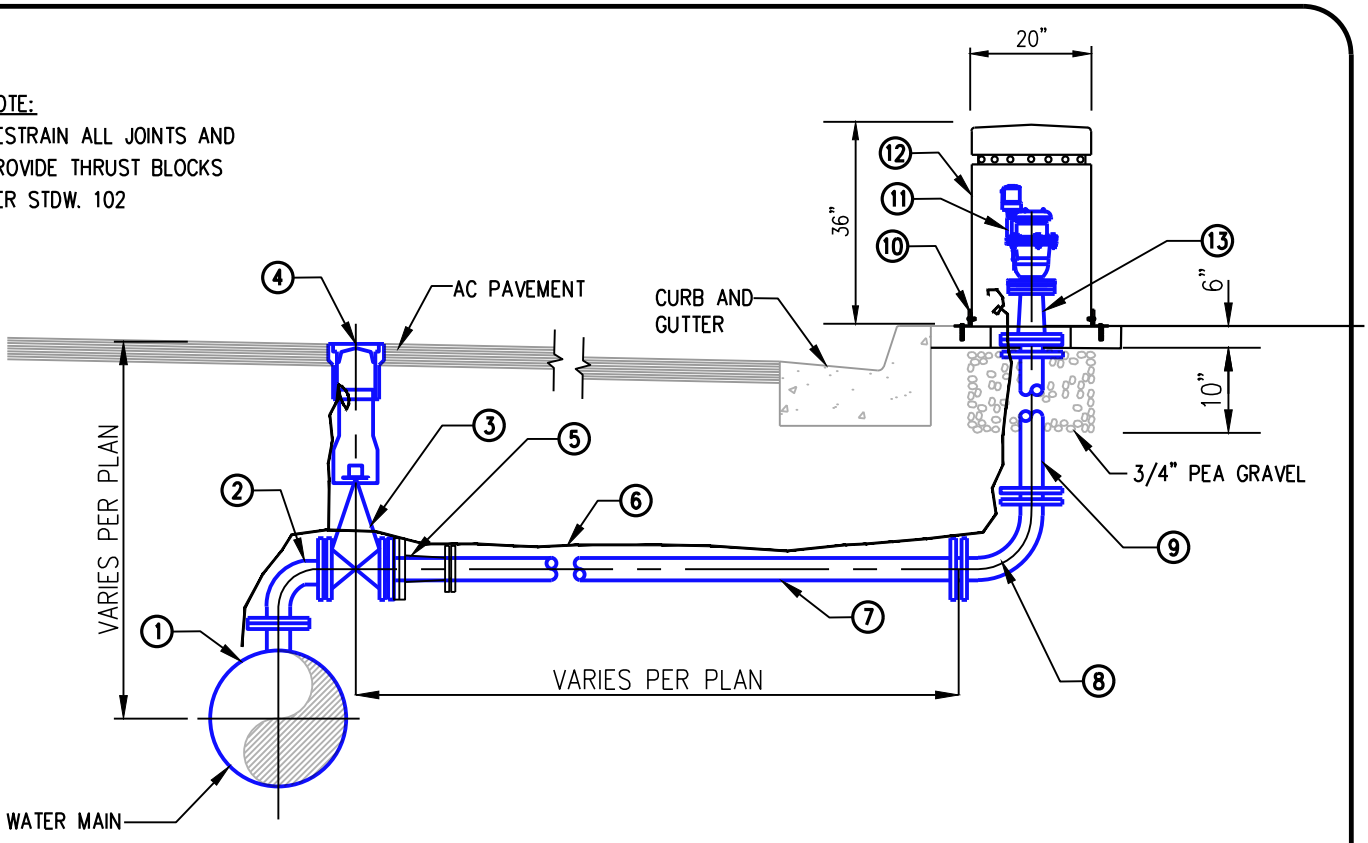
APPROVED BY:

BRIAN J. FOLSOM, R.C.E. 44723
CHIEF ENGINEER

5/15/19
DATE

STD. DWG.
110

NOTE:
RESTRAIN ALL JOINTS AND PROVIDE THRUST BLOCKS PER STDW. 102



ITEM	MATERIALS
1	4" OUTLET TEE (MJxMJxFL) CL350 W/MEGALUGS.
2	4" D.I. LONG 90 ° RADIUS BEND (FLxFL), CL350
3	4" (FLxFL) GATE VALVE (RESILIENT WEDGE) WITH OPERATING NUT.
4	VALVE SLIP CAN ASSEMBLY PER STD. DWG. 107A.
5	4"X3" (MJxFL) REDUCER, FOR 3" AIR VACUUM ASSEMBLIES ONLY.
6	LOCATING WIRE, 12 GAUGE HMWPE SOLID STRAND WITH 3M GREASE TUBE NUT (DBR/Y6) OR EQUAL. TAPE WIRE AT 12" INTERVALS.
7	3" OR 4" PVC PIPE CL235, PER AWWA STD. C-900.
8	3" OR 4" D.I. LONG RADIUS 90° (MJxFL) DI BEND, CLASS 250.
9	3" OR 4" DI SPOOL (FLxFL), CLASS 250.
10	3/8"-16 UNC ANCHOR BOLT WASHER AND NUT (3 TYPICAL).
11	3" OR 4" A.R.I. DUAL BODY COMBINATION AIR VALVE ARI D-060. SEE TABLE ON SHEET 2.
12	36" TALL X 20" DIA. SANDSTONE, PER ARMORCAST.
13	4" X 3" D.I. REDUCER (FLxFL) CL 350 (FOR 3" VALVE).

3" AND 4" COMBINATION AIR RELEASE AND VACUUM VALVE ASSEMBLY

SCV WATER

SANTA CLARITA VALLEY WATER AGENCY
ENGINEERING SERVICES SECTION

APPROVED BY:

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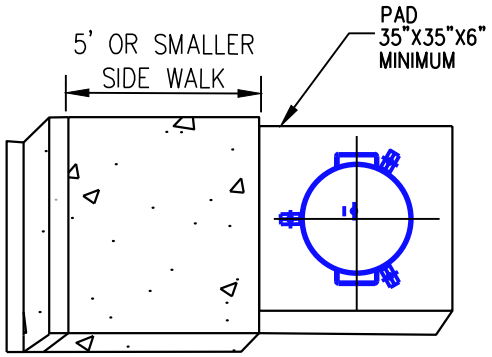
5/15/19
DATE

STD. DWG.
111



NOTE:
COMBINATION VALVE
PLACEMENT SHALL BE WITHIN
THE PUBLIC RIGHT-OF-WAY.
SEE STD. DWG. NO. 106.

TABLE OF DIMENSIONS						
NOMINAL VALVE SIZE	A.R.I. COMBINATION AIR VALVE	PIPING SIZE	VALVE & FITTING SIZE	PRESSURE RATING (PSI)	"D" (INCHES)	"H" (INCHES)
3"	D-060-C,3	3"	3"	285	9 1/2	17
3"	D-062HF,3	3"	3"	360	9 1/2	17
4"	D-060-C,4	4"	4"	285	11	18 7/10
4"	D-062HF,4	4"	4"	360	11	18 7/10

3" AND 4" COMBINATION AIR RELEASE AND VACUUM VALVE ASSEMBLY

SCV WATER

SANTA CLARITA VALLEY WATER AGENCY
ENGINEERING SERVICES SECTION

APPROVED BY:

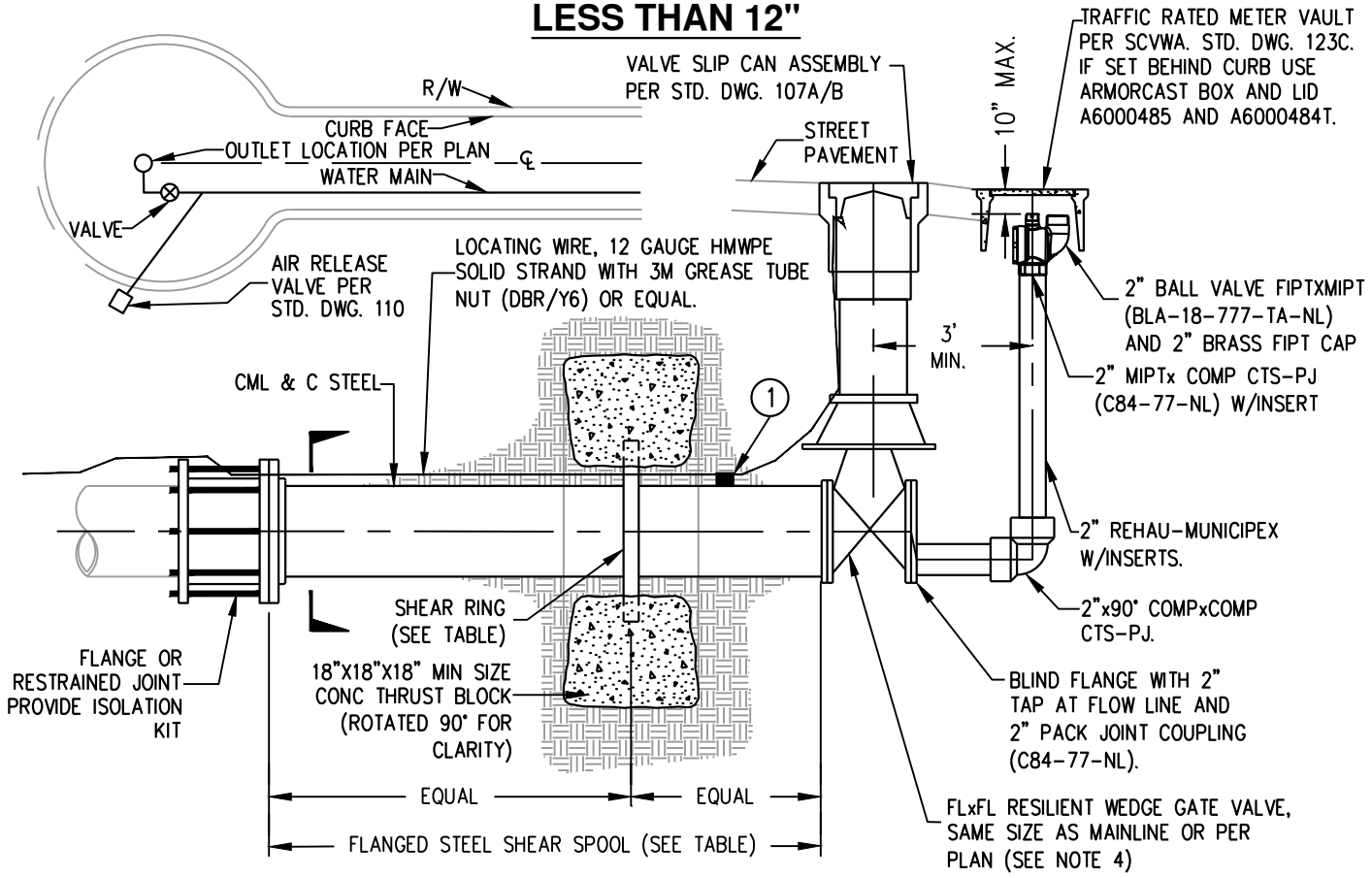
BRIAN J. FOLSOM, R.C.E. 44723
CHIEF ENGINEER

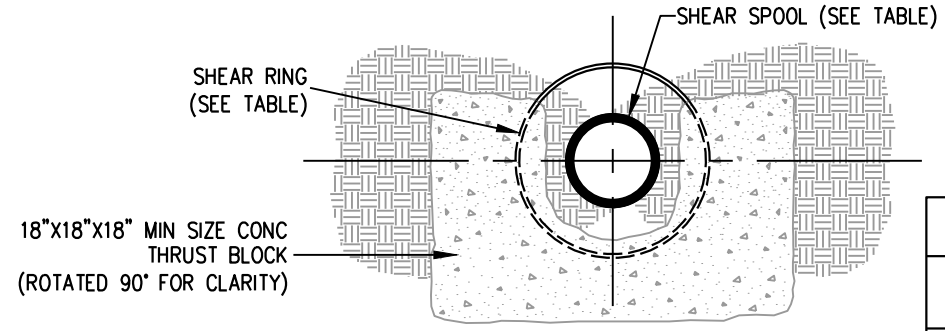
5/15/19
DATE

STD. DWG.
111

SHEET 2 OF 2

ASSEMBLY FOR MAINLINES LESS THAN 12"





SECTION

NOTES:

1. ALL MATERIALS SUPPLIED BY SCVWA OR OTHERS WILL MEET OR EXCEED SCVWA & AWWA SPECIFICATIONS.
2. THRUST BLOCK TO PIPE SIZE RATIO REFER TO STD. DWG. 102
3. MEET WITH SCVWA INSPECTOR PRIOR TO AIR RELEASE VALVE ASSEMBLY INSTALLATION. SEE SCVWA STD. DWG. 110.
4. FOR MAINLINES GREATER THAN OR EQUAL TO 12" USE A BUTTERFLY VALVE WITH AN ECCENTRIC REDUCER. SEE SHEET 2.

ITEM	MATERIALS
1	WELD O LET FIPT MIPT X COMP CORP, USE INSULATION NYLON BUSHING. SEE SCVWA STD DWG. NO. 110 FOR AIR VAC ASSEMBLY.

SHEAR SPOOL		
PIPE SIZE	LENGTH	SHEAR RING DIA
6"	6'	14"
8"	8'	18"
12"	8'	24"
16"	10'	34"
18"	10'	38"
20"	12'	42"
24"	12'	50"
30"	12'	62"

REV.	DATE	DESCRIPTION	BY

2" BLOW-OFF ASSEMBLY & SHEAR SPOOL WITH AIR RELEASE VALVE

SCV WATER

SANTA CLARITA VALLEY WATER AGENCY
ENGINEERING SERVICES SECTION

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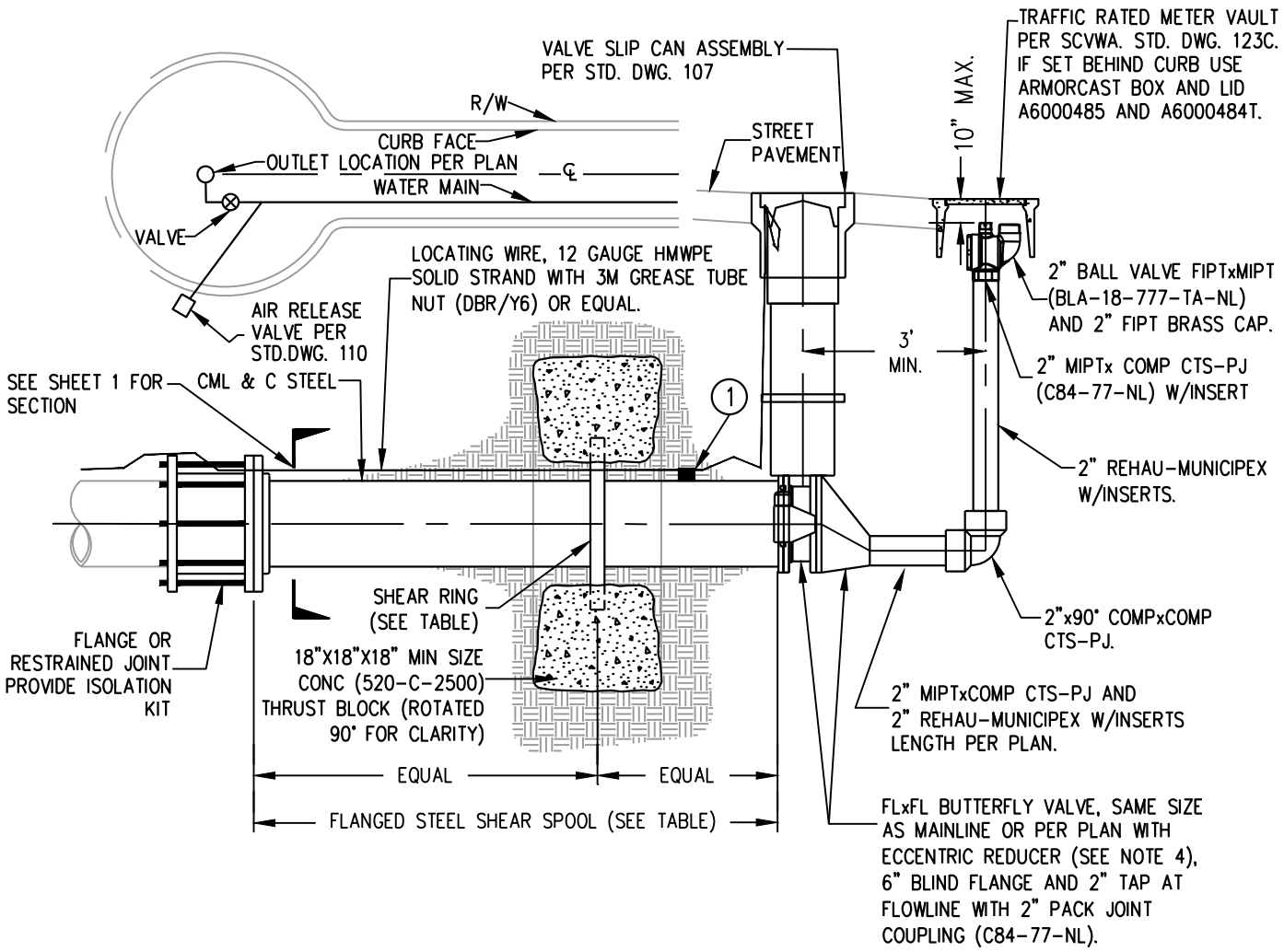
112

ASSEMBLY FOR MAINLINES GREATER THAN OR EQUAL TO 12"



SEE SHEET 1 FOR SHEAR SPOOL SIZING

NOTES:

1. ALL MATERIALS SUPPLIED BY SCVWA OR OTHERS WILL MEET OR EXCEED SCVWA & AWWA SPECIFICATIONS.
2. THRUST BLOCK TO PIPE SIZE RATIO REFER TO STD. DWG. 102
3. MEET WITH SCVWA INSPECTOR PRIOR TO AIR RELEASE VALVE ASSEMBLY INSTALLATION. SEE SCVWA STD. DWG. 110.
4. FOR MAINLINES LESS THAN 12" USE A RESILIENT WEDGE GATE VALVE. SEE SHEET 1.

ITEM	MATERIALS
①	WELD O LET FIPT MIPT X COMP CORP USE INSULATION NYLON BUSHING. SEE SCVWA STD DWG. NO. 110 FOR AIR VAC ASSEMBLY.

REV.	DATE	DESCRIPTION	BY

2" BLOW-OFF ASSEMBLY & SHEAR SPOOL WITH AIR RELEASE VALVE

SCV WATER

SANTA CLARITA VALLEY WATER AGENCY
ENGINEERING SERVICES SECTION

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CHIEF ENGINEER

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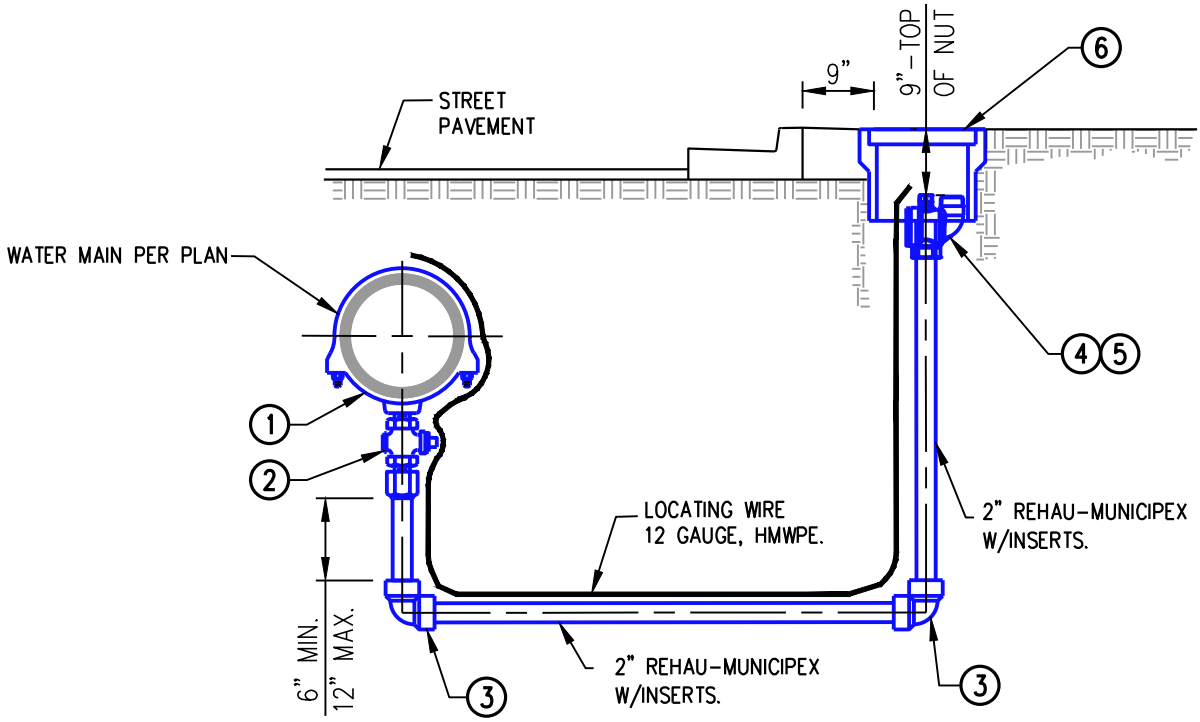
112



ITEM	MATERIALS
1	OUTLET PER PIPE, SEE PIPE TYPE HEREON.
2	2" MIPTxPJ CTS-PJ BALL TYPE, FORD FB1100-7NL OR EQUAL.
3	2"x 90° COMPxCOMP CTS-PJ.
4	2" MIPTXCOMP CTS-PJ, FORD C84-77-NL OR EQUAL.
5	2" BALL VALVE FIPTxMIPT FORD BLA-18-777-TA-NL OR EQUAL WITH 2" BRASS FIPT CAP.
6	ARMORCAST BOX AND LID PER SCVWA STD. DWG. NO. 123A SEE NOTE 6 HEREON.

PIPE TYPE	*SADDLE/OUTLET TYPE
ACP (ASBESTOS CEMENT PIPE)	2" FORD #202B SERIES
C-900 (PVC)	2" MUELLER BR2S SERIES
DIP (DUCTILE IRON PIPE)	2" FORD #202B SERIES
STEEL PIPE	2" WELD-O-LET
CML&S	2" WELD-O-LET

*OR EQUAL EPDM

NOTES:
1. ALL MATERIALS SUPPLIED BY SCVWA OR OTHERS WILL MEET OR EXCEED SCVWA & AWWA SPECIFICATIONS.
2. INSTALL BLOW-OFF @ ALL LOW POINTS PER SCVWA SPECIFICATIONS.
3. ALL SPLICED CONNECTIONS SHALL BE MADE USING A WIRE NUT, GREASE CAP, 3M (DBR/Y6) OR EQUAL.
4. ALL PIPES, FITTINGS, AND FIXTURES CONVEYING WATER SHALL BE "LEAD FREE" AS DEFINED BY AB 1953.
5. ALL RUBBER/GASKET MATERIAL MUST BE E.P.D.M. (OR COMPATIBLE WITH CHLORAMINES).
6. IF BLOW-OFF IS IN A TRAFFIC AREA/STREET USE BLOW-OFF TRAFFIC BOX, PER SCVWA STD. DWG. NO. 123C.

REV.	DATE	DESCRIPTION	BY

2" BLOW-OFF ASSEMBLY

SCV WATER

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ENGINEERING SERVICES SECTION

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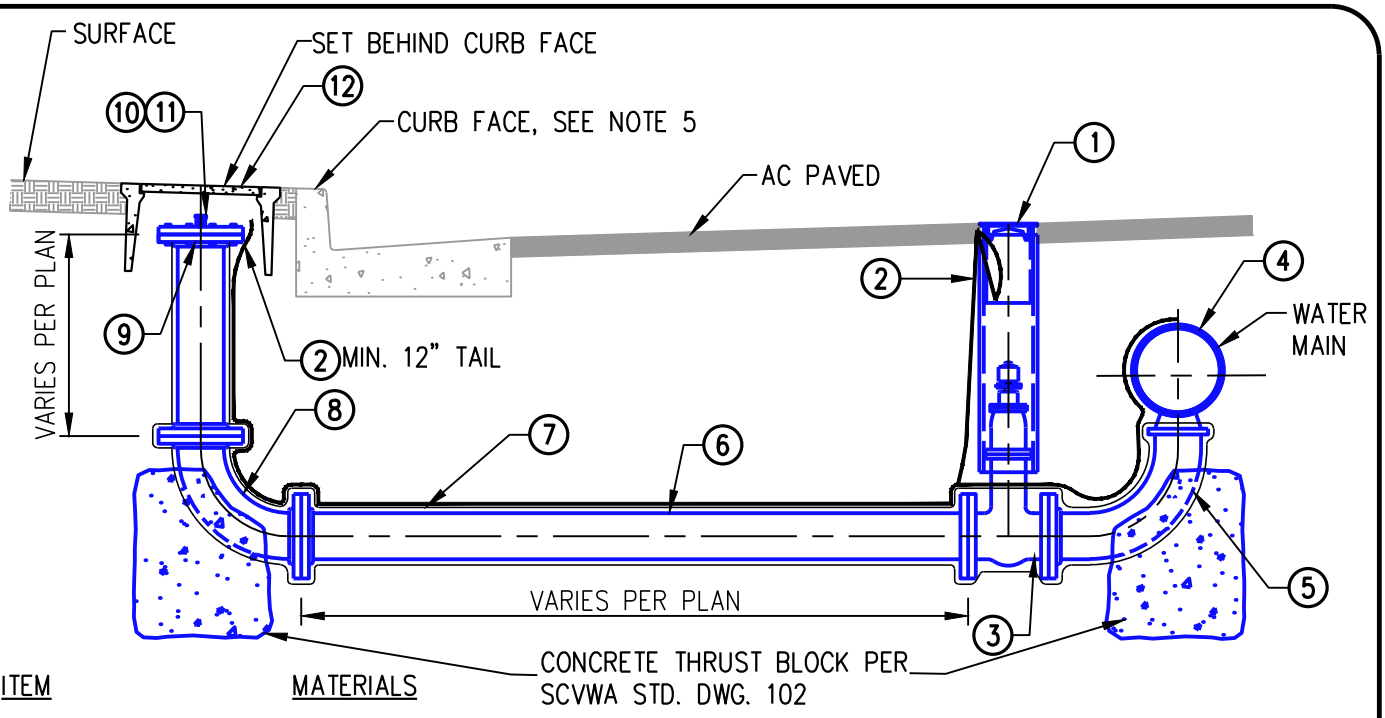
SHEET 1 OF 1



ITEM	MATERIALS
1	VALVE LID SLIP CAN PER SCVWA STD. DWG. 107A/B. LABELED "WATER B/O".
2	LOCATING WIRE, 12 GAUGE HMWPE SOLID STRAND WITH 3M GREASE TUBE NUT (DBR/Y6) OR EQUAL. TAPE WIRE AT 12" INTERVALS.
3	4" FLxMJ (RESILIENT WEDGE) GATE VALVE.
4	MJxFL TEE WITH 4" OUTLET, INVERTED DOWNWARD.
5	4" FLxFL LONG RADIUS 90°.
6	4" DIP RESTRAINED MECHANICAL JOINT, LENGTH VARIES PER PLAN.
7	ENCASE PIPE AND FITTINGS WITH ONE LAYER OF CLEAR 8-MIL POLYETHYLENE FILM.
8	4"x90° DI FITTING MJxMJ.
9	4" FLxMJ ADAPTER.
10	4" BLIND FLANGE WITH 2" TAP FIPT.
11	2" MIPT BRASS PLUG.
12	METER BOX PER SCVWA STD. NO. 123B OR 123C IF SET IN TRAFFIC AREAS, LABELED "SCVWA B/O".

