PREPARED BY:

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Water. Engineered.

CITY OF SAN BRUNO

CROSS-CONNECTION CONTROL PLAN

IN ACCORDANCE WITH THE CROSS-CONNECTION CONTROL POLICY HANDBOOK ADOPTED IN 2023

JUNE 2025

Cross-Connection Control Plan

Prepared for

City of San Bruno

Project No. 462-A1-24-63

I certify that the information submitted in this Cross-Connection Control Plan is drafted to be in compliance with the Cross-Connection Control Policy Handbook.

June 27, 2025

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LIST OF ACRONYMS AND ABBREVIATIONS

AEO	Administrative Enforcement Order
AG	Air Gap Separation
AWWA	American Water Works Association
BPA	Backflow Prevention Assembly
BPA Tester	Backflow Prevention Assembly Tester
CCCP	DWA's Cross-Connection Control Plan
CCCPH	Cross-Connection Control Policy Handbook
CCR	California Code of Regulations
City	City of San Bruno
DC	Double Check Valve Backflow Prevention Assembly
DCDA	Double Check Detector Backflow Prevention Assembly
DCDA-II	Double Check Detector Backflow Prevention Assembly – Type II
Environmental Health	San Mateo County Environmental Health Services Division
Program	City of San Bruno's Cross-Connection Control Program
PVB	Pressure Vacuum Breaker Backflow Prevention Assembly
PWS	Public Water System
RP	Reduced Pressure Principle Backflow Prevention Assembly
RPDA	Reduced Pressure Principle Detector Backflow Prevention Assembly
RPDA-II	Reduced Pressure Principle Detector Backflow Prevention Assembly – Type II
RW	Recycled Water
SVB	Spill-Resistant Pressure Vacuum Breaker
Swivel-Ell	Swivel-Ell Backflow Prevention Assembly
SWRCB	State Water Resources Control Board
Title 17	Chapter V, Sections 7583-7622 Under the California Code of Regulations

1.0 INTRODUCTION

The State Water Recourse Control Board (SWRCB) adopted the Cross-Connection Control Policy Handbook (CCCPH) on December 19, 2023. The effective date for the CCCPH was July 1, 2024, replacing the previous regulations housed under Title 17, Chapter V, Sections 7583-7622 under the California Code of Regulations (CCR) (Title 17). Title 17 became inoperative and repealed 90 days after July 1, 2024 on October 1, 2024. The CCCPH expands on the previous Title 17 requirements for initial and follow-up hazard assessments, program training, backflow prevention testing and certification, maintenance of records, incident response, reporting and notification, public outreach and education, and local entity coordination. The CCCPH requires the City of San Bruno (City), the Public Water System (PWS), to develop a Cross-Connection Control Plan (CCCP) to describe how the PWS will manage and administer their Cross-Connection Control Program (Program).

Appendix A includes the most recent version of the CCCPH (Adopted 2023, Amended June 17,2025).

1.1 Purpose

The intent of this document is to describe the Program implemented and administered by the City. The purpose of this CCCP is:

1. To protect the PWS against actual or potential contamination that may occur within a water user's premises because of some undiscovered or unauthorized cross-connection on the premises;
2. To eliminate existing connections between potable water systems and other sources of water that are not approved as safe and potable for human consumption;
3. To eliminate cross-connections between potable water systems and sources of contamination; and
4. To prevent the making of cross-connections in the future.

1.2 The City of San Bruno Service Area Description

The City is located in the County of San Mateo, south of the City of San South Francisco, north of the City of Millbrae, and west of the San Francisco International Airport. The City's water service area is about 5.4 square miles and primarily serves residential customers, followed by commercial and industrial customers. The City is considered a public community water system with over 11,000 water service connections.

Because the number and type of connections will vary over time, the exact number and types of services can be provided to the SWRCB upon request.