NOTES:

1. ALL MATERIALS SUPPLIED BY SCVWA OR OTHERS WILL MEET OR EXCEED AWWA SPECIFICATIONS.
2. NO-OX-ID/BITUMASTIC PROTECTIVE COATING SHALL BE APPLIED TO ALL FITTINGS, NUTS, AND BOLTS.
3. ALL RUBBER/GASKET MATERIAL MUST BE E.P.D.M.
4. INSTALL BLOW-OFF AT ALL LOW POINTS PER SCVWA SPECIFICATIONS.
5. CHISEL A 2" HIGH "V", "ARROW", AND "DISTANCE TO VALVE" ON TOP OF CURB AT RIGHT ANGLES TO PIPELINE AXIS, ARROW SHALL POINT TO DIRECTION OF VALVE LOCATION.

REV.	DATE	DESCRIPTION	BY

4" BLOW-OFF ASSEMBLY

SCV WATER

SANTA CLARITA VALLEY WATER AGENCY
ENGINEERING SERVICES SECTION

APPROVED BY:

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5/15/19
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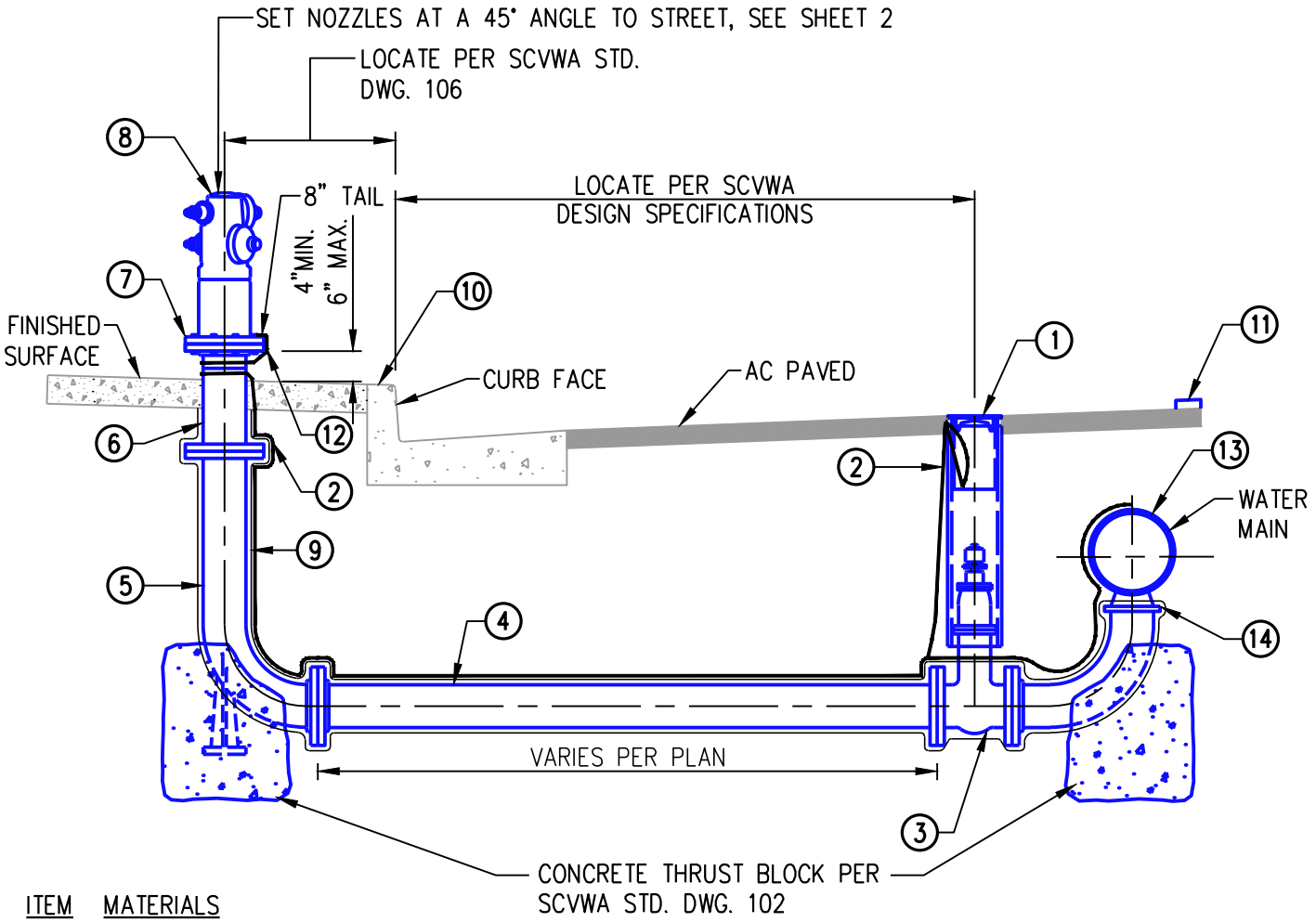
STD. DWG.
114A

SHEET 1 OF 1



ITEM	MATERIALS
1	VALVE LID SLIP CAN PER SCVWA STD. DWG. 107A/B. LABELED "WATER B/O" AND PAINTED YELLOW.
2	LOCATING WIRE, 12 GAUGE HMWPE SOLID STRAND WITH 3M GREASE TUBE NUT (DBR/Y6) OR EQUAL. TAPE WIRE AT 12" INTERVALS.
3	6" FLANGED OR MECHANICAL JOINT GATE VALVE (RESILIENT WEDGE) WITH OPERATING NUT.
4	6" DIP RESTRAINED MECHANICAL JOINT.
5	6" CAST IRON FIRE HYDRANT BURY-FLANGED OR RESTRAINED MECHANICAL JOINT.
6	BREAK-OFF SPOOL, LOCATE SHEAR GROOVE ABOVE HARDSCAPE.
7	8 HOLE FLANGES WITH BREAK-OFF BOLTS, WITH HEADS ON TOP.
8	6"x4"x2-1/2" FIRE HYDRANT, CLOW 850 OR JONES J-4040BRE DI 8 HOLE.
9	ENCASE PIPE AND FITTINGS WITH ONE LAYER OF CLEAR 8-MIL POLYETHYLENE FILM. TAPE FILM WITH 2" TAPE AT 12" INTERVALS SEE SCVWA STD. DWG. NO 101.
10	GRIND FOOTAGE TO CENTER OF VALVE WITH ARROW ON TOP OF CURB.
11	BLUE REFLECTOR, SEE NOTE 10 ON SHEET 2.
12	WRAP LOCATING WIRE TWICE AROUND FIRE HYDRANT.
13	MJxFL TEE WITH 6" OUTLET, INVERTED DOWNWARD.
14	6" FLxFL LONG RADIUS 90°.

REV.	DATE	DESCRIPTION	BY

6" BLOW-OFF ASSEMBLY

SCV WATER

SANTA CLARITA VALLEY WATER AGENCY
ENGINEERING SERVICES SECTION

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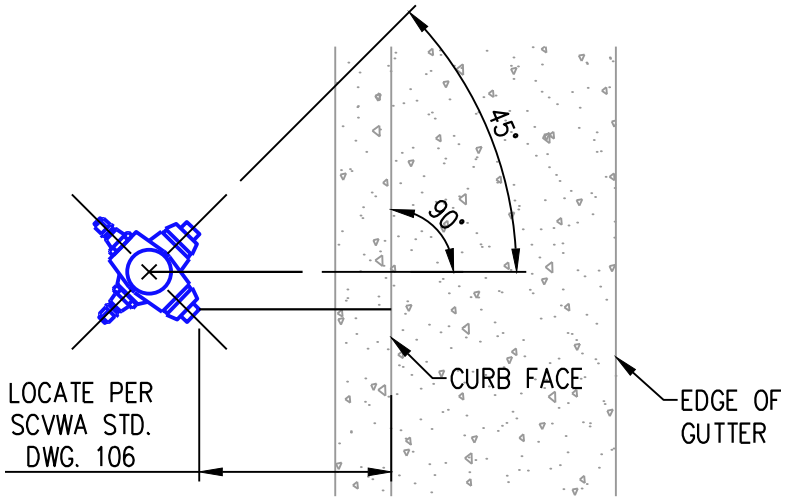
STD. DWG.
114B



TOP VIEW

LOCATE HYDRANT AS SHOWN
N.T.S

NOTES:

1. ALL MATERIALS SUPPLIED BY SCVWA OR OTHERS WILL MEET OR EXCEED AWWA SPECIFICATIONS.
2. COAT FIRE HYDRANT SCHOOL BUS YELLOW.
3. FIRE HYDRANT SHALL BE AFFIXED TO BREAK-OFF SPOOL WITH BREAK-OFF BOLTS (BOLT HEAD MUST BE ON TOP).
4. PROVIDE GUARD POSTS PER SCVWA STD. DWG. 105 OR AS REQUIRED BY INSPECTOR.
5. DOUBLE OUTLET HYDRANTS SHALL BE INSTALLED WITH OUTLETS FACING CURB AT A 45 DEGREE ANGLE TO THE CURB LINE, SEE ABOVE.
6. PROVIDE A THREE FOOT UNOBSTRUCTED CLEARANCE ON ALL SIDES.
7. NO-OX-ID/BITUMASTIC PROTECTIVE COATING SHALL BE APPLIED TO ALL FITTINGS, NUTS, AND BOLTS.
8. ALL RUBBER/GASKET MATERIAL MUST BE E.P.D.M.
9. AC PAVEMENT, CURB AND GUTTER AND SIDEWALK SHALL BE REPLACED PER CITY OR COUNTY STANDARDS.
10. THE CONTRACTOR SHALL INSTALL REFLECTORIZED, RAISED PAVEMENT MARKERS (STIMSONITE HYDRANT SPOTTER), ALSO CALLED "BLUE DOTS". A TWO PART EPOXY ADHESIVE SHALL BE USED TO INSTALL THE MARKERS. ONE MARKER SHALL BE INSTALLED OPPOSITE EACH FIRE HYDRANT, APPROXIMATELY 6 INCHES OFFSET FROM STREET CENTERLINE ON THE HYDRANT SIDE OF THE STREET.
11. INSTALL BLOW-OFF AT ALL LOW POINTS PER SCVWA SPECIFICATIONS.
12. VALVE LID MUST BE YELLOW LABELED "WATER B/O".

REV.	DATE	DESCRIPTION	BY

6" BLOW-OFF ASSEMBLY

SCV WATER

SANTA CLARITA VALLEY WATER AGENCY
ENGINEERING SERVICES SECTION

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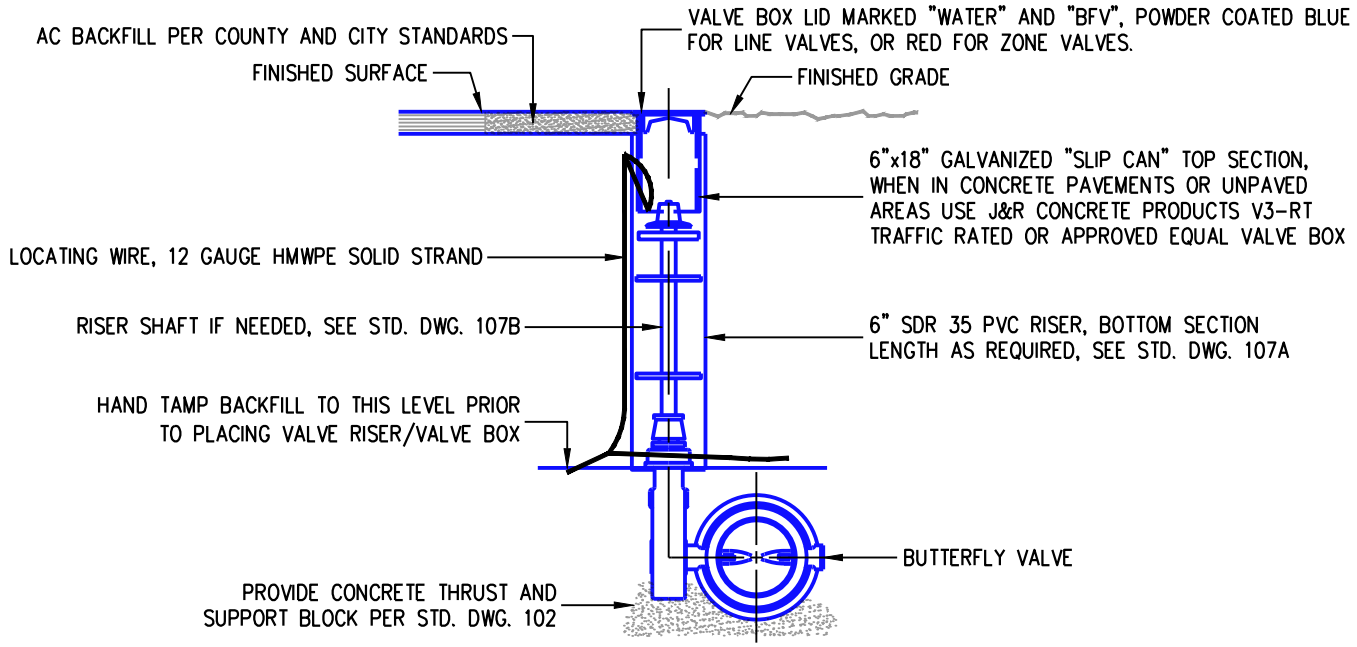
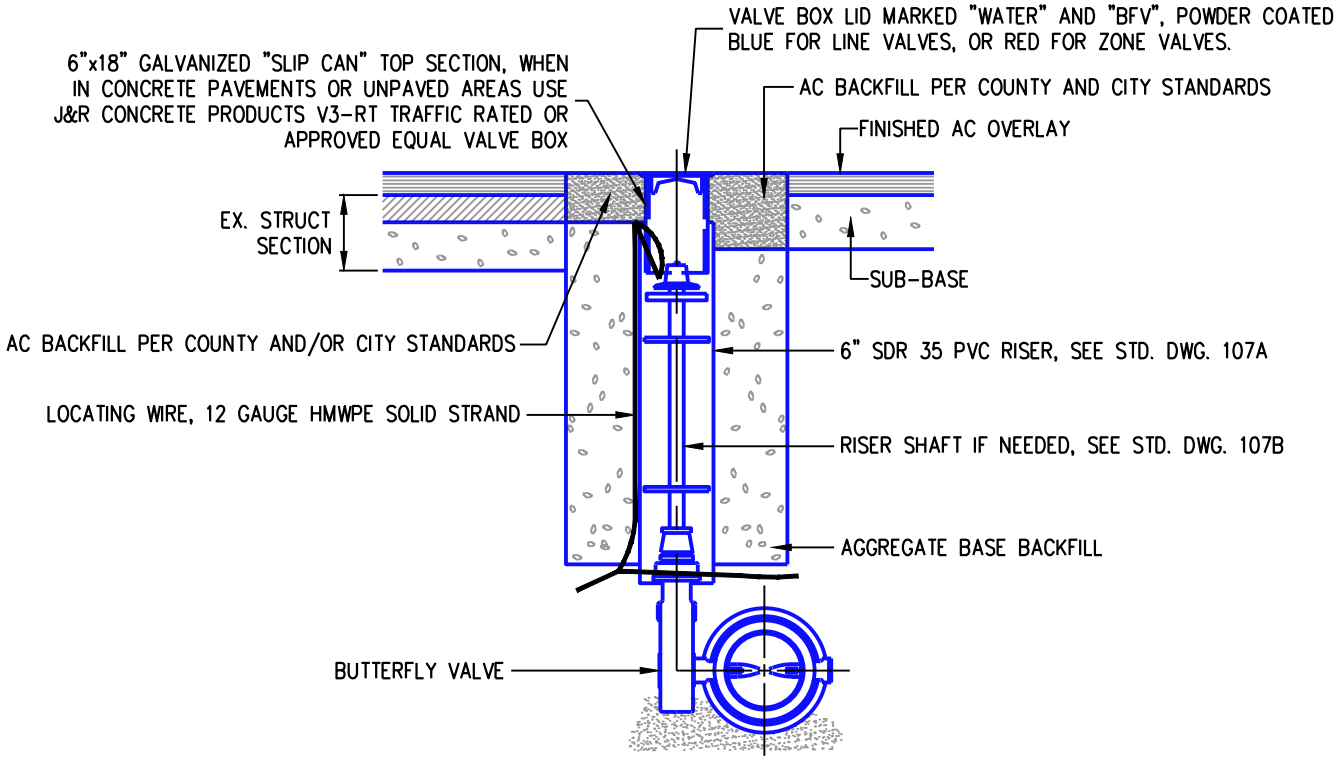


TYPICAL NEW INSTALLATION



ADJUSTMENT TO GRADE

NOTES:

1. HAND TAMP BACKFILL UP TO BOTTOM OF VALVE STUFFING BOX BEFORE SETTING THE VALVE.
2. EXTENSION SHAFT, FITTED WITH SELF CENTERING DEVICE AND ADAPTER SHALL BE PROVIDED WHEN COVER OVER VALVE EXCEEDS 4 FEET.
3. CHISEL A 2" HIGH "V", "ARROW", AND "DISTANCE TO VALVE" ON TOP OF CURB AT RIGHT ANGLES TO PIPELINE AXIS, ARROW SHALL POINT TO DIRECTION OF VALVE LOCATION.
4. VALVE THRUST & SUPPORT TO BE AS SHOWN ON THE PLANS.
5. BUTTERFLY VALVES SHALL BE USED FOR WATER MAINS 12" OR LARGER.

REV.	DATE	DESCRIPTION	BY

TYPICAL BUTTERFLY VALVE INSTALLATION

SCV WATER

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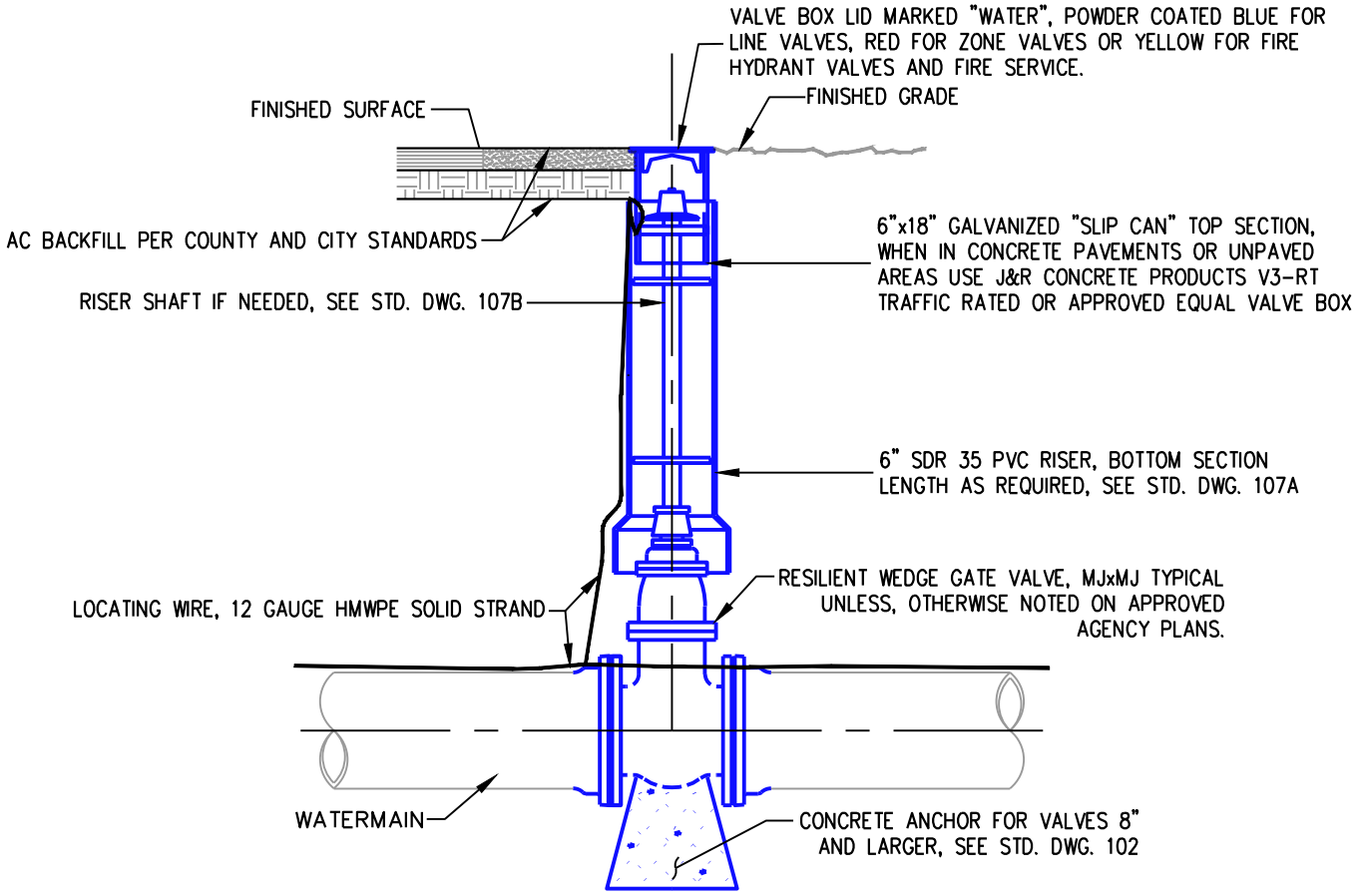
SHEET 1 OF 1



NOTES:

1. HAND TAMP BACKFILL UP TO BOTTOM OF VALVE STUFFING BOX BEFORE SETTING THE VALVE.
2. EXTENSION SHAFT, FITTED WITH SELF CENTERING DEVICE AND ADAPTER SHALL BE PROVIDED WHEN COVER OVER VALVE EXCEEDS 4 FEET.
3. CHISEL A 2" HIGH "V", "ARROW", AND "DISTANCE TO VALVE" ON TOP OF CURB AT RIGHT ANGLES TO PIPELINE AXIS, ARROW SHALL POINT TO DIRECTION OF VALVE LOCATION.
4. VALVE THRUST & SUPPORT TO BE AS SHOWN ON THE PLANS.
5. GATE VALVES SHALL BE USED FOR WATER MAINS 10" OR SMALLER AND SHALL NOT BE SMALLER THAN 6" UNLESS OTHERWISE SPECIFIED ON WATER PLAN.
6. ALL BOLTS SHALL BE COATED WITH NO-OX ID. GASKETS SHALL BE 1/16" "NONE ASBESTOS" OR APPROVED EQUAL. BOLTS SHALL BE STANDARD SQUARE HEAD MACHINE PER ASTM A-307 WITH GRADE "B" NUTS, HEXAGON, COLD PRESS SEMI-FINISHED STEEL PER ASTM A-194, GRADE "2H"

REV.	DATE	DESCRIPTION	BY

TYPICAL GATE VALVE INSTALLATION

SCV WATER

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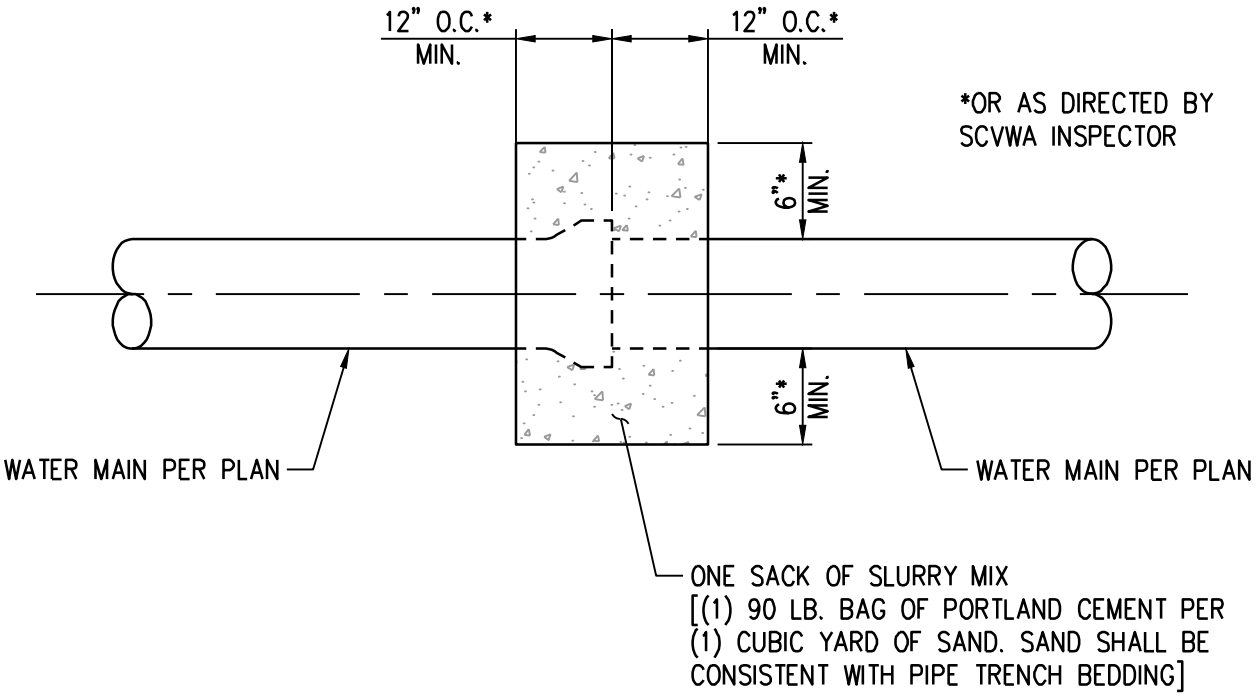
SHEET 1 OF 1



REV.	DATE	DESCRIPTION	BY

PIPE JOINT ENCASEMENT

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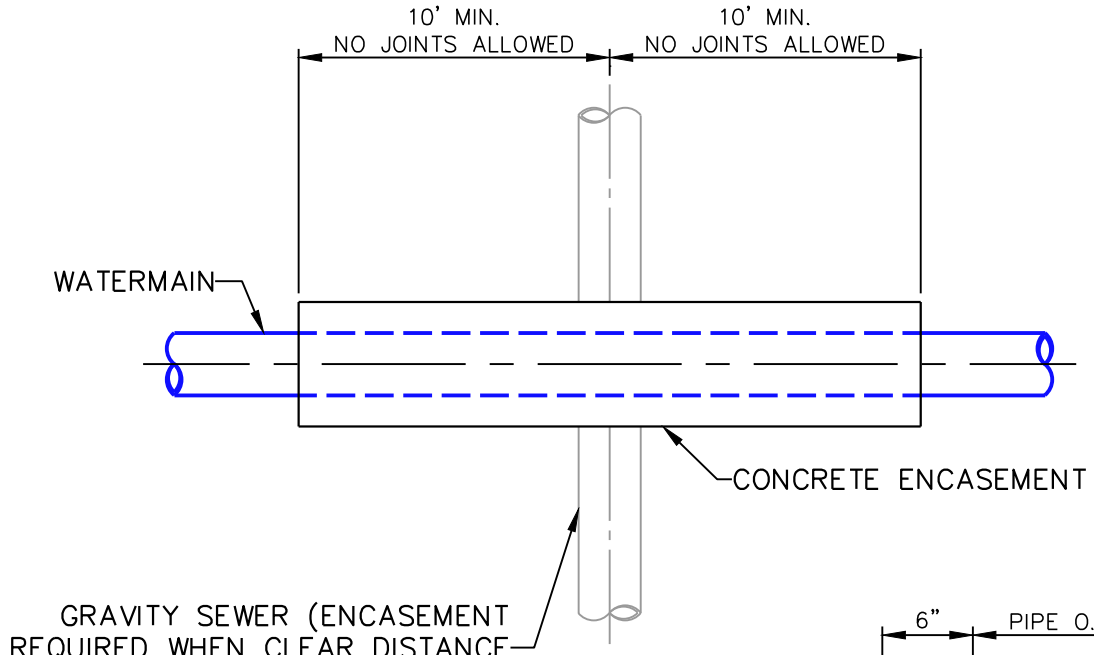

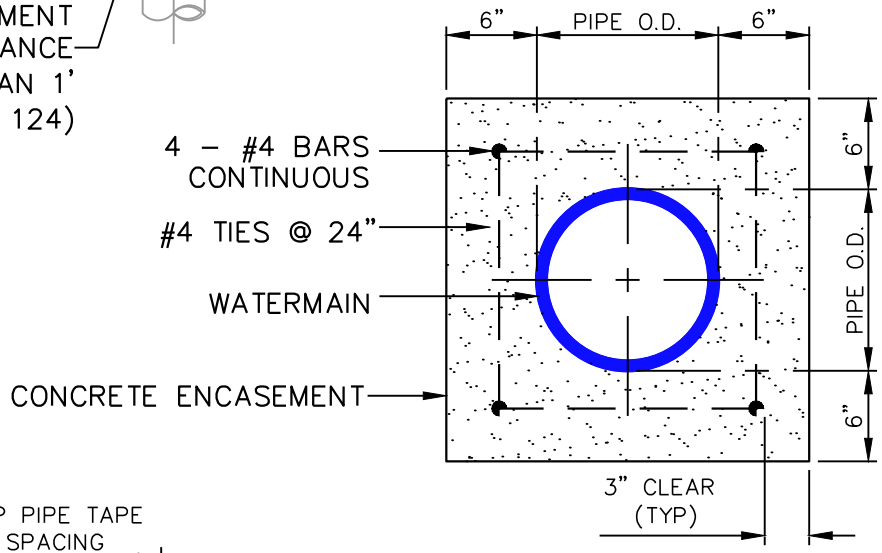

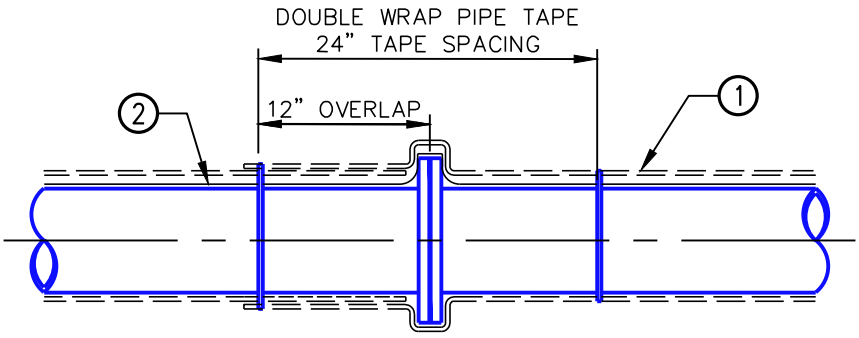

NOTE: THIS METHOD SHALL BE USED ONLY IF APPROVED BY AGENCY INSPECTOR AND/OR ENGINEER. THE TYPICAL PREFERRED ENCASEMENT METHOD IS ONE SACK SLURRY.

ITEM	MATERIALS
1	ENCASE PIPE WITH ONE LAYER OF CLEAR 8-MIL POLYETHYLENE FILM.
2	LOCATING WIRE, 12 GAUGE HMWPE SOLID STRAND WITH 3M GREASE TUBE NUT (DBR/Y6) OR EQUAL. TAPE WIRE AT 12" INTERVALS.

REV.	DATE	DESCRIPTION	BY

CONCRETE ENCASEMENT

SCV WATER

SANTA CLARITA VALLEY WATER AGENCY
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CHIEF ENGINEER

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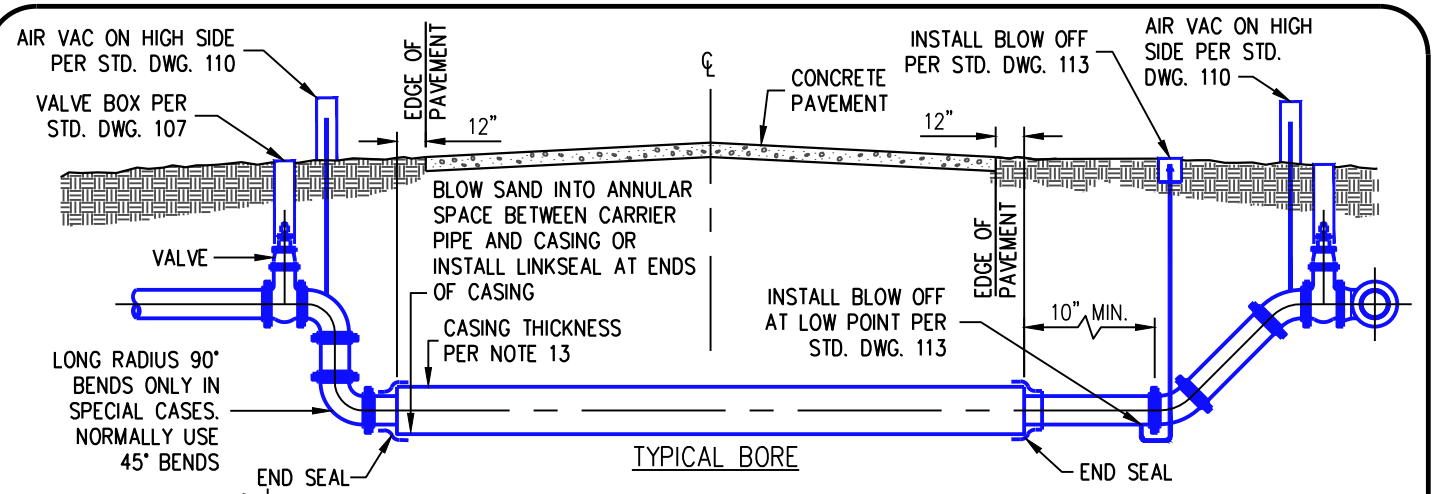
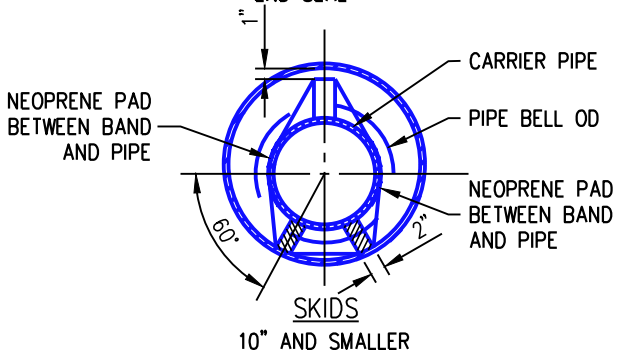
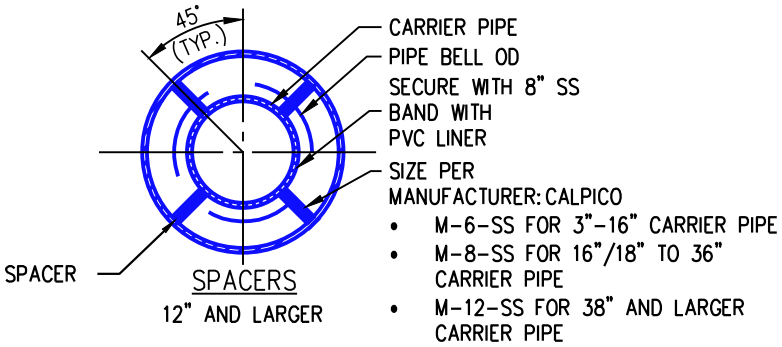


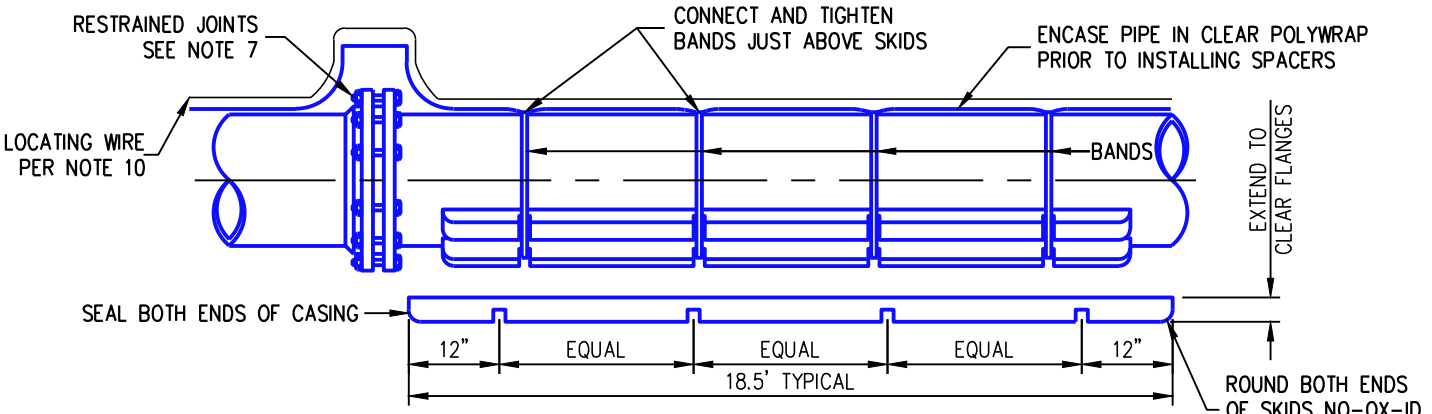
TYPICAL BORE



SKIDS
10" AND SMALLER



SPACERS
12" AND LARGER



SKIDS FOR FLANGED PIPE

NOTES:

1. PRIOR TO AND AGAIN FOLLOWING FINAL BACKFILL AND COMPACTION, THE NACE INTERNATIONAL-CERTIFIED CORROSION TECHNOLOGIST SHALL VERIFY THAT THE CARRIER PIPE AND CASING ARE ELECTRICALLY ISOLATED FROM ONE ANOTHER. VERIFICATION SHALL BE INLCUDED IN THE FINAL CORROSION REPORT.
2. ALL MATERIAL SUPPLIED BY SCVWA OR OTHERS SHALL MEET OR EXCEED AWWA & SCVWA SPECIFICATIONS.
3. CASING SPACERS/INSULATORS SHALL BE CENTER RESTRAINING CALPICO MODEL M-8-SS OR EQUAL MIN. 3 PER STICK. SPACING AND DESIGN SHALL BE INSTALLED 12" FROM EACH END OF CASING.
4. RUNNERS SHALL BE MIN 1.25" WIDE CAPABLE OF SUSTAINING WEIGHT OF THE PIPE.
5. ALL HARDWARE SHALL BE 304 STAINLESS STEEL.
6. STAINLESS STEEL BAND SHALL BE 8" WIDE.
7. CARRIER PIPE SHALL BE FULLY RESTRAINED JOINTS AS MANUFACTURED BY US PIPE OR EQUAL.
8. INSTALL AIR-VAC ON HIGH SIDE.
9. WATER PIPE TO BE RESTRAINED DUCTILE IRON OR WELDED CML&C STEEL, CL 350.
10. INSTALL LOCATING WIRE, 12 GAUGE HMWPE SOLID STRAND W/ 3M GREASE TUBE NUT (DBR/Y6) OR EQUAL.
11. THE ANNULAR SPACE SHALL BE FILLED WITH AIR BLOWN SAND.
12. ALL STEEL CASING JOINTS SHALL BE WELDED THE FULL CIRCUMFERENCE.
13. SPACERS, INSULATORS, AND ALL HARDWARE SHALL BE DESIGNED BY THE MANUFACTURER FOR THE APPLICATION GIVEN THE PARTICULAR CASING AND CARRIER PIPE CHARACTERISTICS INCLUDING MATERIAL, LENGTH, DIA. AND WEIGHT.
14. STEEL PIPE CASINGS MUST BE BUTT-WELDED SHEETS FOR STRAIGHT SEAM STEEL CASING PIPE AND COMPLY WITH THE FOLLOWING:
    - ASTM A 36/A 36M, ASTM A 283/ A 283M, GRADE D, OR ASTM A 568/A 568M, GRADE 33.
    - STEEL CASING SIZED 20 INCH OR SMALLER MUST HAVE A MINIMUM WALL THICKNESS OF 3/8 INCH.
    - STEEL CASINGS SIZED LARGER THAN 20 INCH MUST HAVE A MINIMUM WALL THICKNESS OF 1/2 INCH.
    - ALL JOINTS MUST BE FULL PENETRATION WELDS THAT COMPLY WITH AWWA C206, AWS D1.1.

REV.	DATE	DESCRIPTION	BY

TYPICAL BORE AND SKIDS

SCV WATER

SANTA CLARITA VALLEY WATER AGENCY
ENGINEERING SERVICES SECTION

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CHIEF ENGINEER

5/15/19
DATE

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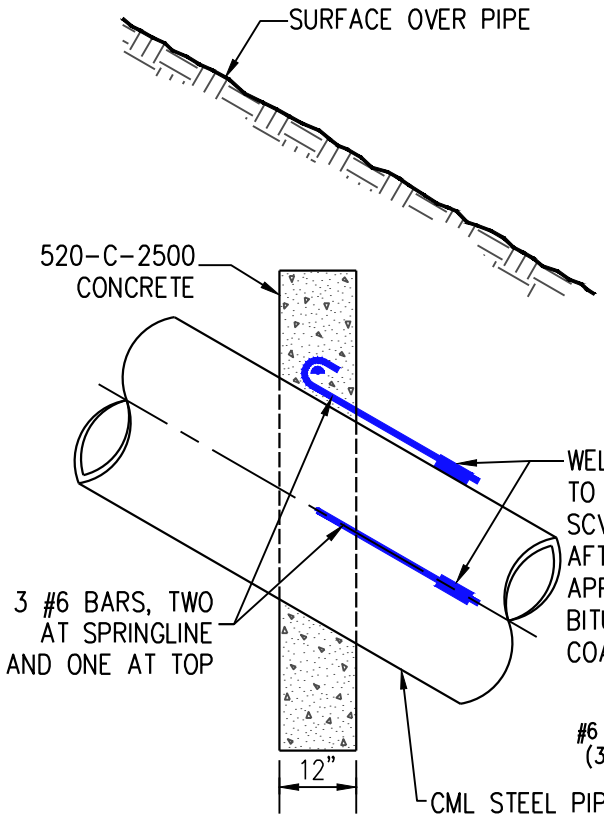
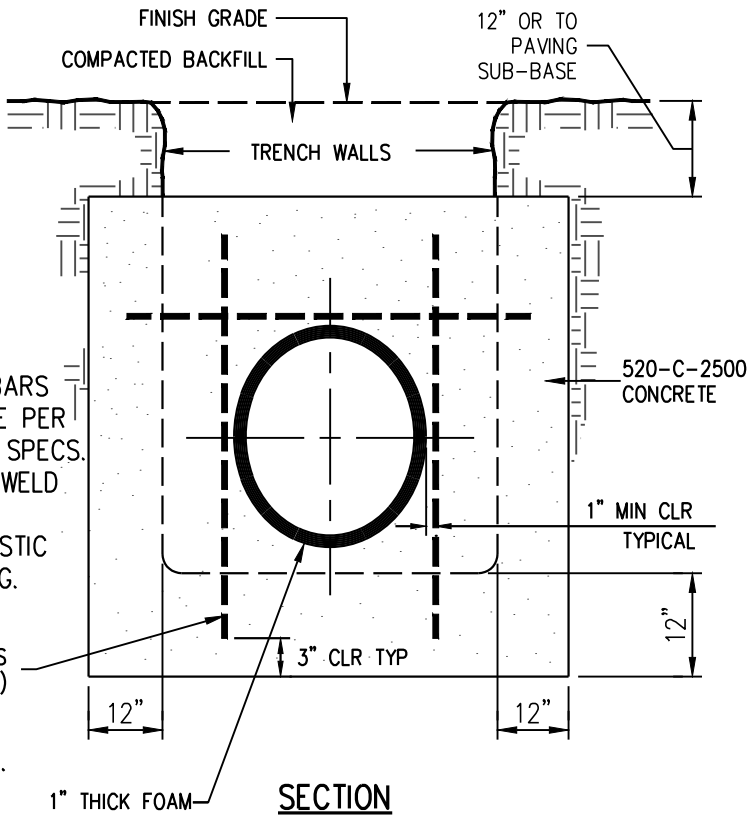
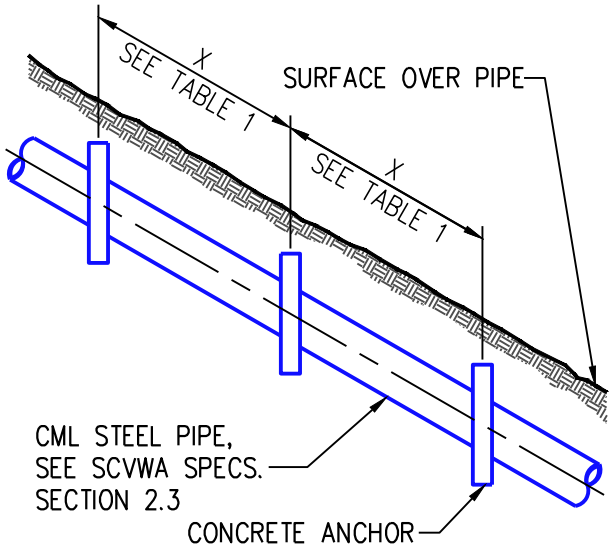
SHEET 1 OF 1



ELEVATION



SECTION



PROFILE

TABLE 1

PIPE SLOPE (%)	PIPE SLOPE	DISTANCE (X)
100	1:1	12'
67	1 1/2:1	14'
50	2:1	16'
40	2 1/2:1	18'
33	3:1	20'

REV.	DATE	DESCRIPTION	BY

PIPE ANCHOR FOR STEEL PIPE

SCV WATER

SANTA CLARITA VALLEY WATER AGENCY
ENGINEERING SERVICES SECTION

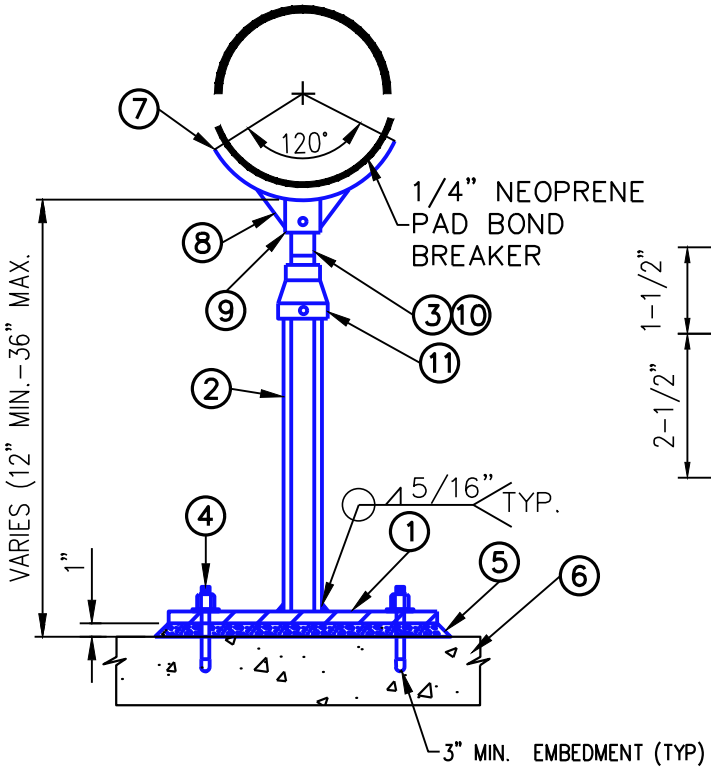
APPROVED BY:

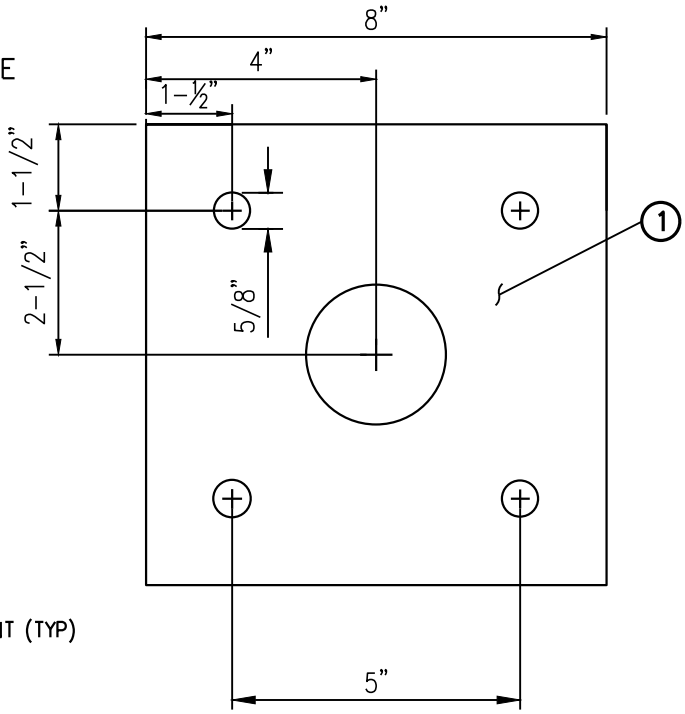
BRIAN J. FOLSOM, R.C.E. 44723
CHIEF ENGINEER

5/15/19
DATE

STD. DWG.
120

SHEET 1 OF 1





ITEM	MATERIALS
1	8" X 8" X 1/2" BLACK STEEL BASE PLATE WITH 4-5/8" BOLT HOLES.
2	3" DIAMETER SCH. 40 BLACK STEEL PIPE WELDED TO BASE PLATE STOCKED @15" LONG TO BE CUT TO SIZE IN THE FIELD.
3	COAT THREADS WITH LIBERAL AMOUNTS OF ANTI-SEIZE COMPOUND.
4	5/8" DIAMETER RED HEAD STAINLESS STEEL CONCRETE ANCHOR BOLT WITH 5/8" DIAMETER STAINLESS STEEL HEX HEAD ANCHOR NUT AND 1" X 5/8" HEAVY STAINLESS STEEL WASHER DRILL AND MOUNT INTO CONCRETE PAD OR VAULT FLOOR.
5	1" THICK NON-SHRINK GROUT LEVELING COURSE.
6	CONCRETE PAD.
7	3/8" THICK X 4" WIDE STAINLESS STEEL SADDLE ASSEMBLY. PRE-COAT WITH POLYURETHANE SPRAY COATING 40 MILS THICK. TOP & SIDE ONLY.
8	3/8" GUSSET THINK STAINLESS STEEL GUSSET PLATE.
9	3" DIAMETER SCH. 80 STAINLESS STEEL RECEIVER TUBE WITH 1.2" STAINLESS STEEL ALLEN SET SCREW.
10	2 1/2" DIAMETER SCH. 40 STAINLESS STEEL THREADED RISER PROVIDES APPROX. 6" OF ADJUSTMENT.
11	3" DIAMETER STAINLESS STEEL HEAVY THREADED ADJUSTMENT COUPLING WITH 1/2" DIAMETER STAINLESS STEEL SET SCREW.

NOTES:
1. ALL PIPE SUPPORT COMPONENTS SHALL BE HOT DIP GALVANIZED AFTER FABRICATION WITH THE EXCEPTION OF THE THREADED STAINLESS STEEL PARTS.
2. ALL PIPE SUPPORT COMPONENTS EXCEPT THE ALL-THREAD ROD SHALL BE PAINTED AFTER FIELD INSTALLATION IN ACCORDANCE WITH SCVWA SPECIFICATIONS. (COLOR SHALL MATCH THE SUPPORTED PIPING AND FITTINGS.)

REV.	DATE	DESCRIPTION	BY

PIPE SUPPORT

SCV WATER

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ENGINEERING SERVICES SECTION

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121

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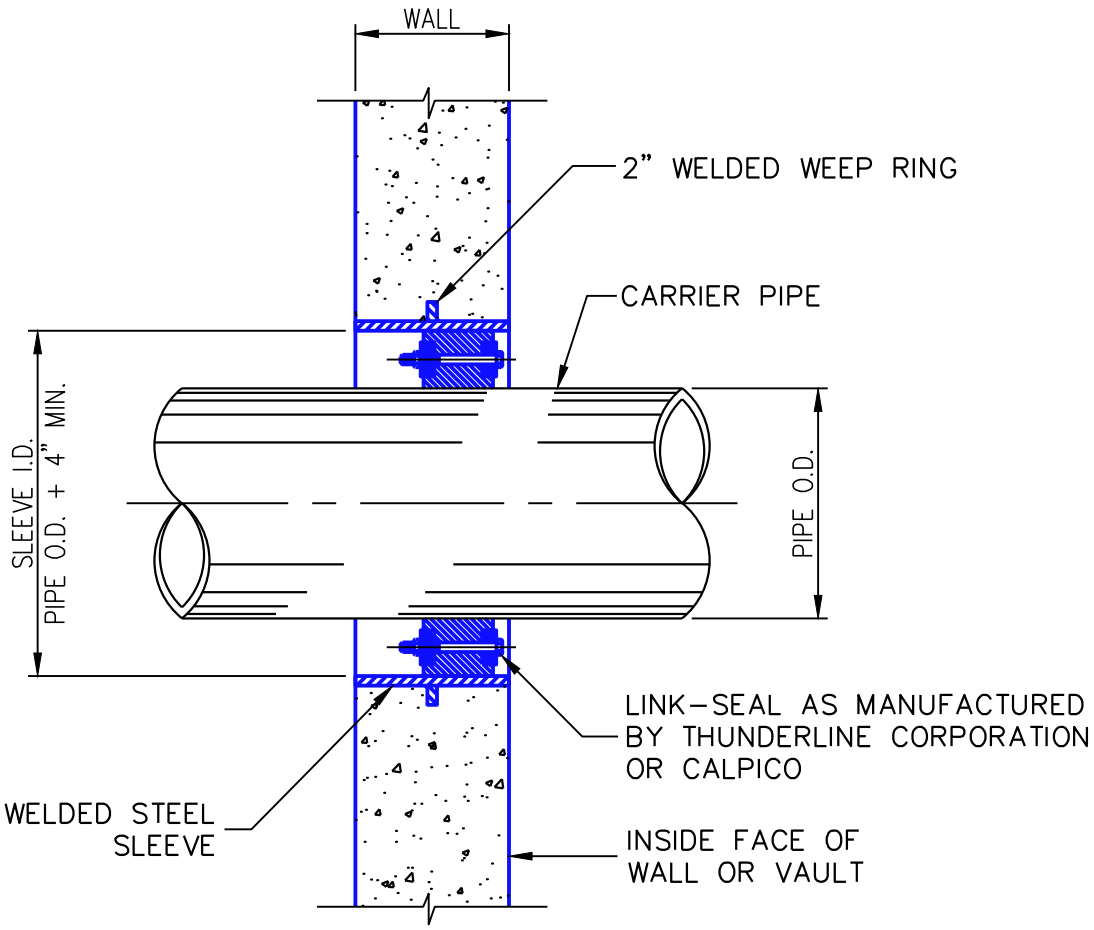

REV.	DATE	DESCRIPTION	BY

TYPICAL WALL PENETRATION SEAL

SCV WATER

SANTA CLARITA VALLEY WATER AGENCY
ENGINEERING SERVICES SECTION

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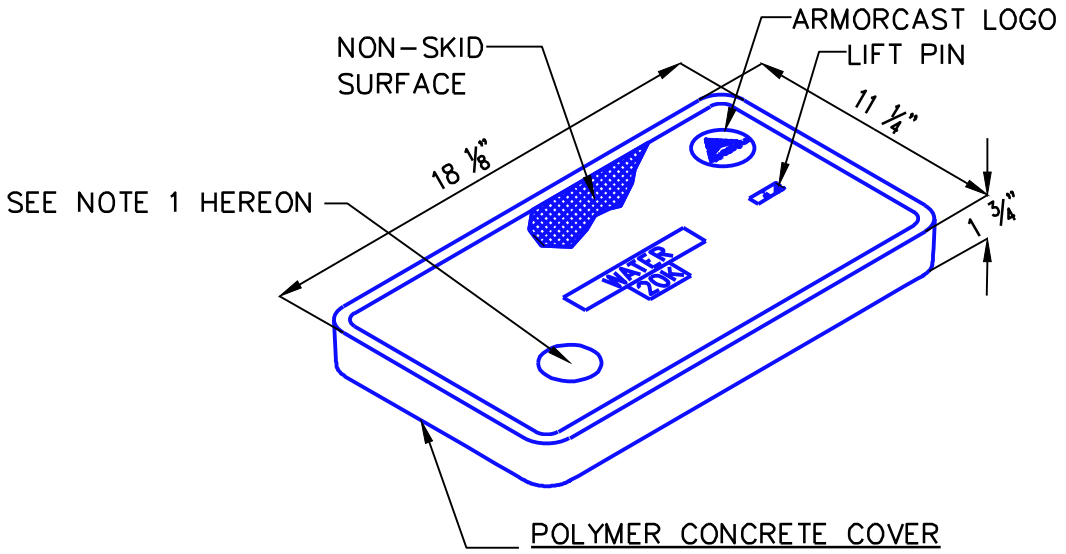
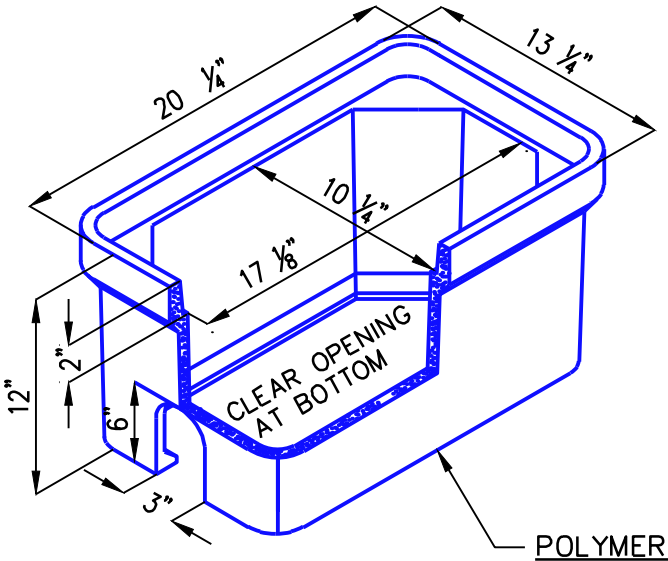
122

SHEET 1 OF 1





NOTES:

1. FOR LIDS, USE THE FOLLOWING:
   SANTA CLARITA SYSTEM INSTALLATION
   FOR 1" USE ARMORCAST LID A6000484-TH7 (20K)
   NEWHALL AND/OR VALENCIA SYSTEM INSTALLATION
   FOR 1" USE ARMORCAST LID A6000484T (20K) W/3M LOCATOR
2. METER BOX SHALL BE SET BEHIND SIDEWALK, WHERE SIDEWALK IS ADJACENT TO CURB, OR IN PARKWAY, BETWEEN CURB AND SIDEWALK, ALL WITHIN DEDICATED PUBLIC RIGHT-OF-WAY. NO METERS ALLOWED IN DRIVEWAY AREAS OR CUSTOMER WALKWAYS.
3. WATER METER BOX AS MANUFACTURED BY ARMORCAST PRODUCTS FOR 1" METERS OR EQUAL.