1.3 Relationship with County

The City implements its CCCP, in part through an agreement with San Mateo County Environmental Health Services Division (Environmental Health). While the City is ultimately responsible for the protection of the PWS, Environmental Health maintains backflow prevention records, sends notifications, tracks completion of field tests, establishes the backflow testers lists, and assists in performing hazard assessments. The City's and County's coordination efforts for program administration are described throughout this CCCP.

2.0 DEFINITIONS

Air-Gap Separation (AG)

A physical break between the free-flowing discharge end of a potable water supply pipeline and an open or non-pressure receiving vessel. The physical break shall be at least twice the diameter of the supply pipe measured vertically above the overflow rim of the vessel, in no case less than 1 inch.

Approved Water Supply

A water source that has been approved by the SWRCB for domestic use in a PWS and designated as such in a domestic water supply permit.

Auxiliary Water Supply

A source of water, other than an approved water supply, that is either used or equipped, or can be equipped, to be used as a water supply, and is located on the premises of, or available to, a water user.

AWWA Standards

An official standard developed and approved by the American Water Works Association (AWWA).

Backflow

The undesirable flow of water or other liquids, gases, mixtures or substances, into the distributing pipes of a PWS from any source other than an approved water supply. Backsiphonage or backpressure are causes of backflow.

Backflow Prevention Assembly (BPA)

A mechanical assembly designed and constructed to prevent backflow, such that while in-line, it can be repaired, and its ability to prevent backflow, as designed, can be tested. The assembly must have passed laboratory and field evaluation tests performed by a recognized testing organization which has demonstrated its competency to the California SWRCB Division of Drinking Water.

Backflow Prevention Assembly Tester (BPA Tester)

A person who is certified as a BPA tester pursuant to Section 4 of this CCCP.

City

Unless otherwise specified, the term "City" shall refer to the City of San Bruno Department of Public Services Water Division

Community Water System

A PWS that serves at least 15 service connections used by yearlong residents or regularly serves at least 25-yearlong residents of the area served by the system.

Contamination

Degradation of the quality of the potable water by any foreign substance which creates a hazard to the public health, or which may impair the usefulness or quality of the water.

Cross-Connection

Any actual or potential connection or structural arrangement between a PWS, including a piping system connected to the PWS and located on the premises of a water user or available to the water user, and any source or distribution system containing liquid, gas, or other substances not from an approved water supply.

By-pass arrangements, jumper connections, removable sections, or other devices through which backflow could occur shall be considered cross-connections.

Cross-Connection Control Program Coordinator

The designated individual involved in the development of and be responsible for reporting, tracking, and other administration duties for the Program.

Cross-Connection Control Specialist

A person who is certified as a Cross-Connection Control Specialist pursuant to Section 4 of this CCCP.

Customer's Water System

All facilities beyond the service meter. The system or systems may include both potable and non-potable water systems.

Distribution System

The network of conduits used for the delivery of water from the source to the customer’s water system.

Double Check Valve Backflow Prevention Assembly (DC)

An assembly consisting of two independently acting internally loaded check valves, with tightly closing shut-off valves located at each end of the assembly (upstream and downstream of the two check valves) and fitted with test cocks that enable accurate field testing of the assembly. This type of assembly may only be used for protection from low hazard cross-connections, backsiphonage, and backpressure events.

To be approved, these assemblies must be accessible for in-line maintenance and testing and be installed per City Standards.

Double Check Detector Backflow Prevention Assembly (DCDA)

A double check valve backflow prevention assembly that includes a bypass with a water meter and double check backflow prevention assembly, with the bypass’s water meter accurately registering flow rates up to 2 gallons per minute and visually indicating all rates of flow. This type of assembly may only be used for protection from low hazard cross-connections, backsiphonage, and backpressure events.

To be approved, these assemblies must be accessible for in-line maintenance and testing and be installed per City Standards. A schematic of this assembly is provided in Appendix C of the CCCPH which is included in Appendix A of this CCCP.