REV.	DATE	DESCRIPTION	BY

1" METER BOX

SCV WATER

SANTA CLARITA VALLEY WATER AGENCY
ENGINEERING SERVICES SECTION

APPROVED BY:

BJ Folsom — 5/15/19

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CHIEF ENGINEER

DATE

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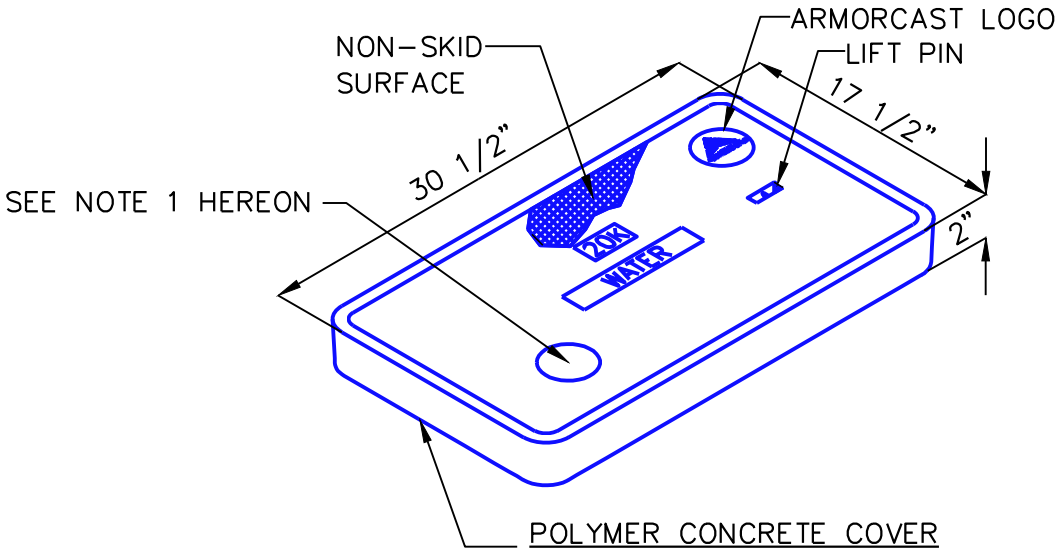
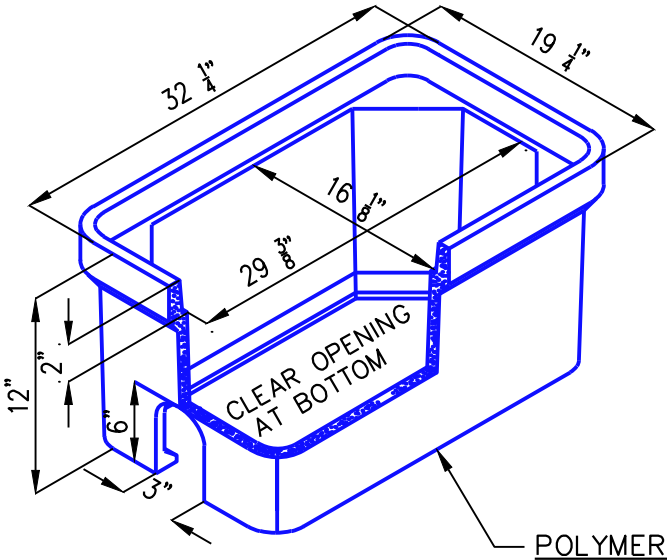
123A

SHEET 1 OF 1



POLYMER CONCRETE COVER
SEE NOTE 1 HEREON



POLYMER CONCRETE BOX
A60001640PCX12

NOTES:

1. FOR LIDS, USE THE FOLLOWING:
   SANTA CLARITA SYSTEM INSTALLATION
   FOR 1.5"-2" USE ARMORCAST LID A6001947T-H7 (20K)
   NEWHALL AND/OR VALENCIA SYSTEM INSTALLATION
   FOR 1.5"-2" ARMORCAST LID A6001947T (20K) W/3M LOCATOR
2. METER BOX SHALL BE SET BEHIND SIDEWALK, WHERE SIDEWALK IS ADJACENT TO CURB, OR IN PARKWAY, BETWEEN CURB AND SIDEWALK, ALL WITHIN DEDICATED PUBLIC RIGHT-OF-WAY. NO METERS ALLOWED IN DRIVEWAY AREAS OR CUSTOMER WALKWAYS.
3. WATER METER BOX AS MANUFACTURED BY ARMORCAST PRODUCTS FOR 2" METERS OR EQUAL.

REV.	DATE	DESCRIPTION	BY

1.5"-2" METER BOX

SCV WATER

SANTA CLARITA VALLEY WATER AGENCY
ENGINEERING SERVICES SECTION

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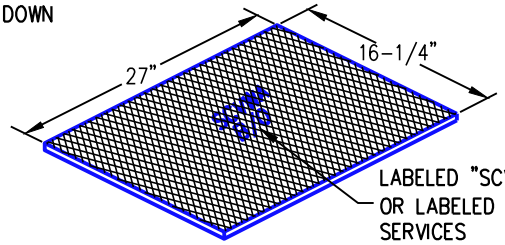
CHIEF ENGINEER

5/15/19
DATE

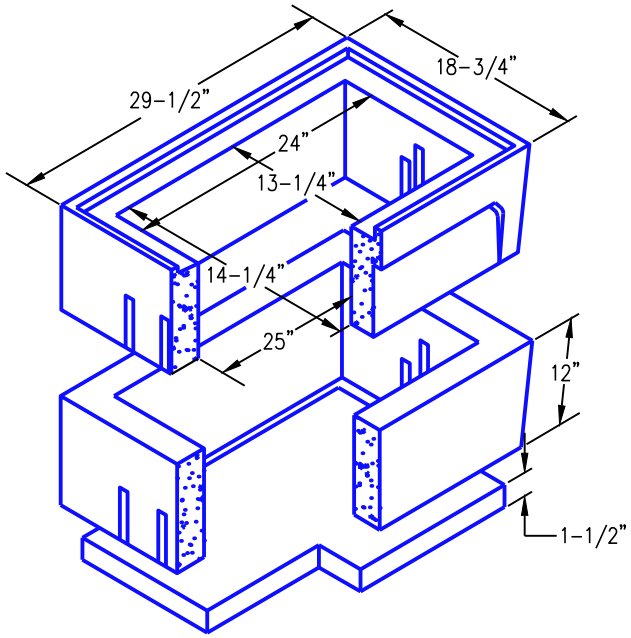
STD. DWG.
123B

SHEET 1 OF 1

*LID MUST BE BOLTED DOWN



LABELED "SCVWA B/O" FOR BLOW-OFF
OR LABELED "SCVWA WATER" FOR WATER
SERVICES



B1324-6IJH BOX, H/20 LOADING
MANUFACTURED BY
"CHRISTY CONCRETE PRODUCTS"

TRAFFIC BOX
CALTRANS NO. 5T STATE SPECS

A HIGH DENSITY REINFORCED CONCRETE BOX WITH NON-SETTLING SHOULDERS POSITIONED TO MAINTAIN GRADE AND FACILITATE BACK FILLING. APPROXIMATE DIMENSIONS SHOWN.

CHRISTY ORDERING CODE	ITEM	APPROX. SHIPPING WEIGHT	DESCRIPTION
B1324BOX	BOX	187	B1324 UTILITY BOX (13-1/4" X 24") H/20 LOADING 12 PER PALLET
B1324-61JH	COVER*	70	STEEL CHECKER PLATE, H/20 LOADING BOLT DOWN
B1324-61GH	COVER*	72	STEEL CHECKER PLATE, H/20 LOADING WITH READING LID 5"X8"
B1324X12	EXTENSION	163	12" REINFORCED CONCRETE H/20 LOADING-12 PER PALLET
B30SL	SLAB	54	REINFORCED CONCRETE (16" X 27")

*GALVANIZING AVAILABLE ON ALL STEEL COVERS

REV.	DATE	DESCRIPTION	BY

TRAFFIC BOX

SCV WATER

SANTA CLARITA VALLEY WATER AGENCY
ENGINEERING SERVICES SECTION

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CHIEF ENGINEER

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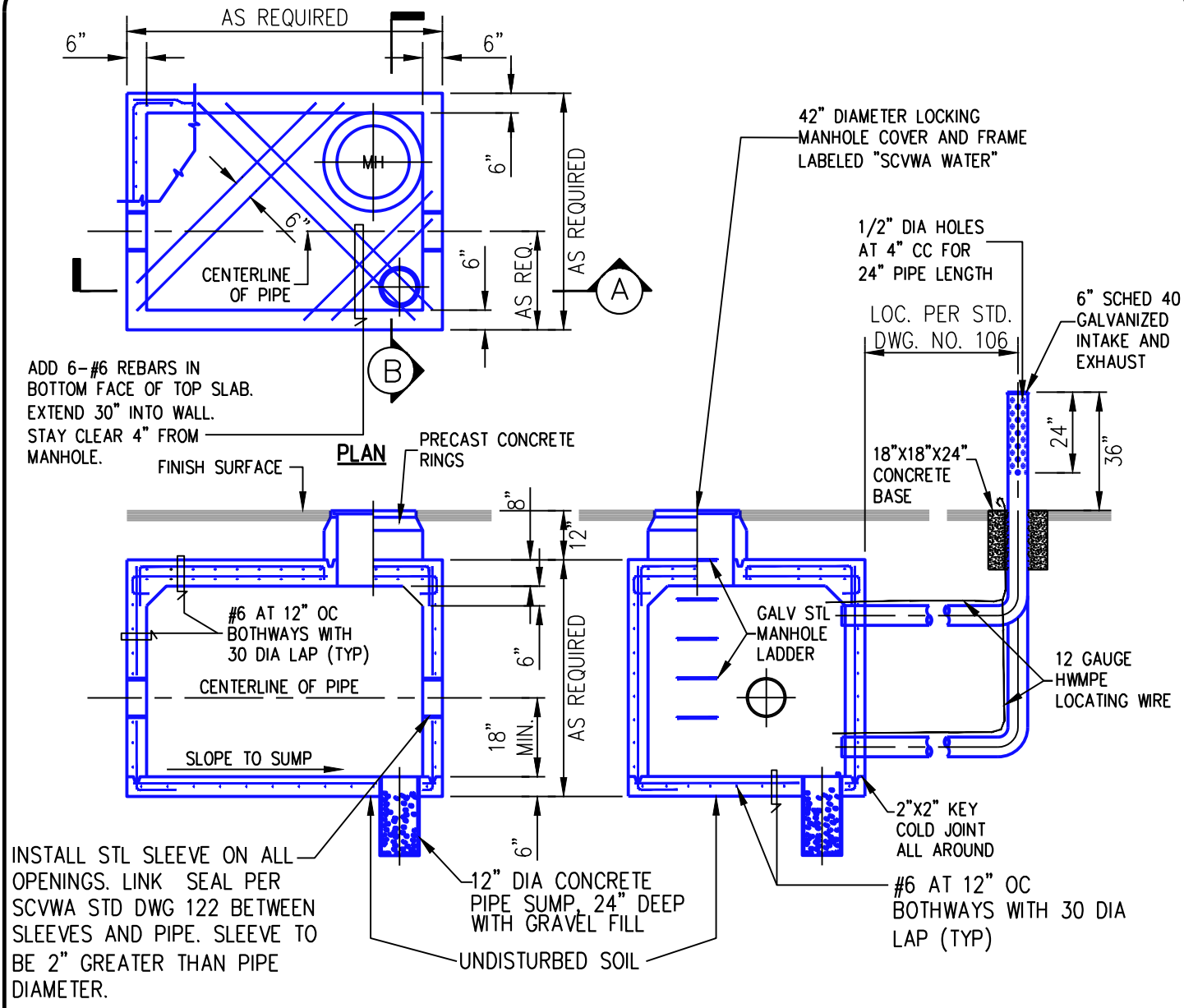
DATE

STD. DWG.
123C

SHEET 1 OF 1



NOTE:

1. A MINIMUM CLEARANCE OF 24" IS REQUIRED BETWEEN VAULT WALLS AND PIPING & 7' MINUMUM CLEARANCE FROM FLOOR TO CEILING.
2. OVERALL VAULT DIMENSIONS WILL VARY WITH SIZE AND KIND OF FACILITIES.
3. PLACE REINFORCEMENT STEEL A MINIMUM OF 2" FROM FORMED SURFACES AND A MINIMUM OF 3" FROM GROUND SURFACES.
4. REINFORCEMENT STEEL – INTERMEDIATE, A305-50. FORM BARS, ASTM A15-39 AND A305-50.
5. CONCRETE – 2000 PSI COMPRESSION STRENGTH AT 28 DAYS. 1 – 2 1/2 – 3 1/2 MIX.
6. ALL MATERIAL SUPPLIED BY SCVWA OR OTHERS WILL MEET OR EXCEED SCVWA/AWWA SPECIFICATIONS.

REV.	DATE	DESCRIPTION	BY

CONCRETE SERVICE VAULT FOR TRAFFIC

SCV WATER

SANTA CLARITA VALLEY WATER AGENCY
ENGINEERING SERVICES SECTION

APPROVED BY:

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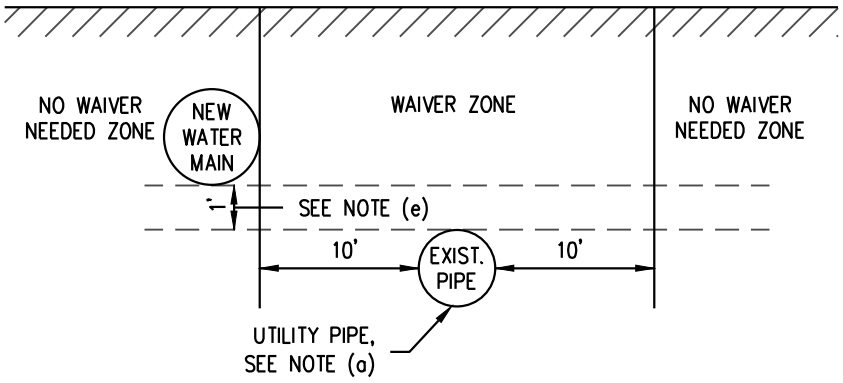
CHIEF ENGINEER

DATE

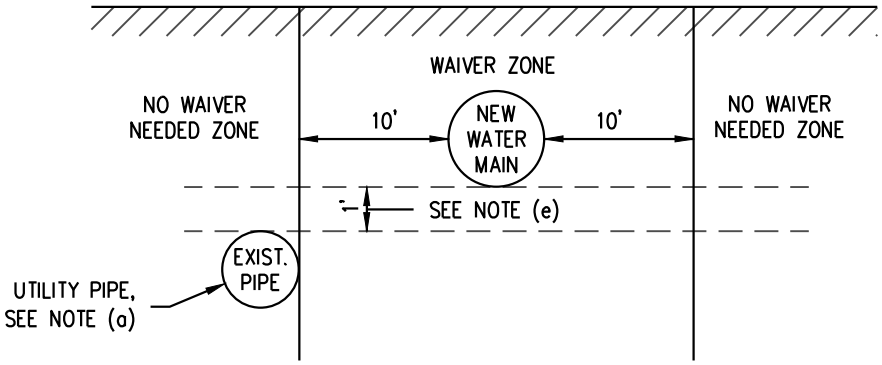
STD. DWG.
123D

SHEET 1 OF 1

WATER MAIN PARALLEL CONSTRUCTION (N.T.S.)



UTILITY PIPE PARALLEL CONSTRUCTION (N.T.S.)



WATER MAIN SEPARATION REQUIREMENTS:

(a) NEW WATER MAINS AND NEW SUPPLY LINES SHALL NOT BE INSTALLED IN THE SAME TRENCH AS, AND SHALL BE AT LEAST 10' HORIZONTALLY FROM AND ONE FOOT VERTICALLY ABOVE, ANY PARALLEL PIPE CONVEYING:

(1) UNTREATED SEWAGE
(2) PRIMARY OR SECONDARY TREATED SEWAGE
(3) DISINFECTED SECONDARY–2.2 RECYCLED WATER
(4) DISINFECTED SECONDARY–23 RECYCLED WATER
(5) HAZARDOUS FLUIDS SUCH AS FUELS, INDUSTRIAL WASTES, AND WASTEWATER SLUDGE

REV.	DATE	DESCRIPTION	BY

WATER SEPARATION REQUIREMENTS

SCV WATER

SANTA CLARITA VALLEY WATER AGENCY
ENGINEERING SERVICES SECTION

APPROVED BY:

BRIAN J. FOLSOM, R.C.E. 44723
CHIEF ENGINEER

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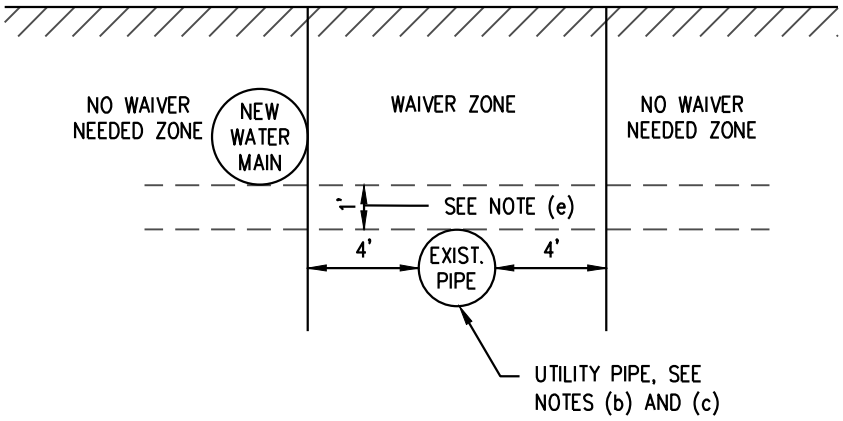
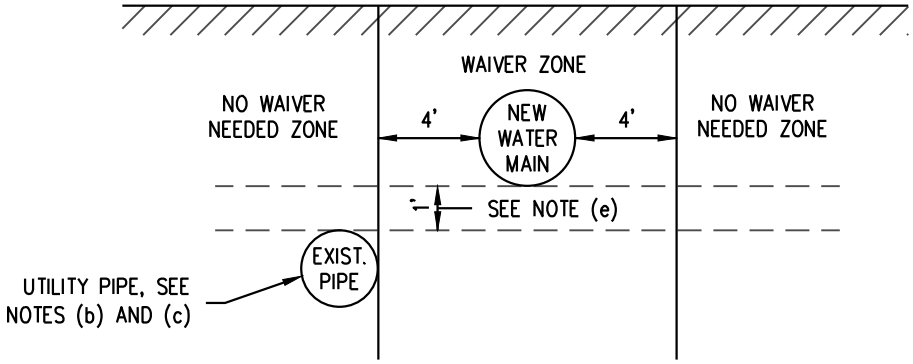
DATE

STD. DWG.
124

WATER MAIN PARALLEL CONSTRUCTION (N.T.S.)



UTILITY PIPE PARALLEL CONSTRUCTION (N.T.S.)



WATER MAIN SEPARATION REQUIREMENTS:

(b) NEW WATER MAINS AND NEW SUPPLY LINES SHALL BE INSTALLED AT LEAST 4' HORIZONTALLY FROM, AND ONE FOOT VERTICALLY ABOVE, ANY PARALLEL PIPELINE CONVEYING:
  (1) DISINFECTED TERTIARY RECYCLED WATER
  (2) STORM DRAINAGE

(c) NEW SUPPLY LINES CONVEYING RAW WATER TO BE TREATED FOR DRINKING PURPOSES SHALL BE INSTALLED AT LEAST 4' HORIZONTALLY FROM, AND ONE FOOT VERTICALLY BELOW ANY WATER MAIN.

REV.	DATE	DESCRIPTION	BY

WATER SEPARATION REQUIREMENTS

SCV WATER

SANTA CLARITA VALLEY WATER AGENCY
ENGINEERING SERVICES SECTION

APPROVED BY:

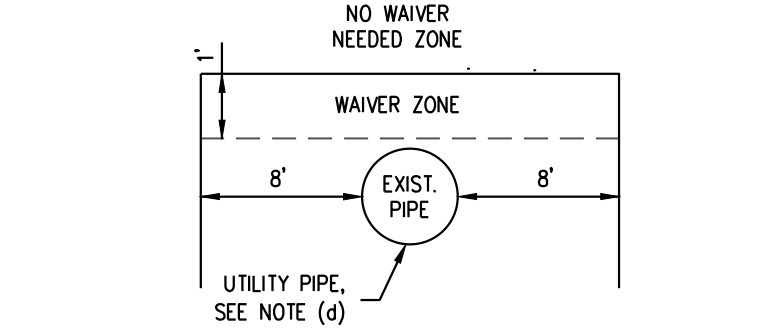
BJ Folsom — 5/15/19

BRIAN J. FOLSOM, R.C.E. 44723
CHIEF ENGINEER

DATE

STD. DWG.
124

WATER MAIN CROSSING CONSTRUCTION (N.T.S.)



WATER MAIN SEPARATION REQUIREMENTS:

(d) IF CROSSING A PIPELINE CONVEYING A FLUID LISTED IN SUBSECTION (a) OR (b), A NEW WATER MAIN SHALL BE CONSTRUCTED NO LESS THAN 45-DEGREES TO AND AT LEAST ONE FOOT ABOVE THAT PIPELINE. NO CONNECTION JOINTS SHALL BE MADE IN THE WATER MAIN WITHIN EIGHT HORIZONTAL FEET OF THE FLUID PIPELINE.

(e) THE VERTICAL SEPARATION SPECIFIED IN SUBSECTIONS (a), (b), AND (c) IS REQUIRED ONLY WHEN THE HORIZONTAL DISTANCE BETWEEN A WATER MAIN AND PIPELINE IS LESS THAN TEN FEET.

(f) NEW WATER MAINS SHALL NOT BE INSTALLED WITHIN 100 HORIZONTAL FEET OF THE NEAREST EDGE OF ANY SANITARY LANDFILL, WASTEWATER DISPOSAL POND, OR HAZARDOUS WASTE DISPOSAL SITE, OR WITHIN 25 HORIZONTAL FEET OF THE NEAREST EDGE OF ANY CESSPOOL, SEPTIC TANK, SEWAGE LEACH FIELD, SEEPAGE PIT, UNDERGROUND HAZARDOUS MATERIAL STORAGE TANK, OR GROUNDWATER RECHARGE PROJECT SITE.

(g) THE MINIMUM SEPARATION DISTANCES SET FORTH IN THIS SECTION SHALL BE MEASURED FROM THE NEAREST OUTSIDE EDGE OF EACH PIPE BARREL.

(h) WITH STATE BOARD APPROVAL, NEWLY INSTALLED WATER MAINS MAY BE EXEMPT FROM THE SEPARATION DISTANCES IN THIS SECTION, EXCEPT SUBSECTION (f), IF THE NEWLY INSTALLED MAIN IS:

(1) LESS THAN 1320 LINEAR FEET,

(2) REPLACING AN EXISTING MAIN, INSTALLED IN THE SAME LOCATION, AND HAS A DIAMETER NO GREATER THAN SIX INCHES MORE THAN THE DIAMETER OF THE MAIN IT IS REPLACING, AND

(3) INSTALLED IN A MANNER THAT MINIMIZES THE POTENTIAL FOR CONTAMINATION, INCLUDING, BUT NOT LIMITED TO:

(A) SLEEVING THE NEWLY INSTALLED MAIN, OR

(B) UTILIZING UPGRADED PIPING MATERIAL

REV.	DATE	DESCRIPTION	BY

WATER SEPARATION REQUIREMENTS

SCV WATER

SANTA CLARITA VALLEY WATER AGENCY
ENGINEERING SERVICES SECTION

APPROVED BY:

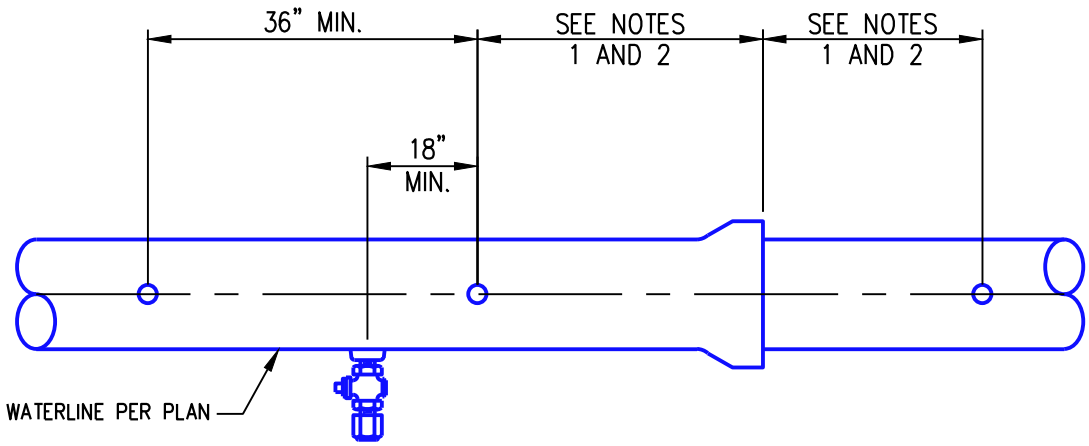
BRIAN J. FOLSOM, R.C.E. 44723
CHIEF ENGINEER

5/15/19
DATE

STD. DWG.
124

*NOTE:

CONTRACTOR MUST EXCAVATE 3' ON EACH DIRECTION FROM TAPPING LOCATION TO DETERMINE IF ANY BELLS ARE PRESENT AND VERIFY IT HOT TAP CAN BE DONE PER THIS STANDARD, IF NOT A CUT-IN TEE PER STD. DWG. 127 MUST BE DONE. ALL PVC MAINS MUST HOT TAPPED USING SHELL CUTTERS, NO EXCEPTIONS.