Double Check Detector Backflow Prevention Assembly – Type II (DCDA-II)

A double check valve backflow prevention assembly that includes a bypass around the second check, with the bypass having a single check valve and a water meter accurately registering flow rates up to 2 gallons per minute and visually indicating all rates of flow. This type of assembly may only be used for protection from low hazard cross-connections, backsiphonage, and backpressure events.

To be approved these assemblies must be accessible for in-line maintenance and testing and be installed per City Standards. A schematic of this assembly is provided in Appendix C of the CCCPH which is included in Appendix A of this CCCP.

Hazard Assessment

An evaluation of a user premises designed to evaluate the types and degrees of hazard at a user's premises.

High Hazard Cross-Connection

A cross-connection that poses a threat to the potability or safety of the public water supply.

Materials entering the public water supply through a high hazard cross-connection are contaminants or health hazards. See Appendix D of the CCCPH.

Low Hazard Cross-Connection

A cross-connection that has been found to not pose a threat to the potability or safety of the public water supply but may adversely affect the aesthetic quality of the potable water supply.

Materials entering the public water supply through a low hazard cross-connection are pollutants or non-health hazards.

Health Agency

San Mateo County's Public Health Services Department is the local health agency.

It is located at 225 37th Avenue, San Mateo, California.

Pollutant

Material which causes a degradation in the quality of the potable water supply which does not create a hazard to the public health, but which does impair the aesthetic quality of water.

Premises

All areas on a customer's property which are served or have the potential to be served by the PWS.

Premises Containment

Protection of a PWS's distribution system from backflow from a user's premises through the installation of one or more air gaps or BPAs, installed as close as practical to the user's service connection, in a manner that isolates the water user's water supply from the PWS's distribution system.

Pressure Vacuum Breaker Backflow Prevention Assembly (PVB)

An assembly with an independently acting internally loaded check valve and an independently acting loaded air inlet valve located on the discharge side of the check valve, with test cocks and tightly closing shutoff valves located at each end of the assembly that enable accurate field testing of the assembly. This type of assembly may only be used for protection from low or high hazard backsiphonage events and is not to be used to protect from any backpressure events.

A schematic of this assembly is provided in Appendix C of the CCCPH.

Public Water System (PWS)

A system for the provision of piped water to the public for human consumption which has five or more service connections or regularly serves an average of 25 individuals daily at least 60 days out of the year. Additionally, consists of the source facilities and the distribution system and shall include all those facilities of the water system under the complete control of the City up to the point where the Customer's Water System begins the service connection.

Recycled Water (RW)

Wastewater which as a result of treatment is suitable for uses other than potable use.

Reduced Pressure Principle Backflow Prevention Assembly (RP)

An assembly with two independently acting internally loaded check valves, with a hydraulically operating, mechanically independent differential-pressure relief valve located between the check valves and below the upstream check valve. The assembly shall have shut-off valves located upstream and downstream of the two check-valves, and test cocks to enable accurate field testing of the assembly. This type of assembly may be used for protection from low and high hazard backsiphonage and backpressure events.

To be approved, these assemblies must be accessible for in-line maintenance and testing and be installed per City Standards. A schematic of this assembly is provided in Appendix C of the CCCPH which is included in Appendix A of this document.

Reduced Pressure Principle Detector Backflow Prevention Assembly (RPDA)

A reduced pressure principle backflow prevention assembly that includes a bypass with a water meter and reduced pressure principle backflow prevention assembly, with the bypass water meter accurately registering flow rates up to 2 gallons per minute and visually indicating all rates of flow. This type of assembly may be used for protection from low and high hazard backsiphonage and backpressure events.

To be approved, these assemblies must be accessible for in-line maintenance and testing and be installed per City Standards.

A schematic of this assembly is provided in Appendix C of the CCCPH which is included in Appendix A of this document.

Reduced Pressure Principle Detector Backflow Prevention Assembly – Type II (RPDA-II)

A reduced pressure principle backflow prevention assembly that includes a bypass around the second check, with the bypass having a single check valve and a water meter accurately registering flow rates up to 2 gallons per minute and visually indicating all rates of flow. This type of assembly may be used for protection from low and high hazard backsiphonage and backpressure events.