SPACING REQUIREMENTS FOR SADDLE TAPPING PVC MAINS:

SPACING REQUIREMENTS FOR SADDLE TAPPING PVC MAINS:

(1) FOR 12-INCH PIPE OR SMALLER, THE TAP SHOULD NOT BE LOCATED CLOSER THAN 24 INCHES FROM:
- (a) THE BACK OF THE BELL
- (b) THE SPIGOT INSERTION LINE
- (c) JOINT-RESTRAINT HARDWARE

(2) FOR 14-INCH PIPE OR LARGER, THE TAP SHOULD NOT BE LOCATED CLOSER THAN 36 INCHES FROM:
- (a) THE BACK OF THE BELL
- (b) THE SPIGOT INSERTION LINE
- (c) JOINT RESTRAINT HARDWARE

(3) FOR ALL PIPE, MULTIPLE TAPS SHOULD BE STAGGERED AND KEPT AT LEAST 18 INCHES APART LENGTHWISE. THUS, THE MINIMUM SPACING ALONG THE SAME LINE IS 36 INCHES.

(4) SERVICE CONNECTIONS UP TO 2-INCH SIZE MAY BE MADE USING A SERVICE SADDLE.

SPACING REQUIREMENTS FOR SADDLE TAPPING DIP MAINS:

(5) TAPPING SADDLES SHALL BE SPACED AT A MINIMUM DISTANCE OF 1' OR SPACED SUFFICIENTLY TO ALLOW PROPER INSTALLATION OF THE TAPPING SADDLE, WHICHEVER IS GREATER. THE TAPPING SADDLE SPACING MAY BE LESS THAN 1' PER THE APPROVAL OF THE AGENCY ENGINEER.

SPACING REQUIREMENTS FOR SADDLE TAPPING AC MAINS:

(6) THE SPACE BETWEEN TAPPING SADDLES SHOULD BE A MINIMUM OF 3 TIMES THE MAIN PIPE DIAMETER. THE TAPPING SADDLE SPACING MAY BE REDUCED PER THE APPROVAL OF THE AGENCY ENGINEER.

REV.	DATE	DESCRIPTION	BY

TAPPING LOCATIONS

SCV WATER

SANTA CLARITA VALLEY WATER AGENCY
ENGINEERING SERVICES SECTION

APPROVED BY:

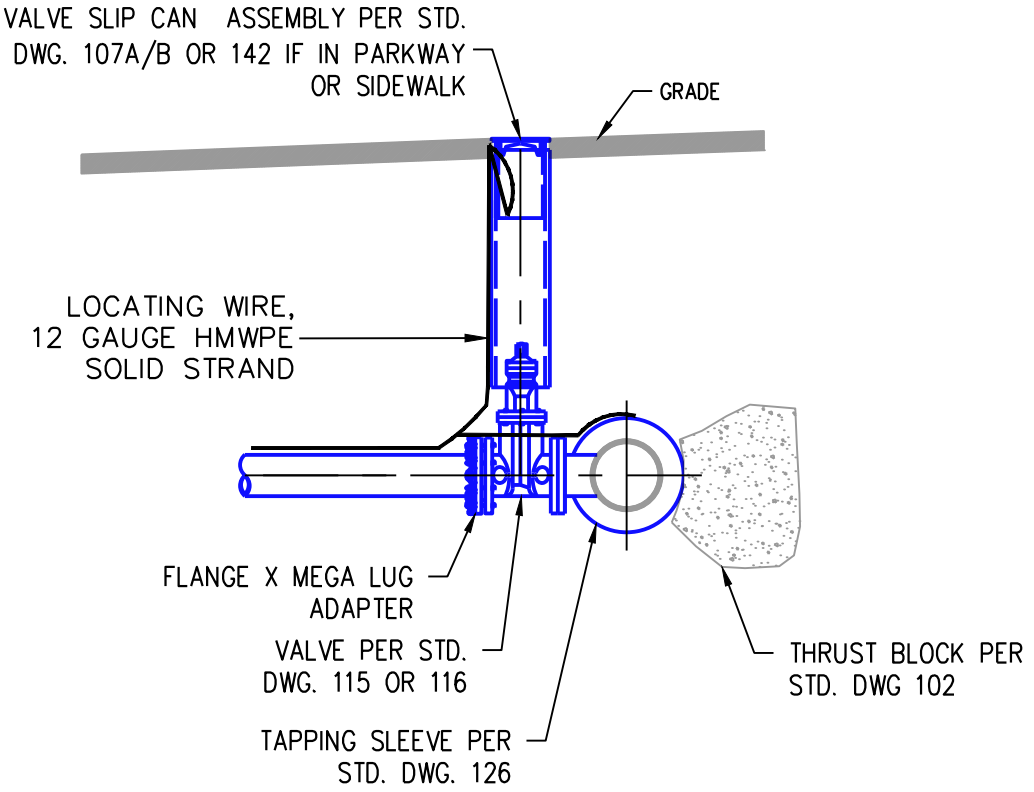
BRIAN J. FOLSOM, R.C.E. 44723
CHIEF ENGINEER

5/15/19
DATE

STD. DWG.
125

*NOTE:

CONTRACTOR MUST EXCAVATE 3' ON EACH DIRECTION FROM TAPPING LOCATION TO DETERMINE IF ANY BELLS ARE PRESENT AND VERIFY IT HOT TAP CAN BE DONE PER THIS STANDARD, IF NOT A CUT-IN TEE PER STD. DWG. 127 MUST BE DONE. ALL PVC MAINS MUST HOT TAPPED USING SHELL CUTTERS, NO EXCEPTIONS.



REQUIREMENTS FOR SLEEVE TAPPING WATER MAINS:

(1) FOR 12-INCH PIPE OR SMALLER, THE TAP SHOULD NOT BE LOCATED CLOSER THAN 24 INCHES FROM:
  (a) THE BACK OF THE BELL
  (b) THE SPIGOT INSERTION LINE
  (c) JOINT-RESTRAINT HARDWARE

(2) FOR 14-INCH PIPE OR LARGER, THE TAP SHOULD NOT BE LOCATED CLOSER THAN 36 INCHES FROM:
  (a) THE BACK OF THE BELL
  (b) THE SPIGOT INSERTION LINE
  (c) JOINT RESTRAINT HARDWARE

(3) WHEN INSTALLING MULTIPLE TAPPING SLEEVES THE MANUFACTURER SHOULD BE CONSULTED FOR SPACING REQUIREMENTS. AT A MINIMUM, SUFFICIENT SPACE SHOULD BE PROVIDED BETWEEN TAPPING SLEEVES TO ALLOW FOR PROPER INSTALLATION.

(4) TAPPING SLEEVE OUTLET SIZE SHOULD BE TWO TIMES SMALLER THAN THE MAIN PIPE. OTHERWISE A CUT-IN TEE IS REQUIRED PER STD. DWG. 127.

REV.	DATE	DESCRIPTION	BY

TAPPING LOCATIONS

SCV WATER

SANTA CLARITA VALLEY WATER AGENCY
ENGINEERING SERVICES SECTION

APPROVED BY:

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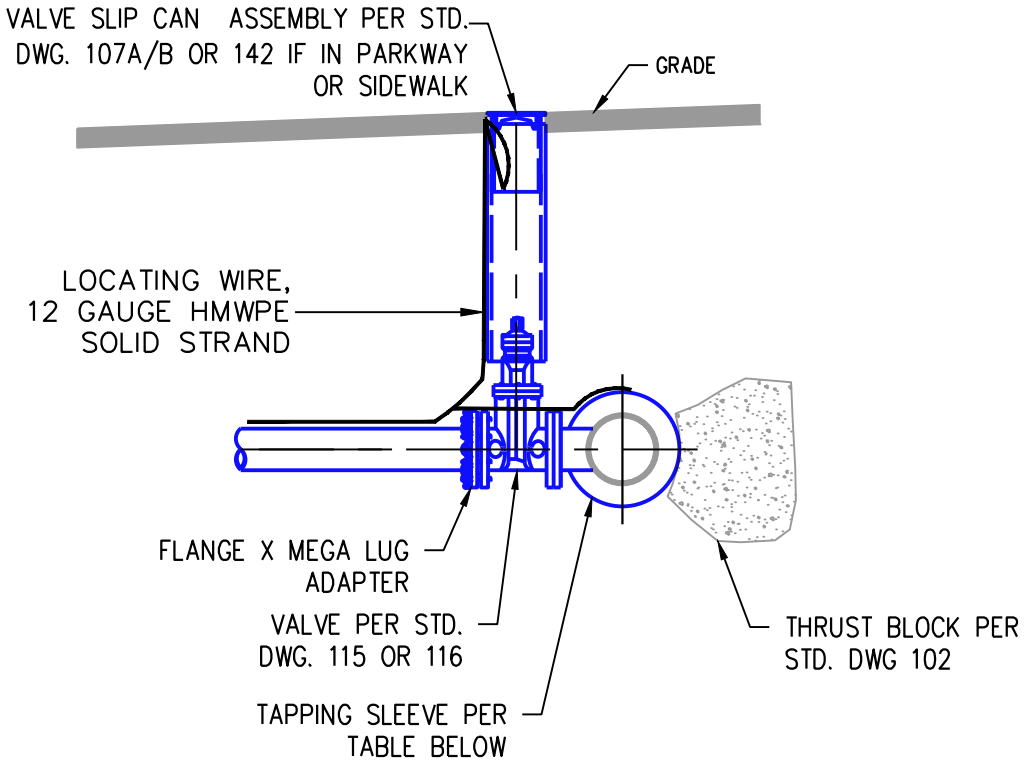
CHIEF ENGINEER

5/15/19
DATE

STD. DWG.
125



PIPE TYPE	TYPE OF TAPPING SLEEVE
A/C PIPE 4"-12"	*H-619 MUELLER M.J.
A/C PIPE 14" & UP	*POWERSEAL #3490 AS
CAST IRON PIPE 4"-24"	*H-615 MUELLER M.J.
DUCTILE IRON PIPE 4"-24"	*H-615 MUELLER M.J.
PVC C900 PIPE 4"-12"	*H-615 MUELLER M.J.
PVC C900 PIPE 14" & UP	*POWERSEAL #3490 AS
CEMENT COATED STEEL PIPE	TAPPING SLEEVE TO BE FABRICATED AND INSTALLED BY KOPPL CO. OR INTERNATIONAL FLOW CONTROL. NO WELD ON NOZZLES WILL BE PERMITTED.

*OR EQUAL TAPPING SLEEVES PER AWWA STANDARDS

NOTES:

1. ALL PIPE, FITTINGS, VALVES, NUTS, AND BOLTS WILL BE COATED WITH NO OX-ID AND WRAPPED PER SCVWA SPECIFICATIONS.
2. TAPPING SLEEVE OUTLET SIZE SHOULD BE TWO TIMES SMALLER THAN THE MAIN PIPE. OTHERWISE A CUT-IN TEE IS REQUIRED PER STD. DWG. 127.
3. ALL RUBBER MUST BE EPDM.
4. SEE STD. DWG. 125 FOR LOCATION OF TAPPING SLEEVE ON WATER MAIN.
5. CONTRACTOR MUST EXCAVATE 3' ON EACH DIRECTION FROM TAPPING LOCATION TO DETERMINE IF ANY BELLS ARE PRESENT AND VERIFY IT HOT TAP CAN BE DONE PER STD. DWG. 125, IF NOT A CUT-IN TEE PER STD. DWG. 127 MUST BE DONE.

REV.	DATE	DESCRIPTION	BY

HOT TAP

SCV WATER

SANTA CLARITA VALLEY WATER AGENCY
ENGINEERING SERVICES SECTION

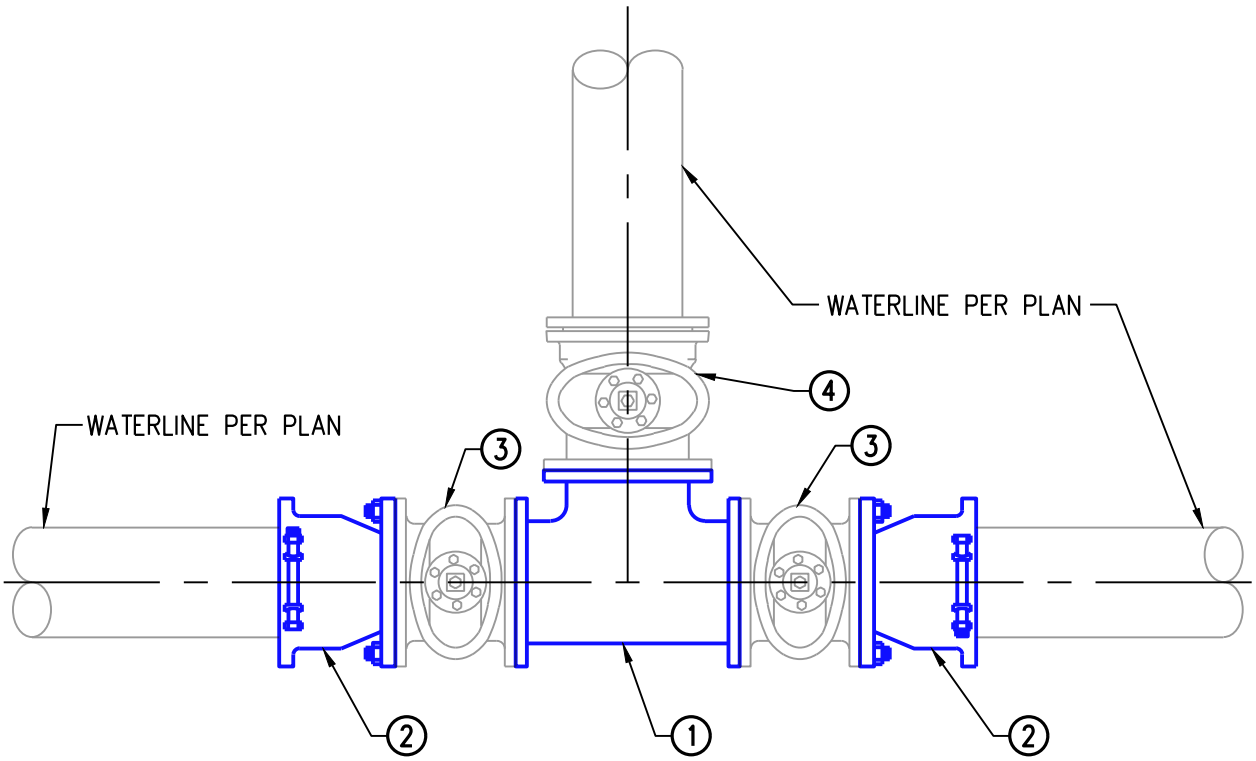
APPROVED BY:

BRIAN J. FOLSOM, R.C.E. 44723
CHIEF ENGINEER

5/15/19
DATE

STD. DWG.
126

SHEET 1 OF 1



CUT IN TEE FOR PVC, DIP & ACP WATER MAINS

ITEM	MATERIALS
1	DI TEE (FLxFL), SIZE PER PLAN.
2	FLANGE, HYMAX COUPLING ADAPTER, SIZE PER PLAN.
3	RW GATE VALVE OR BUTTERFLY VALVE (FLxFL), QUANTITY AND SIZE PER PLAN.
4	TYPICAL, RW GATE VALVE OR BUTTERFLY VALVE (FLxMJ), SIZE PER PLAN.

NOTES:
1. ALL MATERIALS SUPPLIED BY SCVWA OR OTHERS SHALL MEET OR EXCEED AWWA SPECIFICATIONS.
2. THIS METHOD MAY BE USED FOR STEEL WATER MAINS ONLY IF APPROVED BY THE AGENCY.
3. CONTRACT SHALL POTHOLE AND VERIFY DEPTH, LOCATION AND O.D. OF WATER MAIN PRIOR TO COMMENCING ANY CUT-IN TEE WORK.
4. ENCASE PIPE AND FITTINGS WITH ONE LAYER OF CLEAR 8-MIL POLYETHYLENE FILM.
5. USE LOCATING WIRE, 12 GAUGE HMWPE SOLID STRAND WITH 3M GREASE TUBE NUT (DBR/Y6) OR EQUAL, TAPED AT 12" INTERVALS PER SCVWA STD. DWG. 101.
6. APPLY NO-OX ID OR BITUMASTIC COATING TO ALL NUTS, BOLTS AND WASHERS.

REV.	DATE	DESCRIPTION	BY

CUT-IN TEE

SCV WATER

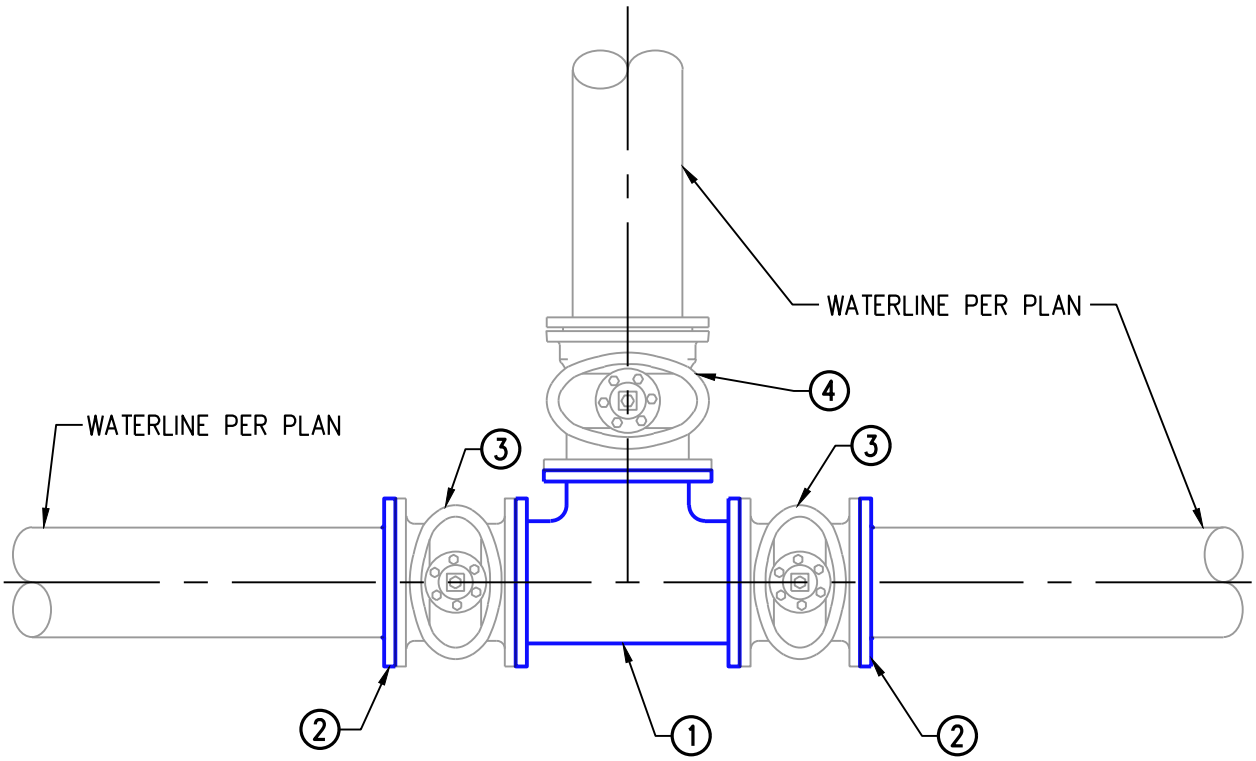
SANTA CLARITA VALLEY WATER AGENCY
ENGINEERING SERVICES SECTION

APPROVED BY:

BRIAN J. FOLSOM, R.C.E. 44723
CHIEF ENGINEER

5/15/19
DATE

STD. DWG.
127



CUT IN TEE FOR STEEL WATER MAINS

ITEM	MATERIALS
①	DI TEE (FLxFL), SIZE PER PLAN.
②	WELD-ON FLANGE.
③	RW GATE VALVE OR BUTTERFLY VALVE (FLxFL), QUANTITY AND SIZE PER PLAN.
④	TYPICAL, RW GATE VALVE OR BUTTERFLY VALVE (FLxMJ), SIZE PER PLAN.

NOTES:

1. ALL MATERIALS SUPPLIED BY SCVWA OR OTHERS SHALL MEET OR EXCEED AWWA SPECIFICATIONS.
2. CONTRACT SHALL POTHOLE AND VERIFY DEPTH, LOCATION AND O.D. OF WATER MAIN PRIOR TO COMMENCING ANY CUT-IN TEE WORK.
3. ENCASE PIPE AND FITTINGS WITH ONE LAYER OF CLEAR 8-MIL POLYETHYLENE FILM.
4. USE LOCATING WIRE, 12 GAUGE HMWPE SOLID STRAND WITH 3M GREASE TUBE NUT (DBR/Y6) OR EQUAL, TAPED AT 12" INTERVALS PER SCVWA STD. DWG. 101.
5. APPLY NO-OX ID OR BITUMASTIC COATING TO ALL NUTS, BOLTS AND WASHERS.
6. STEEL LINING AND COATING SHALL BE REPLACED IN KIND.

REV.	DATE	DESCRIPTION	BY

CUT-IN TEE

SCV WATER

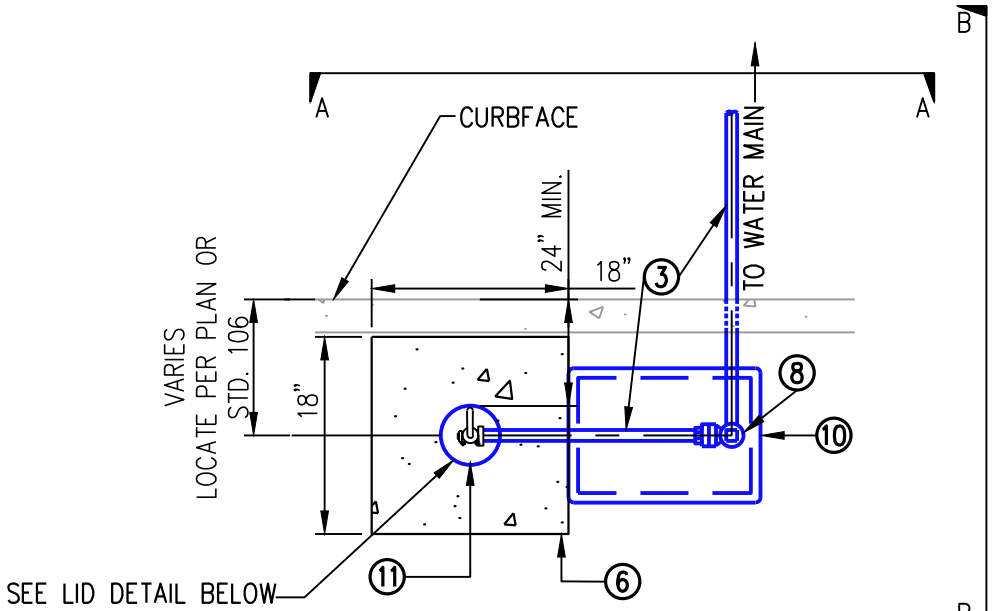
SANTA CLARITA VALLEY WATER AGENCY
ENGINEERING SERVICES SECTION

APPROVED BY:

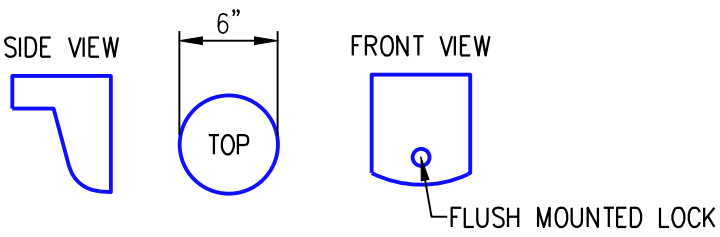
BRIAN J. FOLSOM, R.C.E. 44723
CHIEF ENGINEER

5/15/19
DATE

STD. DWG.
127



PLAN



LID

ITEM	MATERIALS
①	1"SADDLE/OUTLET (VARIES BY PIPE) FIPT, SEE SHEET 2.
②	1" MIPTx COMP CTS-PJ BALL TYPE, CORP STOP, ROTATE TOP OF NUT TO 90°.
③	1" MUNICIPEX-REHAU WITH INSERTS.
④	LOCATING WIRE, 12 GAUGE HMWPE SOLID STRAND WITH 3M GREASE TUBE NUT (DBR/Y6) OR EQUAL.
⑤	1"x 3/4" REDUCER MIPTxCOMP, CTS-PJ.
⑥	18"x18"x6" CONCRETE PAD (2500 PSI).
⑦	3/4" X 1/2" MIPTxFIPT, BELL REDUCER BRASS.
⑧	1" ANGLE METER STOP, BALL TYPE ANGLE STOP PACK JOINT OR EQUAL EPDM.
⑨	1"x 90° COMPxCOMP, CTS-PJ.
⑩	ARMORCAST BOX PER STD. 123A.
⑪	KORALEEN ENTERPRISES SAMPLING STATION, EMBED STATION 10" DEEP.

REV.	DATE	DESCRIPTION	BY

WATER SAMPLE STATION

SCV WATER

SANTA CLARITA VALLEY WATER AGENCY
ENGINEERING SERVICES SECTION

APPROVED BY:

BJ Folsom

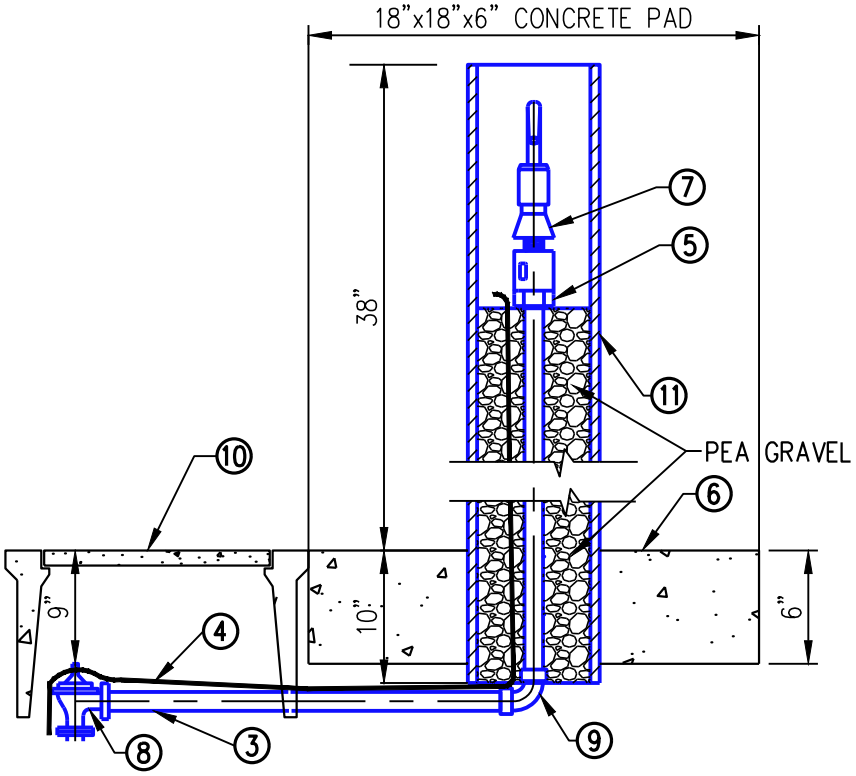
BRIAN J. FOLSOM, R.C.E. 44723
CHIEF ENGINEER

5/15/19
DATE

STD. DWG.
128

PIPE TYPE	*SADDLE/OUTLET TYPE
ACP (ASBESTOS CEMENT PIPE)	1" FORD #202B SERIES
C-900 (POLYVINYL CHLORIDE PIPE)	1"MUELLER BR2S SERIES
DIP (DUCTILE IRON PIPE)	1" FORD #202B SERIES
STEEL PIPE	1" WELD O LET
CML&S	1" WELD O LET

*OR EQUAL EPDM



SECTION A-A
NOT TO SCALE
SEE SHEET 1 FOR ITEMS AND MATERIALS

REV.	DATE	DESCRIPTION	BY

WATER SAMPLE STATION

SCV WATER

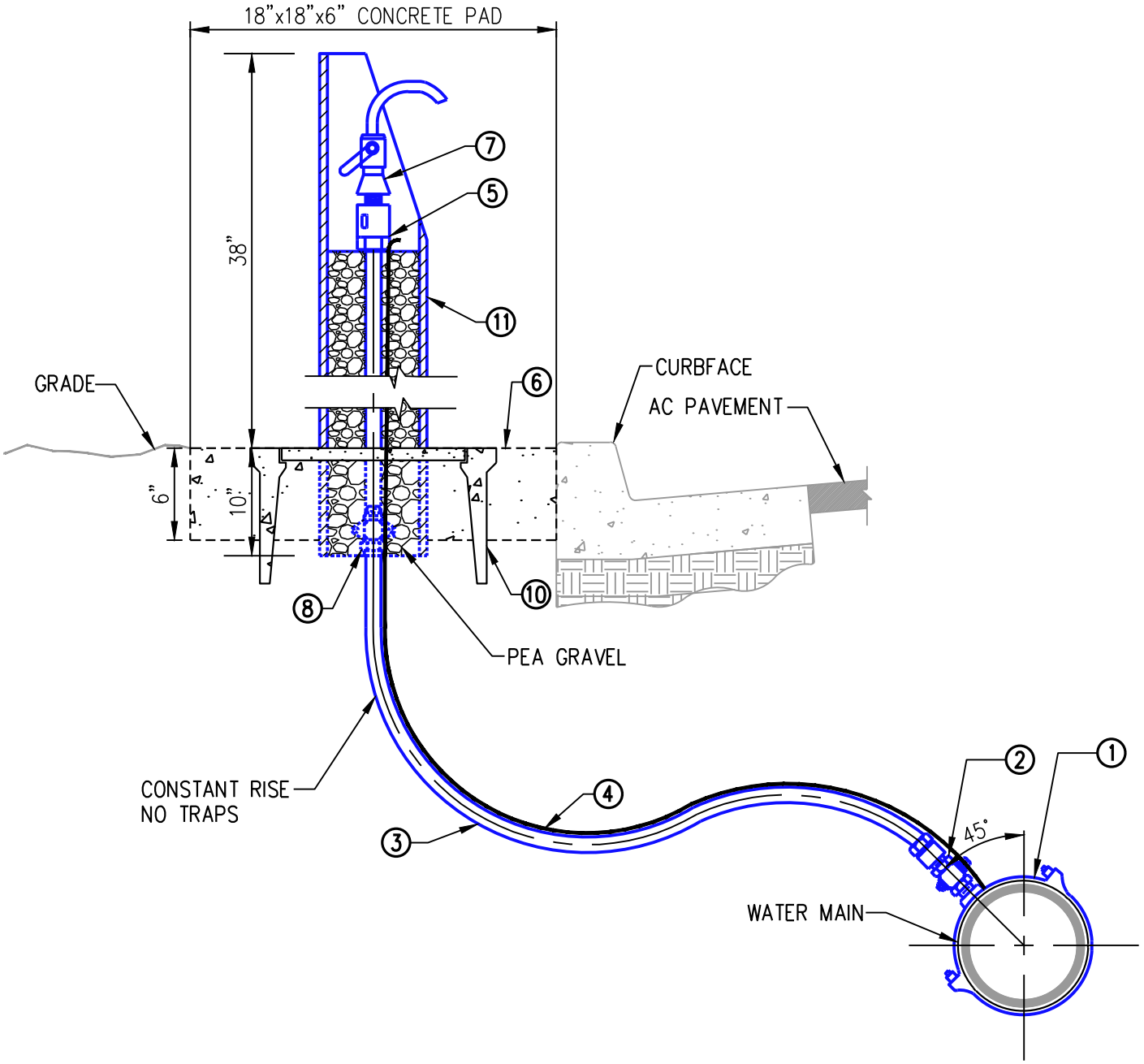
SANTA CLARITA VALLEY WATER AGENCY
ENGINEERING SERVICES SECTION

APPROVED BY:

BRIAN J. FOLSOM, R.C.E. 44723
CHIEF ENGINEER

5/15/19
DATE

STD. DWG.
128



SECTION B-B

NOT TO SCALE

SEE SHEET 1 FOR ITEMS AND MATERIALS

REV.	DATE	DESCRIPTION	BY

WATER SAMPLE STATION

SCV WATER

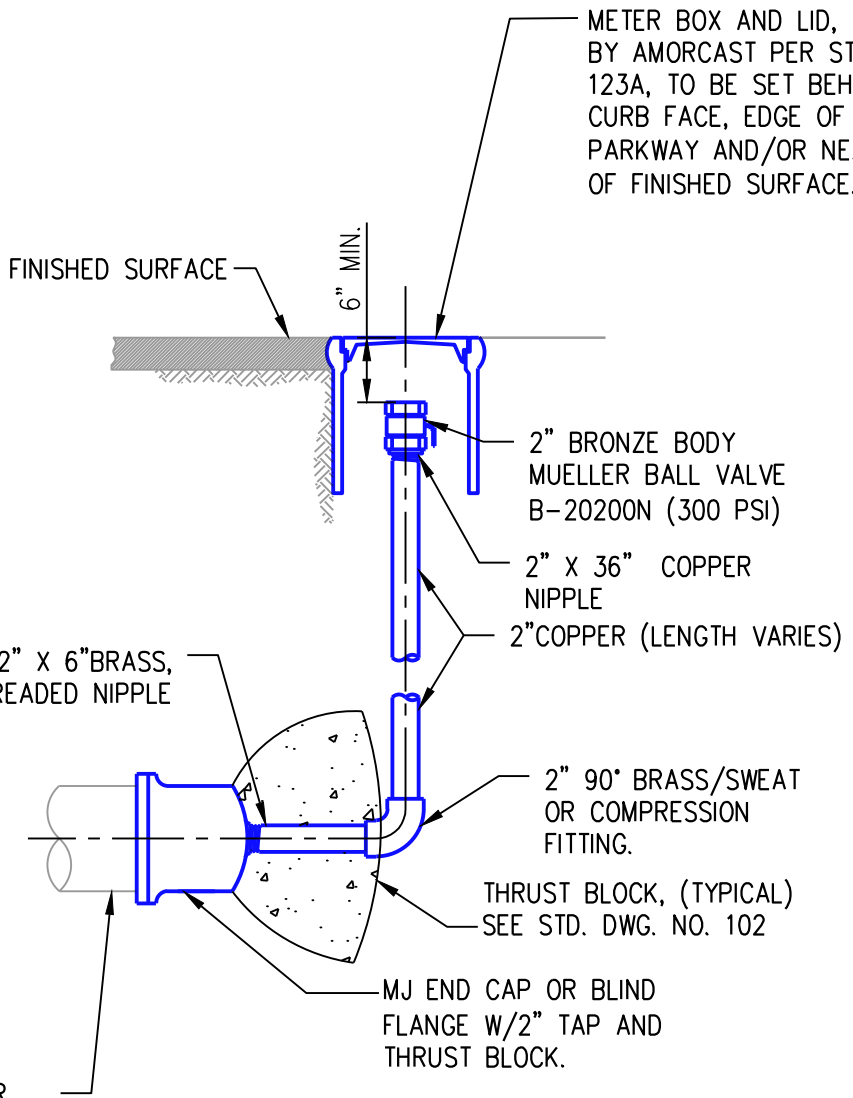
SANTA CLARITA VALLEY WATER AGENCY
ENGINEERING SERVICES SECTION

APPROVED BY:

BRIAN J. FOLSOM, R.C.E. 44723
CHIEF ENGINEER

5/15/19
DATE

STD. DWG.
128



NOTE:

1. ALL BRASS FITTINGS MUST BE NO LEAD.

REV.	DATE	DESCRIPTION	BY

TEMPORARY BLOW-OFF (STREET/PARKWAY) BELOW GRADE

TEMPORARY 2" BLOW-OFF

SCV WATER

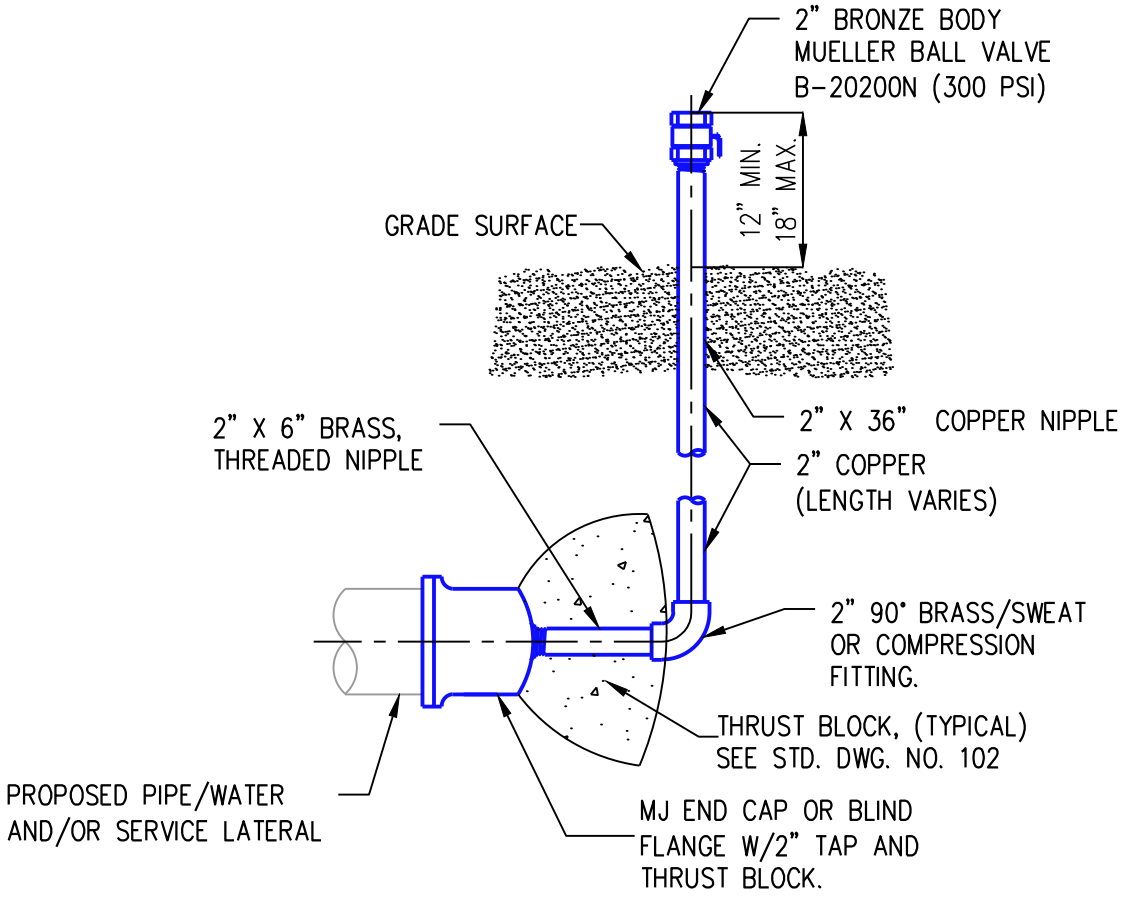
SANTA CLARITA VALLEY WATER AGENCY
ENGINEERING SERVICES SECTION

APPROVED BY:

BRIAN J. FOLSOM, R.C.E. 44723
CHIEF ENGINEER

5/15/19
DATE

STD. DWG.
129



NOTE:

1. ALL BRASS FITTINGS MUST BE NO LEAD.

REV.

TEMPORARY BLOW-OFF (CONSTRUCTION) ABOVE GRADE

TEMPORARY 2" BLOW-OFF

SCV WATER

SANTA CLARITA VALLEY WATER AGENCY
ENGINEERING SERVICES SECTION

APPROVED BY:

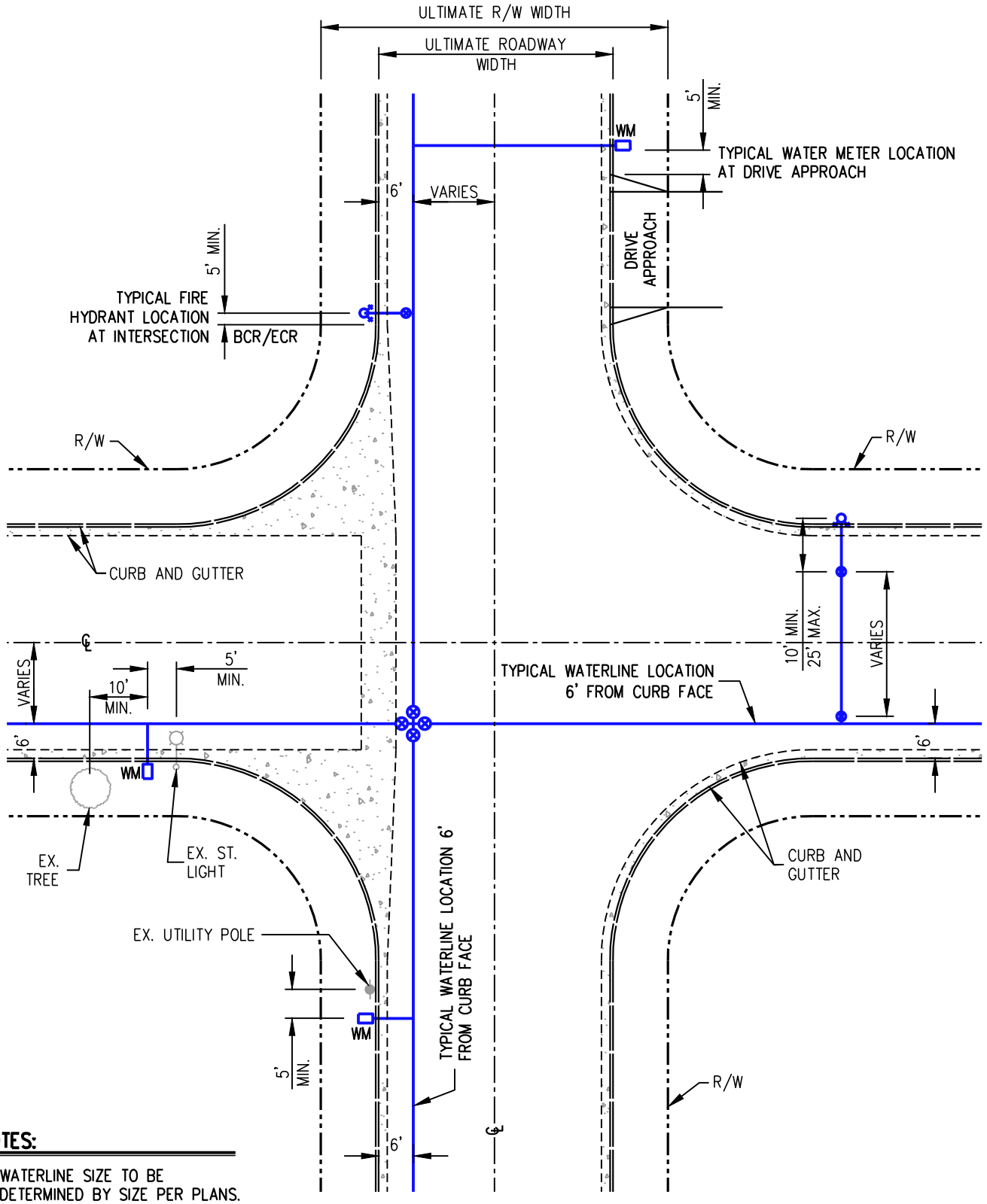
BJ Folsom 5/15/19

BRIAN J. FOLSOM, R.C.E. 44723
CHIEF ENGINEER

DATE

STD. DWG.
129

SHEET 2 OF 2



NOTES:

1. WATERLINE SIZE TO BE DETERMINED BY SIZE PER PLANS.
2. GATE VALVES AND VALVE BOX ASSEMBLY NOT TO BE LOCATED IN CONCRETE GUTTER.

REV.	DATE	DESCRIPTION	BY

TYPICAL WATER MAIN INSTALLATION

SCV WATER

SANTA CLARITA VALLEY WATER AGENCY
ENGINEERING SERVICES SECTION

APPROVED BY:

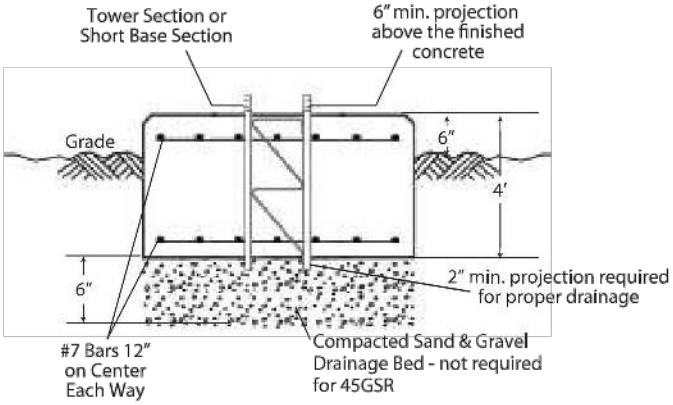
BRIAN J. FOLSOM, R.C.E. 44723
CHIEF ENGINEER

5/15/19
DATE

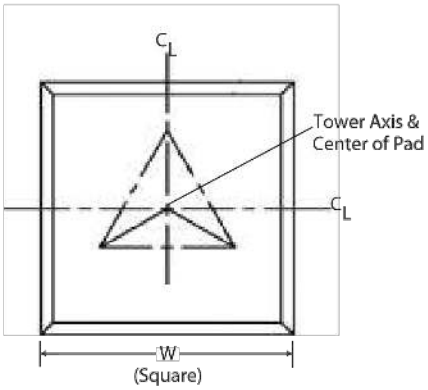
STD. DWG.
130

SHEET 1 OF 1

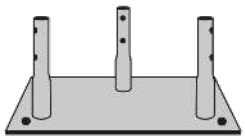
SELF-SUPPORTING G-SERIES FOUNDATIONS



ELEVATION VIEW
25G (shown), 45G & 55G
SELF-SUPPORTING TOWER FOUNDATION

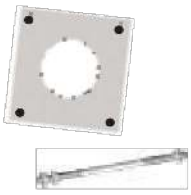


PLAN VIEW



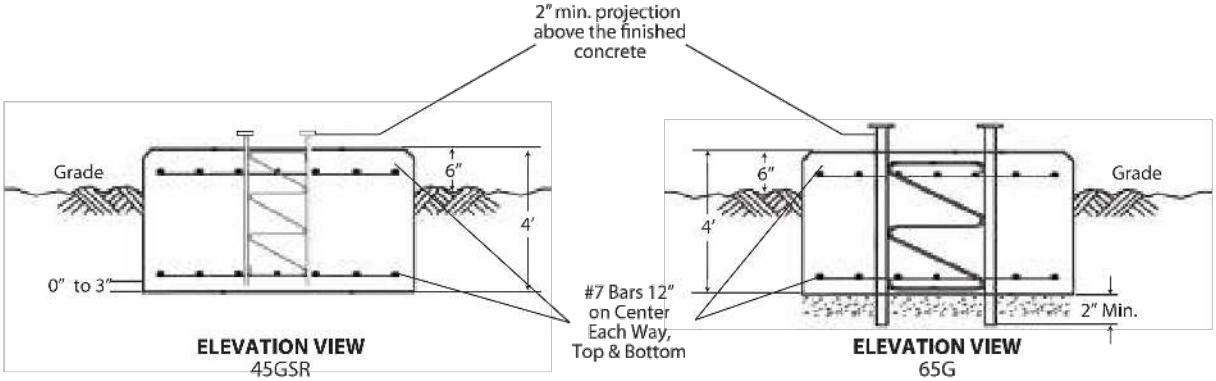
CONCRETE BASE PLATE WITH ANCHORS
25GSSB
FOR USE WITH SELF-SUPPORTING 25G TOWERS.

ALTERNATIVE TO USING SHORT BASE. BASE BOLTS & TEMPLATE MUST BE ORDERED SEPARATELY.



BASE BOLTS & TEMPLATE
KH8175A
FOR USE WITH 25GSSB IN SELF-SUPPORTING 25G TOWER APPLICATIONS. KIT INCLUDES (1) TEMPLATE & (4) BASE BOLTS.

Tower	Mat Width (W)	Concrete Volume (Cu. Yds.)
25G	4' - 0"	2.4
45G	5' - 3"	4.1
55G	6' - 0"	5.3
45GSR 65G	7' - 9"	8.9



ELEVATION VIEW
45GSR
SELF-SUPPORTING TOWER FOUNDATION

ELEVATION VIEW
65G
SELF-SUPPORTING TOWER FOUNDATION

NOTE:
POLE MOUNTED ANTENNAS SHALL BE BY ROHN PRODUCTS, LLC OR EQUIVALENT. ANTENNAS SHALL BE SIZED ACCORDINGLY BASED ON NEEDS AND SHALL FIRST BE APPROVED BY THE AGENCY BEFORE INSTALLING.

REV.	DATE	DESCRIPTION	BY

POLE MOUNTED ANTENNA

SCV WATER

SANTA CLARITA VALLEY WATER AGENCY
ENGINEERING SERVICES SECTION

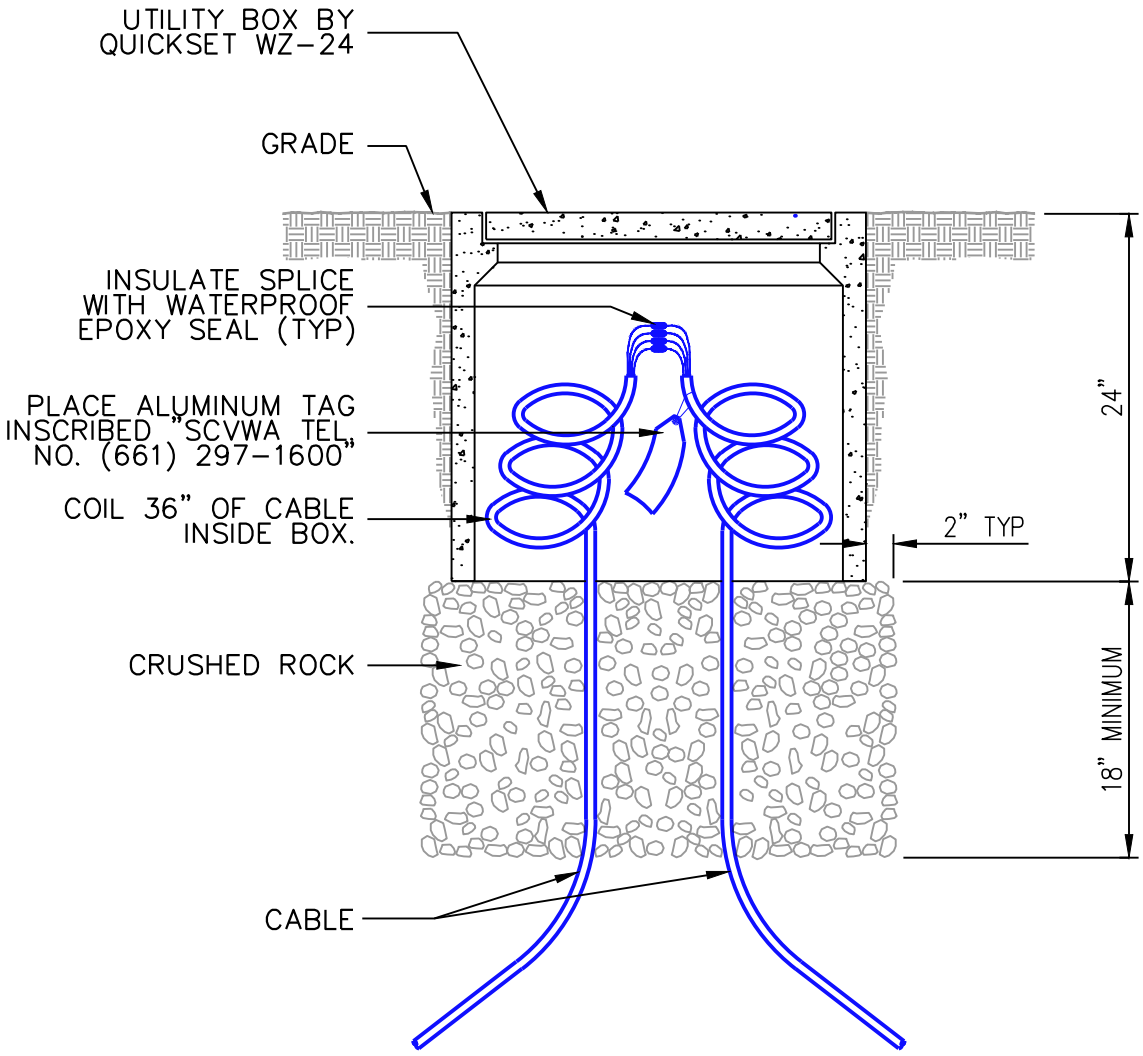
APPROVED BY:

BRIAN J. FOLSOM, R.C.E. 44723
CHIEF ENGINEER

5/15/19
DATE

STD. DWG.
133

SHEET 1 OF 1



REV.	DATE	DESCRIPTION	BY

DIRECT BURIAL CONTROL CABLE SPLICE

SCV WATER

SANTA CLARITA VALLEY WATER AGENCY
ENGINEERING SERVICES SECTION

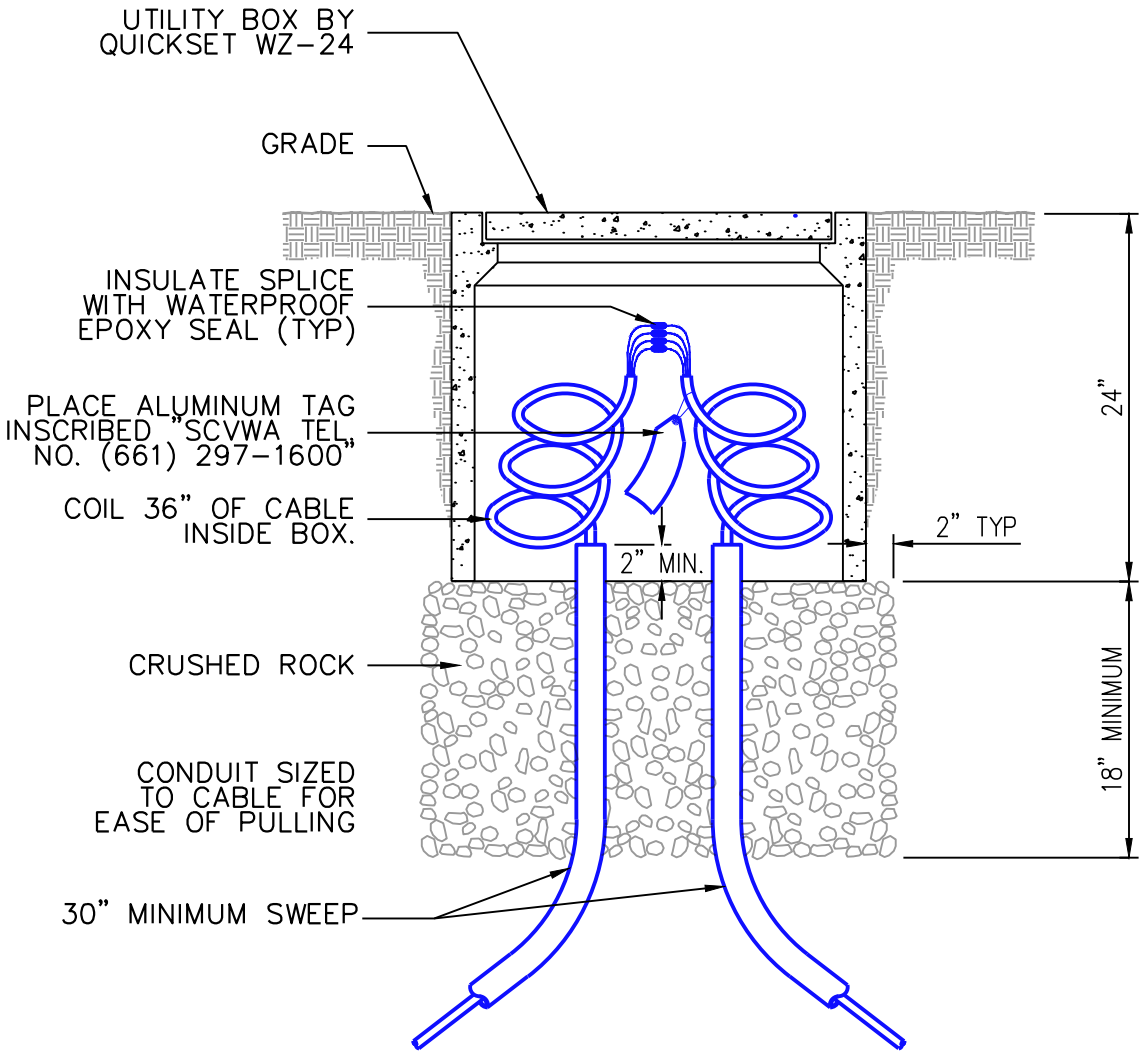
APPROVED BY:

BRIAN J. FOLSOM, R.C.E. 44723
CHIEF ENGINEER

5/15/19
DATE

STD. DWG.
134

SHEET 1 OF 1



REV.	DATE	DESCRIPTION	BY

CONTROL CABLE SPLICE

SCV WATER

SANTA CLARITA VALLEY WATER AGENCY
ENGINEERING SERVICES SECTION

APPROVED BY:

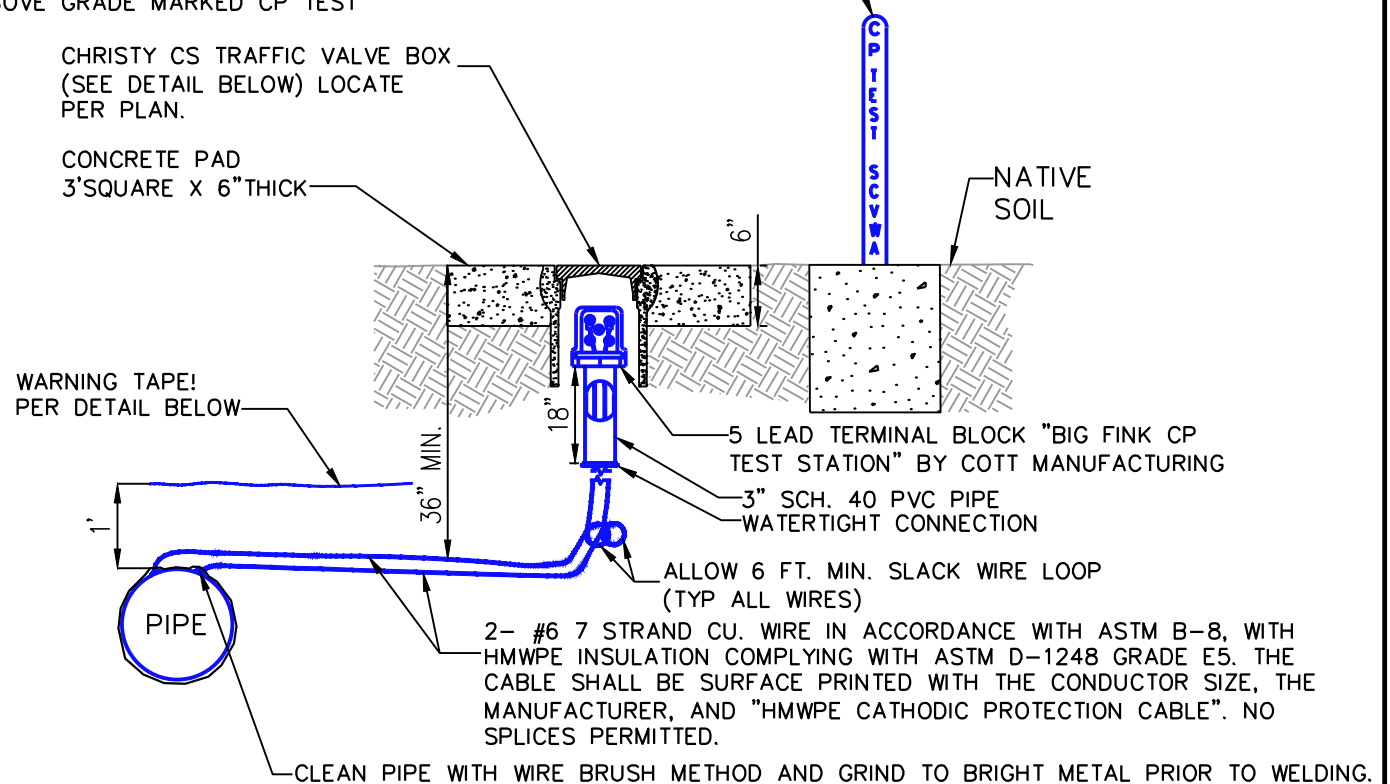
BRIAN J. FOLSOM, R.C.E. 44723
CHIEF ENGINEER

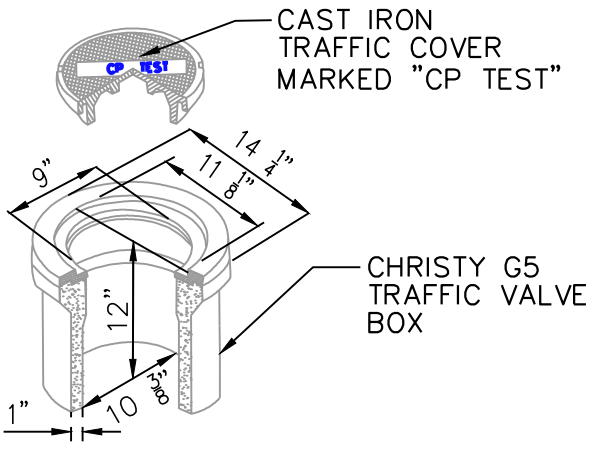
5/15/19
DATE

STD. DWG.
135

SHEET 1 OF 1

INSTALL ONE 4" GALVANIZED STEEL POST (PAINTED WITH VISIBILITY OSHA YELLOW) AT ONE CORNER OF CONCRETE PAD ON TRAFFIC SIDE, IMBED POST IN 24" OF CONCRETE 2' BELOW GRADE AND EXTEND 3' ABOVE GRADE MARKED CP TEST





CHRISTY CS TRAFFIC VALVE BOX

WARNING TAPE: POLYETHYLENE, 6" WIDE, APWA RED, IMPRINTED CONTINUOUSLY WITH: CAUTION,BURIED CATHODIC PROTECTION LINE BELOW IN BLACK

WARNING TAPE

TEST STATION WIRING DIAGRAM
NOT TO SCALE

REV.	DATE	DESCRIPTION	BY

CATHODIC PROTECTION

SCV WATER

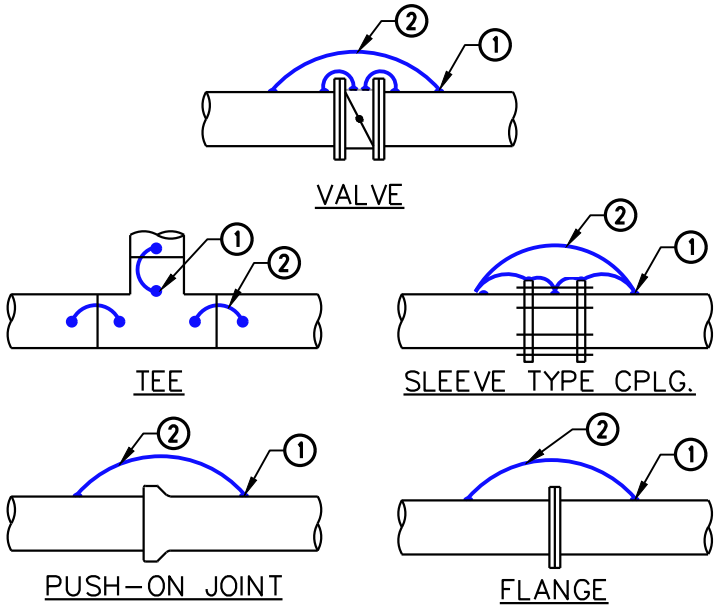
SANTA CLARITA VALLEY WATER AGENCY
ENGINEERING SERVICES SECTION

APPROVED BY:

BRIAN J. FOLSOM, R.C.E. 44723
CHIEF ENGINEER

5/15/19
DATE

STD. DWG.
136



① CLEAN SURFACE WITH WIRE BRUSH METHOD AND GRIND TO BRIGHT METAL PRIOR TO WELDING. ATTACH WIRES TO PIPE USING EXOTHERMIC WELDING PROCESS IN ACCORDANCE WITH ERICO ENGINEERING SPECIFICATION A 160-A05. COAT EACH WELD WITH A ROYSTON "HANDY CAP" NO. 2 WELD COVER TAKING CARE TO ENSURE THAT ALL EXPOSED METAL IS COVERED.

② INSTALL #2 STRAND CU. WIRE IN ACCORDANCE WITH ASTM B-8, WITH HMWPE INSULATION COMPLYING WITH ASTM D-1248 GRADE E5. THE CABLE SHALL BE SURFACE PRINTED WITH THE CONDUCTOR SIZE, THE MANUFACTURER, AND "HWMPE CATHODIC PROTECTION CABLE". NO SPLICES PERMITTED.

NOTE:

THE MINIMUM NUMBER OF BONDING WIRES SHALL BE 3 EA. PER PIPE 18" & LARGER PLACED SYMMETRICALLY AROUND PIPE, 2 EA. FOR PIPE 16" & SMALLER PLACED 180° APART.

BONDING DETAIL
NOT TO SCALE

REV.	DATE	DESCRIPTION	BY

CATHODIC PROTECTION

SCV WATER

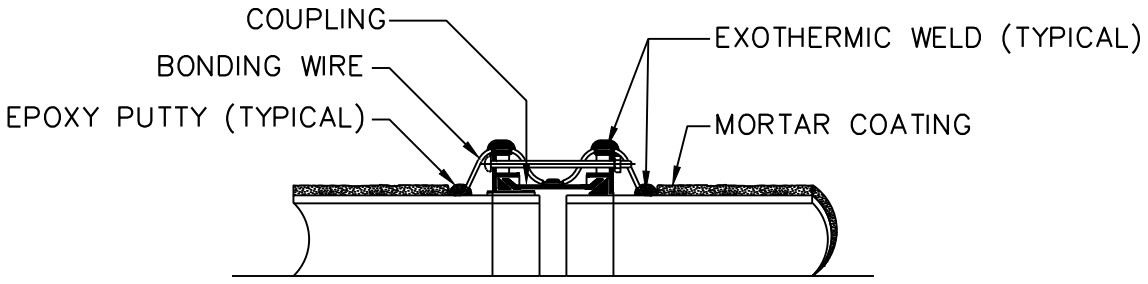
SANTA CLARITA VALLEY WATER AGENCY
ENGINEERING SERVICES SECTION

APPROVED BY:

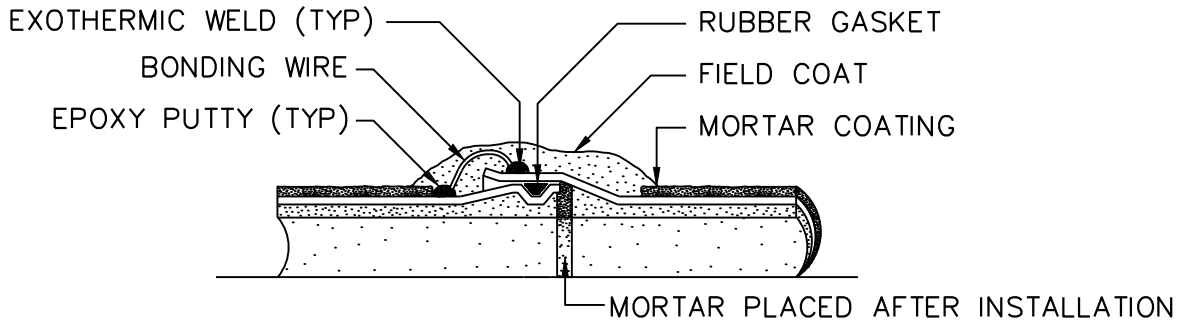
BRIAN J. FOLSOM, R.C.E. 44723
CHIEF ENGINEER

5/15/19
DATE

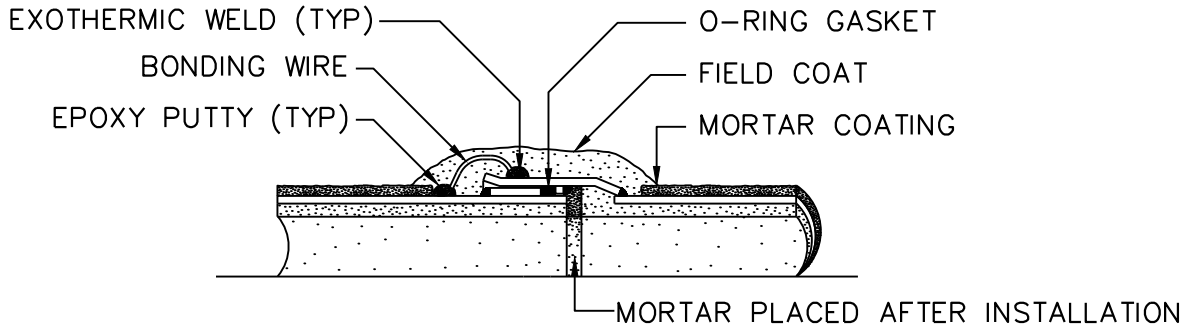
STD. DWG.
136



SLEEVE TYPE COUPLING



ROLLED SPIGOT JOINT



O-RING JOINT

GENERAL NOTES:

1. FOR EXOTHERMIC CONNECTION GUIDE SEE STANDARD DRAWING NO. 138. USE CAST IRON CHARGE FOR ALL APPLICATION.
2. MIX AND FIRMLY APPLY EPOXY PUTTY TO PROVIDE A WATER TIGHT SEAL AT LEAST 1/4" THICK OVER WELD AND BARE WIRE. OVERLAP COATING AND WIRE INSULATION BY 1/2".
3. USE STRANDED COPPER WIRE, NO. 8TW, 600 VOLTS, UNLESS OTHERWISE SPECIFIED.

REV.	DATE	DESCRIPTION	BY

BONDING JUMPERS

SCV WATER

SANTA CLARITA VALLEY WATER AGENCY
ENGINEERING SERVICES SECTION

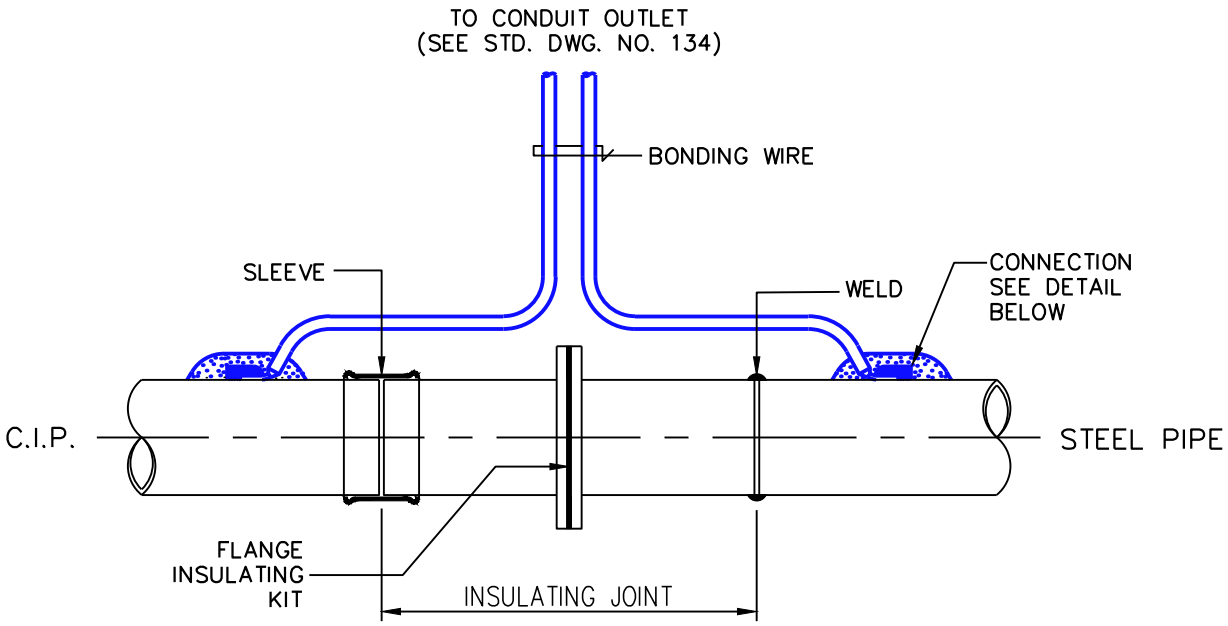
APPROVED BY:

BRIAN J. FOLSOM, R.C.E. 44723
CHIEF ENGINEER

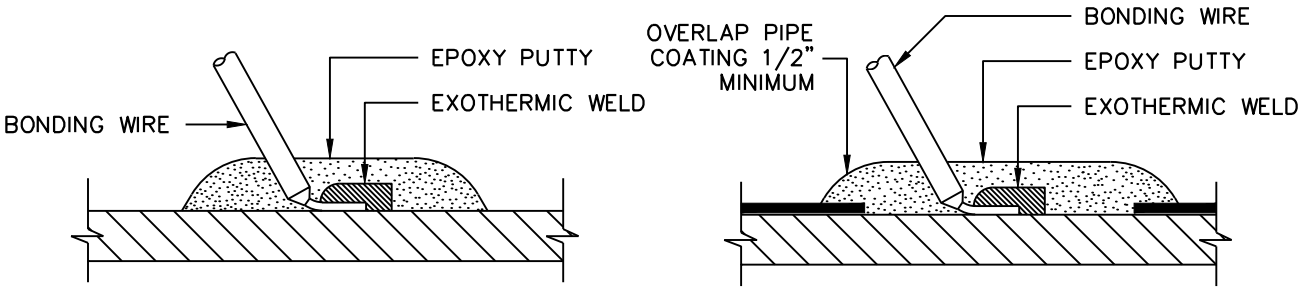
5/15/19
DATE

STD. DWG.
137

SHEET 1 OF 1

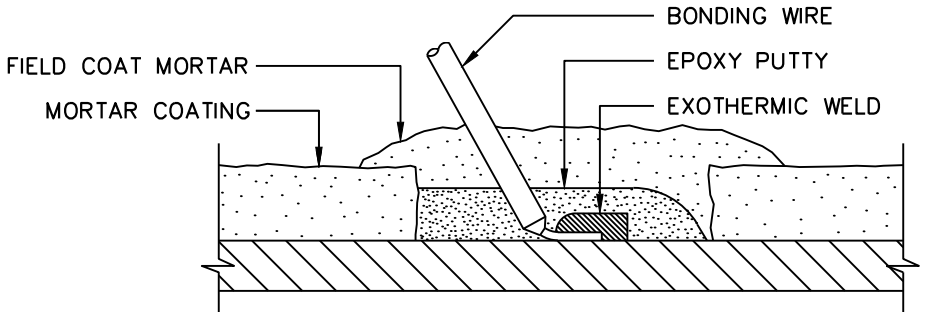


TYPICAL INSULATING JOINT WITH
TEST LEAD CONNECTION



CAST IRON PIPE CONNECTION

COATED STEEL OR DIP CONNECTION



CEMENT MORTAR COATED STEEL PIPE

GENERAL NOTES:

1. MIX AND FIRMLY APPLY EPOXY PUTTY TO PROVIDE A WATER TIGHT SEAL AT LEAST 1/4" THICK OVER WELD AND BARE WIRE. OVERLAP COATING AND WIRE INSULATION BY 1/2".
2. USE STRANDED COPPER WIRE, NO. 8TW, 600 VOLTS, UNLESS OTHERWISE SPECIFIED.

REV.	DATE	DESCRIPTION	BY

TYPICAL JUMPER CONNECTIONS

SCV WATER

SANTA CLARITA VALLEY WATER AGENCY
ENGINEERING SERVICES SECTION

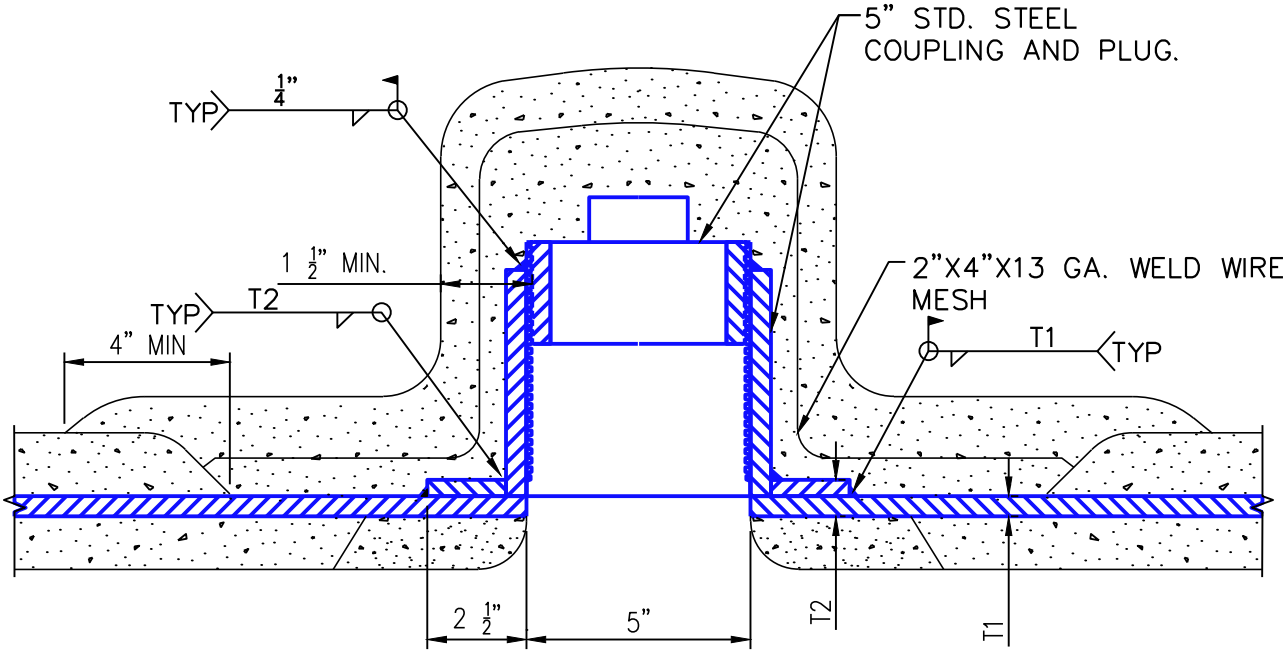
APPROVED BY:

BRIAN J. FOLSOM, R.C.E. 44723
CHIEF ENGINEER

5/15/19
DATE

STD. DWG.
138

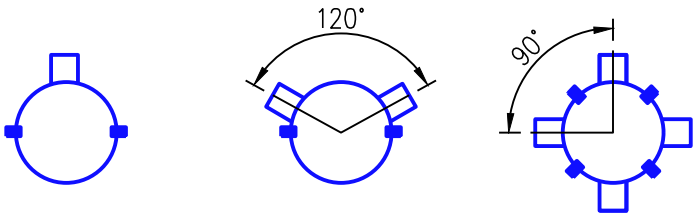
SHEET 1 OF 1



HANDHOLE

HANDHOLE NOTES

1. ONE HANDHOLE IS REQUIRED FOR PIPE DIAMETER 16" OR LESS. SEE BELOW FOR ORIENTATION.
2. TWO HANDHOLES ARE REQUIRED FOR PIPE DIAMETER 18" TO 24". SEE BELOW ORIENTATION.
3. FOUR HANDHOLES ARE REQUIRED FOR PIPE DIAMETER 30" OR LARGER. SEE BELOW FOR ORIENTATION
4. HANDHOLES ARE NOT REQUIRED FOR PIPELINES IF MANWAYS ARE WITHIN 1000 FEET. FOR PIPELINES 24 INCHES DIAMETER AND LARGER.



LEGEND

- BUT WELD LOCATION FOR JOINING COLLAR PIECES
- HANDHOLE LOCATION

GENERAL NOTES

1. ROLLED STEEL WELD COLLARS ("BUT STRAPS") SHALL NOT BE HEATED OR HAMMERD TO FIT O.D. OF SMALLER PIPE. USE FILLER BAR AS SHOWN, WHERE NECESSARY.
2. WELD IS REQUIRED ONLY WHERE FILLER BAR IS USED.

REV.	DATE	DESCRIPTION	BY

MORTAR LINED & COATED STEEL PIPE BUTT-STRAP

SCV WATER

SANTA CLARITA VALLEY WATER AGENCY
ENGINEERING SERVICES SECTION

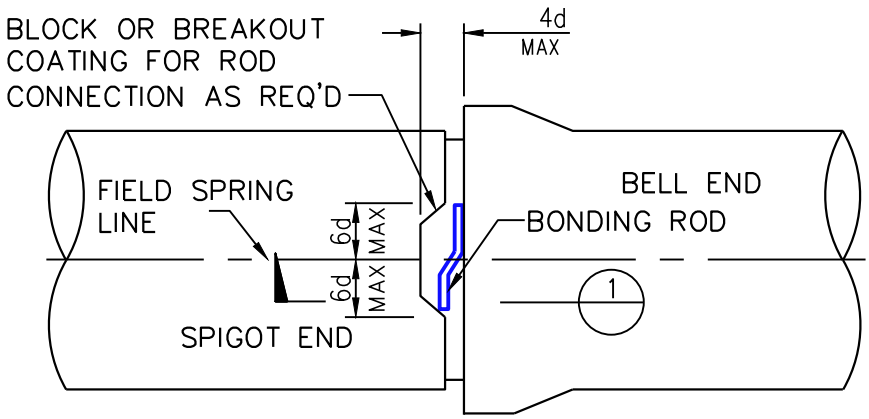
APPROVED BY:

BRIAN J. FOLSOM, R.C.E. 44723
CHIEF ENGINEER

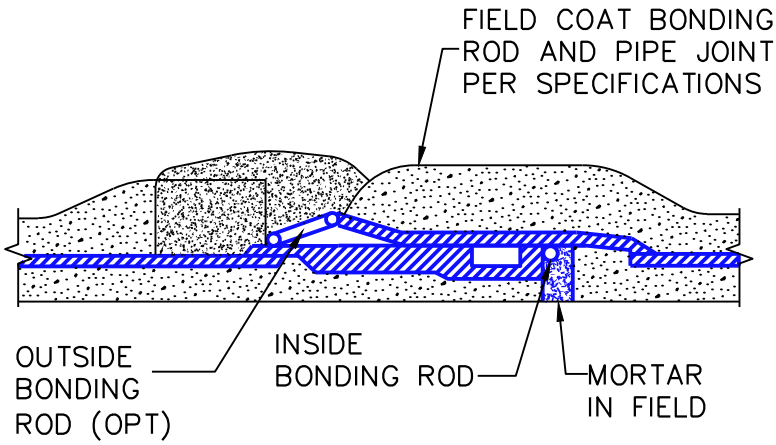
5/15/19
DATE

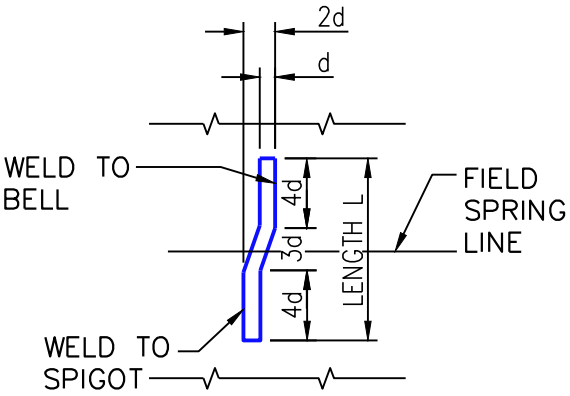
STD. DWG.
139

SHEET 1 OF 1



SIDE VIEW





SECTION 1

ALL PIPE JOINTS SHALL BE BONDED, EXCEPT FOR WELDED JOINTS.

BONDING ROD

PIPE DIA	UNDER 27"	27" AND LARGER
d	0.25"	0.50"
L	3.75"	5.50"
NO. OF RODS PER JOINT	2	3

REV.	DATE	DESCRIPTION	BY

JOINT BONDING-WELDED STEEL PIPE

SCV WATER

SANTA CLARITA VALLEY WATER AGENCY
ENGINEERING SERVICES SECTION

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DATE

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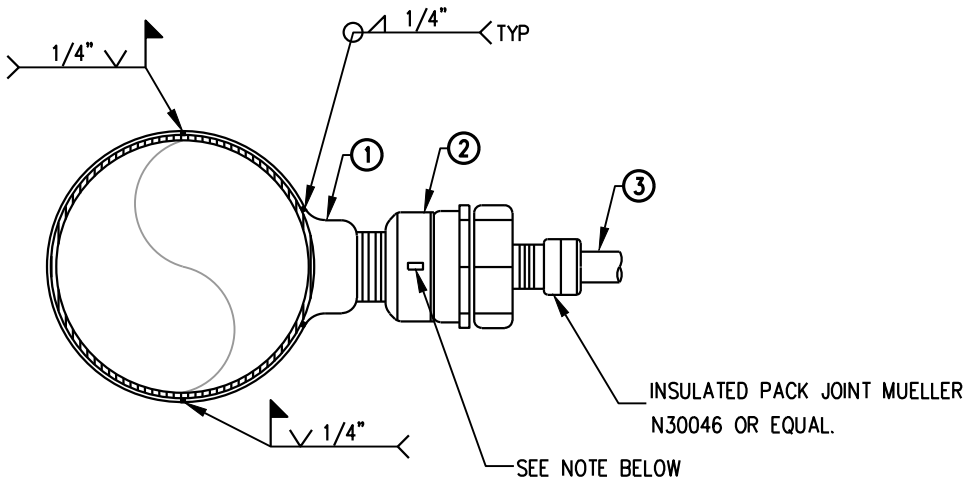
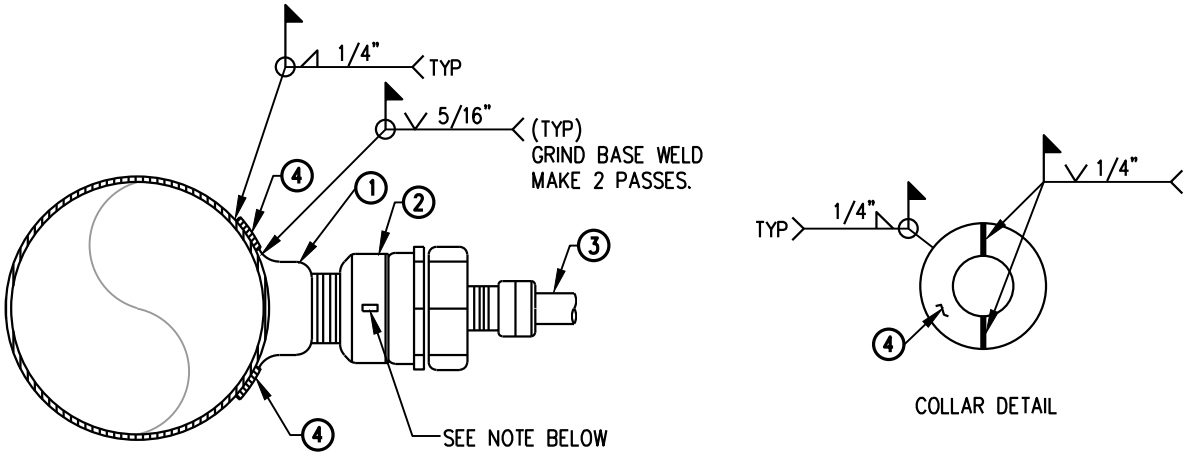
140

SHEET 1 OF 1



STEEL PIPE 3/16" OR THINNER

ITEM	MATERIALS
1	1/4" THICK 2-PIECE 6" WIDE ROLLED WEDDING BAND REINFORCING STRAP WITH EXTRA HEAVY WELDED STEEL OUTLET (THREAD-O-LET) COUPLING, W/ 1" OR 2" F.I.P.T. OUTLET.
2	1" OR 2" INSULATING BRONZE BALL CORPORATION STOP, M.I.P.T. X COMPRESSION.
3	1" OR 2" MUNICIPEX-REHAU W/INSERTS, SEE STD. DWG NO. 108.



STEEL PIPE 1/4" OR THICKER

ITEM	MATERIALS
1	EXTRA HEAVY WELDED STEEL OUTLET (THREAD-O-LET) COUPLING, WITH 1" OR 2" F.I.P.T. OUTLET.
2	1" OR 2" INSULATING BRONZE BALL CORPORATION STOP, M.I.P.T. X FIPT.
3	1" OR 2" MUNICIPEX-REHAU W/INSERTS, SEE STD. DWG NO. 108.
4	3" WIDE, 2-PIECE STEEL ANNULAR REINFORCING COLLAR 1/4" THICK PLATE, ROLL TO FIT PIPE RADIUS.

NOTE: PLACE OPERATING NUT POSITION AS SHOWN.

REV.	DATE	DESCRIPTION	BY

1" OR 2" SERVICE CONNECTION FOR STEEL PIPE

SCV WATER

SANTA CLARITA VALLEY WATER AGENCY
ENGINEERING SERVICES SECTION

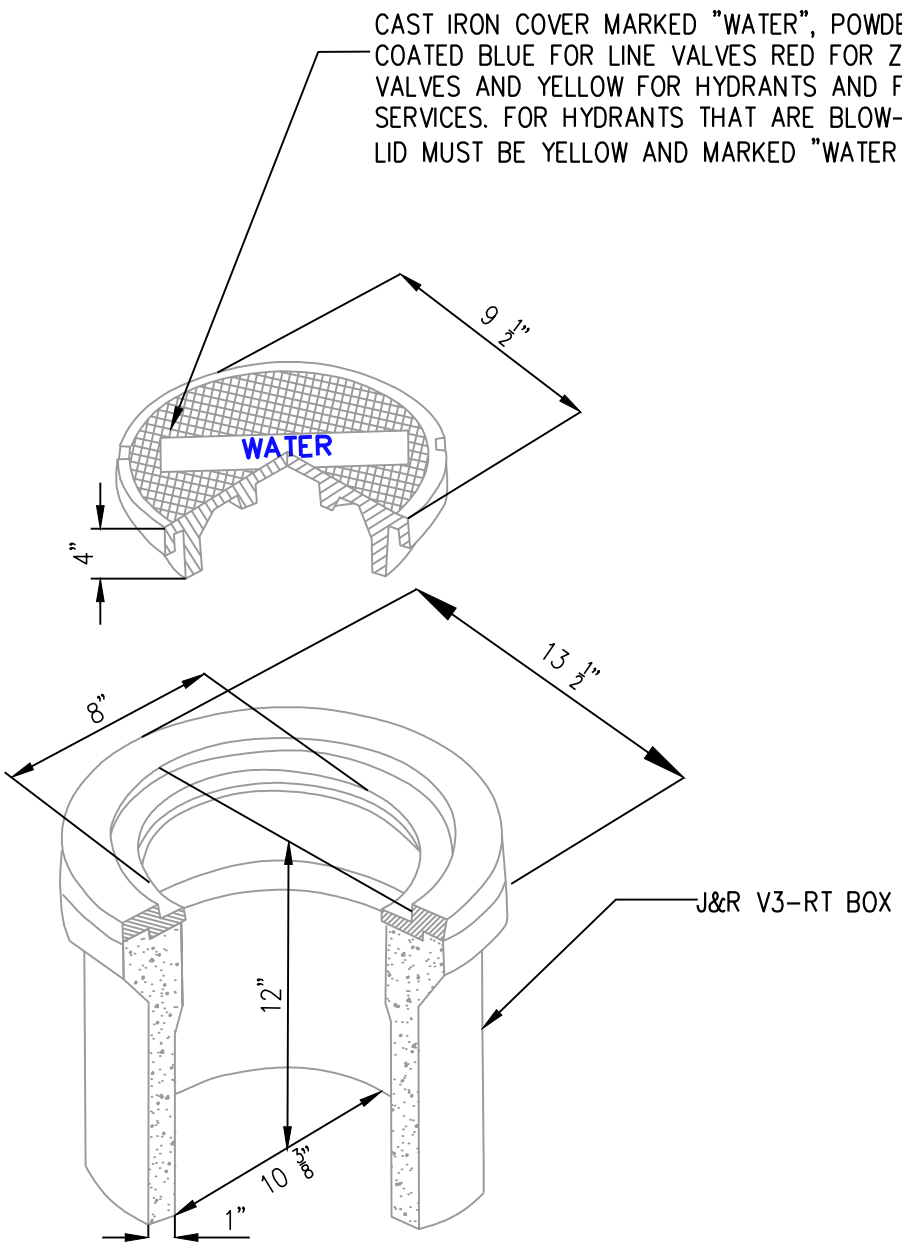
APPROVED BY:

BRIAN J. FOLSOM, R.C.E. 44723
CHIEF ENGINEER

5/15/19
DATE

STD. DWG.
141

SHEET 1 OF 1



NOTE:
VALVE BOX SHALL BE USED WHEN IN CONCRETE PAVEMENT OR UNPAVED AREAS USE J&R CONCRETE PRODUCTS V3-RT TRAFFIC RATED OR APPROVED EQUAL VALVE BOX ADD 6" CONCRETE COLLAR FOR UNPAVED AREAS.

REV.	DATE	DESCRIPTION	BY

VALVE BOX

SCV WATER

SANTA CLARITA VALLEY WATER AGENCY
ENGINEERING SERVICES SECTION

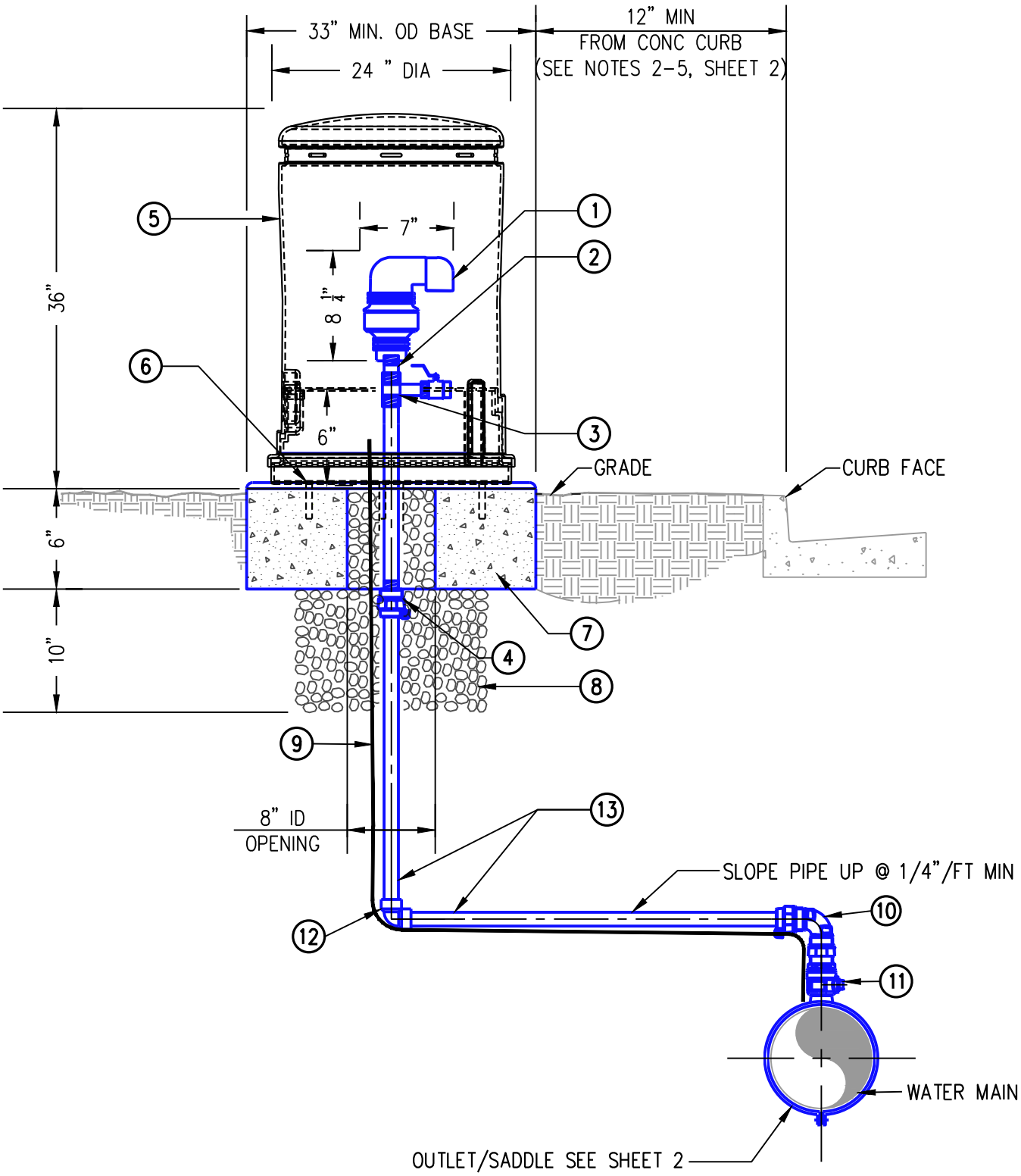
APPROVED BY:

BRIAN J. FOLSOM, R.C.E. 44723
CHIEF ENGINEER

5/15/19
DATE

STD. DWG.
142

SHEET 1 OF 1



REV.	DATE	DESCRIPTION	BY

2" AIR/VAC AND BLOW-OFF RELEASE VALVE ASSEMBLY

SCV WATER

SANTA CLARITA VALLEY WATER AGENCY
ENGINEERING SERVICES SECTION

APPROVED BY:

BRIAN J. FOLSOM, R.C.E. 44723
CHIEF ENGINEER

8/5/19
DATE

STD. DWG.
143

PIPE TYPE	*SADDLE/OUTLET TYPE
ACP (ASBESTOS CEMENT PIPE)	1"–2" FORD #202B SERIES
C–900 (POLYVINYL CHLORIDE PIPE)	1"–2" MUELLER BR2S SERIES
DIP (DUCTILE IRON PIPE)	1"–2" FORD #202B SERIES
STEEL PIPE	1"–2" WELD–O–LET
CML&S	1"–2" WELD–O–LET

*OR EQUAL EPDM

ITEM	MATERIALS
1	2"– (250 PSI) ARI D–040 AIR RELEASE VALVE 40 MESH STAINLESS STEEL SCREEN ON THE OUTLET.
2	2" BRASS NIPPLE.
3	2" TEE FIPTxFITPxFIPT, W/ 2" BALL VALVE FIPTxFIPT, 2" CLOSED NIPPLE AND 2" BRASS PLUG.
4	2"x12" BRASS NIPPLE AND 2" COMPxFIPT CTS–PJ COUPLING.
5	POLYETHYLENE VALVE ENCLOSURE, BY PIPELINE PRODUCTS #VCAS–2436, SANDSTONE MIX COVER.
6	LOCK PLATE AND BASE WITH RED HEAD CONCRETE ANCHOR BOLTS.
7	CLASS B CONCRETE BASE, 2500 PSI.
8	PEA GRAVEL (3/4").
9	LOCATING WIRE, 12 GAUGE HMWPE SOLID STRAND WITH 3M GREASE TUBE NUT (DBR/Y6) OR EQUAL.
10	2"x90° MIPTxCOMP CTS–PJ FORD (L84–77–NL).
11	2" FORD CORP STOP FIPTxMIPT (FB1700–7–NL).
12	2"x 90° COMPxCOMP CTS–PJ (L44–77–NL), IF NEEDED/AS NEEDED.
13	2" MUNICIPEX–REHAU WITH INSERTS FORD #55.

NOTES:

1. USE FORD OR MUELLER COMPRESSION FITTINGS. ALL PARTS MUST BE NO LEAD.
2. PROVIDE BARRICADES FOR PROTECTION IF ASSEMBLY IS NOT LOCATED BEHIND A STANDARD CURB FACE, SEE STANDARD DRAWING 105.
3. IF SIDEWALK IS ADJACENT TO CURB FACE AND LESS THAN 6.5' WIDE, LOCATE ASSEMBLY CONCRETE BASE 12" FROM BACK OF SIDEWALK.
4. IF SIDEWALK IS ADJACENT TO CURB FACE AND 6.5' WIDE OR MORE, LOCATE CONCRETE BASE 12" FROM CURB FACE. PROVIDE A MINIMUM OF 36" CLEARANCE FROM CONCRETE BASE TO BACK OF SIDEWALK.
5. IF THERE IS A PARKWAY BETWEEN CURB FACE AND SIDEWALK AND IT IS 4.5' WIDE OR MORE LOCATE CONCRETE BASE 12" FROM CURB FACE. IF PARKWAY IS LESS THAN 4.5' LOCATE CONCRETE BASE 12" FROM THE BACK OF SIDEWALK.

REV.	DATE	DESCRIPTION	BY

2" AIR/VAC AND BLOW-OFF RELEASE VALVE ASSEMBLY

SCV WATER

SANTA CLARITA VALLEY WATER AGENCY
ENGINEERING SERVICES SECTION

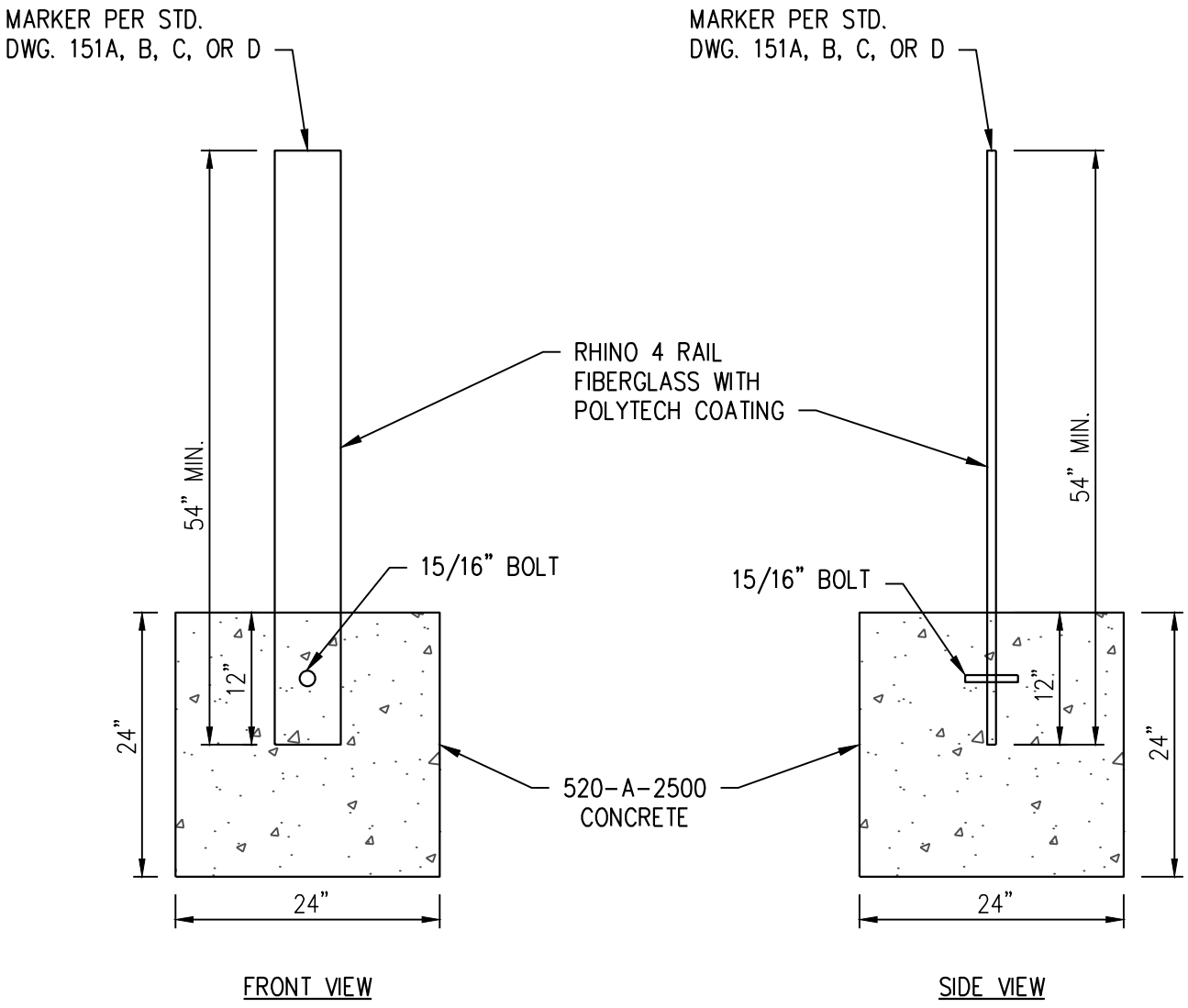
APPROVED BY:

BRIAN J. FOLSOM, R.C.E. 44723
CHIEF ENGINEER

8/5/19
DATE

STD. DWG.
143

SHEET 2 OF 2



REV.	DATE	DESCRIPTION	BY

MARKER INSTALLATION

SCV WATER

SANTA CLARITA VALLEY WATER AGENCY
ENGINEERING SERVICES SECTION

APPROVED BY:

BRIAN J. FOLSOM, R.C.E. 44723
CHIEF ENGINEER

5/15/19
DATE

STD. DWG.
150

SHEET 1 OF 1

Rhino
MARKING & PROTECTION SYSTEMS

DATE: _____
TO: _____
COMPANY: _____
FAX: _____
FROM: _____
P.O.#: _____

Please carefully review this decal proof and fax back your approval or note any changes and fax back for corrections to be made to the decal proof.

PLEASE APPROVE EACH BOX

CUSTOMER: SCVWA ☐
PRODUCT: Decal ☐
VINAL: White ☐
SIZE: 2-7/8" x 14" ☐
COLORS: "WARNING" IS WHITE & SET AGAINST A BLUE BOX. ALL OTHER TEXT AND GRAPHICS ARE BLUE. ALL TEXT AND GRAPHICS ARE SET AGAINST A WHITE BACKGROUND ☐

DATE: _____
PART # SD-7202K
FILENAME: SD-7202K-PROOF1

RHINO FAX # 888-522-4343
FINAL DECAL ARTWORK APPROVAL:
OK TO PRINT? YES ☐ NO ☐
DATE: _____
NAME: _____

Rhino Marking & Protection Systems
A Division of REPNET, Inc.
280 University Dr. SW Waseca, Min 56093
800-522-4343 Fax 888-522-4343
www.RhinoMarkers.com

MARKER LOCATIONS:

PROVIDE UTILITY MARKER AT S.C.V.W.A. FACILITIES BURIED OUTSIDE PAVED AREAS. PLACE MARKERS EVERY 100 FEET FOR PIPELINES AND AT ALL ABOVE GRADE STRUCTURES. MARKERS TO BE EMBED IN GROUND MIN. 24" WITH CONCRETE. SEE SCVWA STANDARD DRAWING NUMBER 150 FOR MARKER INSTALLATION.

REV.	DATE	DESCRIPTION	BY

WATER MAIN MARKERS

SCV WATER

SANTA CLARITA VALLEY WATER AGENCY
ENGINEERING SERVICES SECTION

APPROVED BY:

BRIAN J. FOLSOM, R.C.E. 44723
CHIEF ENGINEER

5/15/19
DATE

STD. DWG.
151A

SHEET 1 OF 1

Rhino
MARKING & PROTECTION SYSTEMS

DATE: _____

TO: _____

COMPANY: _____

FAX: _____

FROM: _____

P.O.#: _____

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PLEASE APPROVE EACH BOX

CUSTOMER: SCVWA ☐

PRODUCT: Decal ☐

VINAL: White ☐

SIZE: 2-7/8" x 14" ☐

COLORS: "WARNING" IS WHITE & SET AGAINST A PURPLE BOX. ALL OTHER TEXT AND GRAPHICS ARE PURPLE. ALL TEXT AND GRAPHICS ARE SET AGAINST A WHITE BACKGROUND

_____ ☐

DATE: _____

PART # SD-7202K

FILENAME: SD-7202K-PROOF1

RHINO FAX # 888-522-4343
FINAL DECAL ARTWORK APPROVAL:

OK TO PRINT? YES ☐ NO ☐

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NAME: _____

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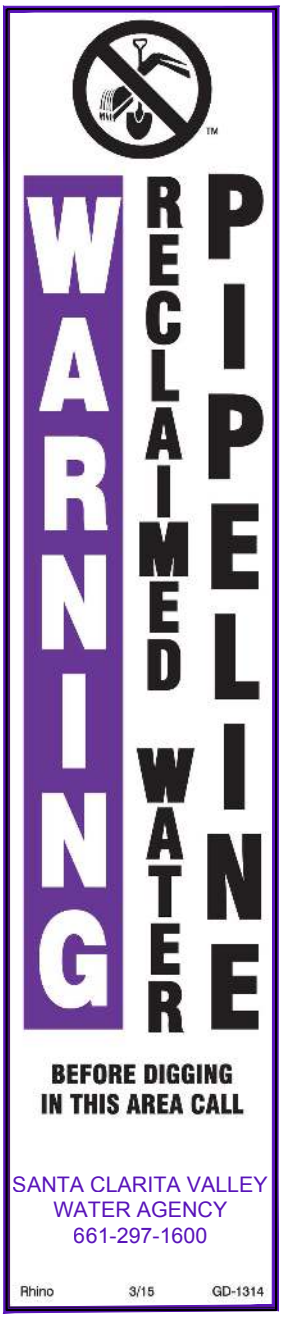

MARKER LOCATIONS:

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REV.	DATE	DESCRIPTION	BY

RECLAIMED WATER MAIN MARKERS

SCV WATER

SANTA CLARITA VALLEY WATER AGENCY
ENGINEERING SERVICES SECTION

APPROVED BY:

BJ Folsom — 5/15/19

BRIAN J. FOLSOM, R.C.E. 44723
CHIEF ENGINEER

DATE

STD. DWG.
151B

SHEET 1 OF 1

Rhino
MARKING & PROTECTION SYSTEMS

DATE: _____

TO: _____

COMPANY: _____

FAX: _____

FROM: _____

P.O.#: _____

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PLEASE APPROVE EACH BOX

CUSTOMER: SCVWA ☐

PRODUCT: Decal ☐

VINAL: White ☐

SIZE: 2-7/8" x 14" ☐

COLORS: "WARNING" IS WHITE & SET AGAINST A RED BOX. ALL OTHER TEXT IS BLACK. ALL TEXT AND GRAPHICS ARE SET AGAINST A WHITE BACKGROUND

☐

DATE: _____

PART # SD-7202K

FILENAME: SD-7202K-PROOF1

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REV.	DATE	DESCRIPTION	BY

ELECTRIC CABLE MARKERS

SCV WATER

SANTA CLARITA VALLEY WATER AGENCY
ENGINEERING SERVICES SECTION

APPROVED BY:

BJ Folsom — 5/15/19

BRIAN J. FOLSOM, R.C.E. 44723
CHIEF ENGINEER

DATE

STD. DWG.
151C

SHEET 1 OF 1

Rhino
MARKING & PROTECTION SYSTEMS

DATE: _____
TO: _____
COMPANY: _____
FAX: _____
FROM: _____
P.O.#: _____

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PLEASE APPROVE EACH BOX

CUSTOMER: SCVWA ☐
PRODUCT: Decal ☐
VINAL: White ☐
SIZE: 2-7/8" x 14" ☐
COLORS: "WARNING" IS ORANGE & SET AGAINST A BLACK BOX. ALL OTHER TEXT IS BLACK.
ALL TEXT AND GRAPHICS ARE SET AGAINST A WHITE BACKGROUND
_____ ☐

DATE: _____
PART # SD-7202K
FILENAME: SD-7202K-PROOF1

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REV.	DATE	DESCRIPTION	BY

FIBER OPTIC CABLE MARKERS

SCV WATER

SANTA CLARITA VALLEY WATER AGENCY
ENGINEERING SERVICES SECTION

APPROVED BY:

BJ Folsom — 5/15/19

BRIAN J. FOLSOM, R.C.E. 44723
CHIEF ENGINEER

DATE

STD. DWG.
151D

SHEET 1 OF 1