To be approved, these assemblies must be accessible for in-line maintenance and testing and be installed per City Standards. A schematic of this assembly is provided in Appendix C of the CCCPH which is included in Appendix A of this document.

Service Connection

The point where a water user's piping is connected to the PWS or the point in the customer's water system where the PWS can be protected from backflow using an AG or a BPA.

Spill-Resistant Pressure Vacuum Breaker Backsiphonage Prevention Assembly (SVB)

An assembly with an independently acting, internally loaded check valve and an independently acting loaded air inlet valve located on the discharge side of the check valve, with shutoff valves at each end and a test cock and bleed/vent port, to enable accurate field testing of the assembly. This type of assembly may only be used for protection from low hazard cross-connection backsiphonage events and is not to be used to protect from any backpressure events.

A schematic of this assembly is provided in Appendix C of the CCCPH, which is included in Appendix A of this document.

State Water Resources Control Board (SWRCB)

State Water Resources Control Board or the local primacy agency having been delegated the authority to enforce the requirements of the CCCPH by the State Water Resources Control Board.

Swivel-Ell Backflow Prevention Assembly

An assembly consisting of a reduced pressure principle backflow prevention assembly combined with a changeover piping configuration (swivel-ell connection) designed and constructed pursuant to Section 5 of this CCCP.

Used Water

Any water supplied by the City from the PWS to a Customer's Water System after it has passed through the service connection and is no longer under the control of the City.

User Supervisor

A person designated by a water user to oversee a water use site and responsible for the avoidance of cross-connections.

Water System

The water system shall be considered as made up of two parts, the PWS and the Customer's Water System.

Water Supplier

The City, who owns and operates the PWS.

Water User

Any person(s) or entity obtaining water from the City.

3.0 PROGRAM ADMINISTRATION

3.1 Legal Authority (CCCPH 3.1.3, Ordinance 4903, & Chapter 10.15.040)

The City administers the CCCP in accordance with the City of San Bruno's Cross-Connection and Backflow Standards. Chapter 10.15 of the City's municipal code was amended once in 2016 and most recently in 2021 through Ordinance Number 1902. Additional code updates are planned to be adopted by July 2026 to align with new CCCPH requirements. The City's current municipal code allows the City to enforce the Program through issuance of fines and discontinuance of water service.

The San Mateo County Backflow Prevention Ordinance, Chapter 4.72 enables Environmental Health to issue administrative enforcement orders and fines to owners of backflow prevention assemblies with the City's service area for failure to comply with annual testing of backflow prevention assemblies, failure to install backflow prevention assemblies as directed by Environmental Health, and all other violations of the County Backflow Prevention Ordinance, thus supporting the City's Program. The County's code was updated though Ordinance Number 4903 and adopted March 25, 2025.

Through both the City's municipal code and the County's ordinance, the City and Environmental Health both have the legal authority to implement the CCCP and enforce corrective actions if a water user fails to comply in a timely manner with provisions regarding the installation, inspection, field testing, or maintenance of a backflow prevention assembly required by the CCCPH.

A copy of the City's Municipal Code, Chapter 10.15 is included in Appendix B. A copy of the San Mateo County Backflow Prevention Ordinance is included in Appendix C.

3.2 Program Administration (CCCPH 3.1.3)

The CCCP is administered within the City's Maintenance and Operations Division, Water Sector. Figure 3-1 provides the current organizational structure of the Sector. The Cross-Connection Control Program Coordinator is the Water Quality and Production Supervisor. This position is being updated to include the requirement to hold a Cross-Connection Control Specialist certification.

As mentioned in Section 1, the City shares administrative duties with Environmental Health through a contract agreement renewed yearly. Environmental Health regularly communicates the progress of yearly backflow field testing and the City engages with delinquent or non-compliant water service customers. The County maintains a certified AWWA Cross-Connection Control Specialist.

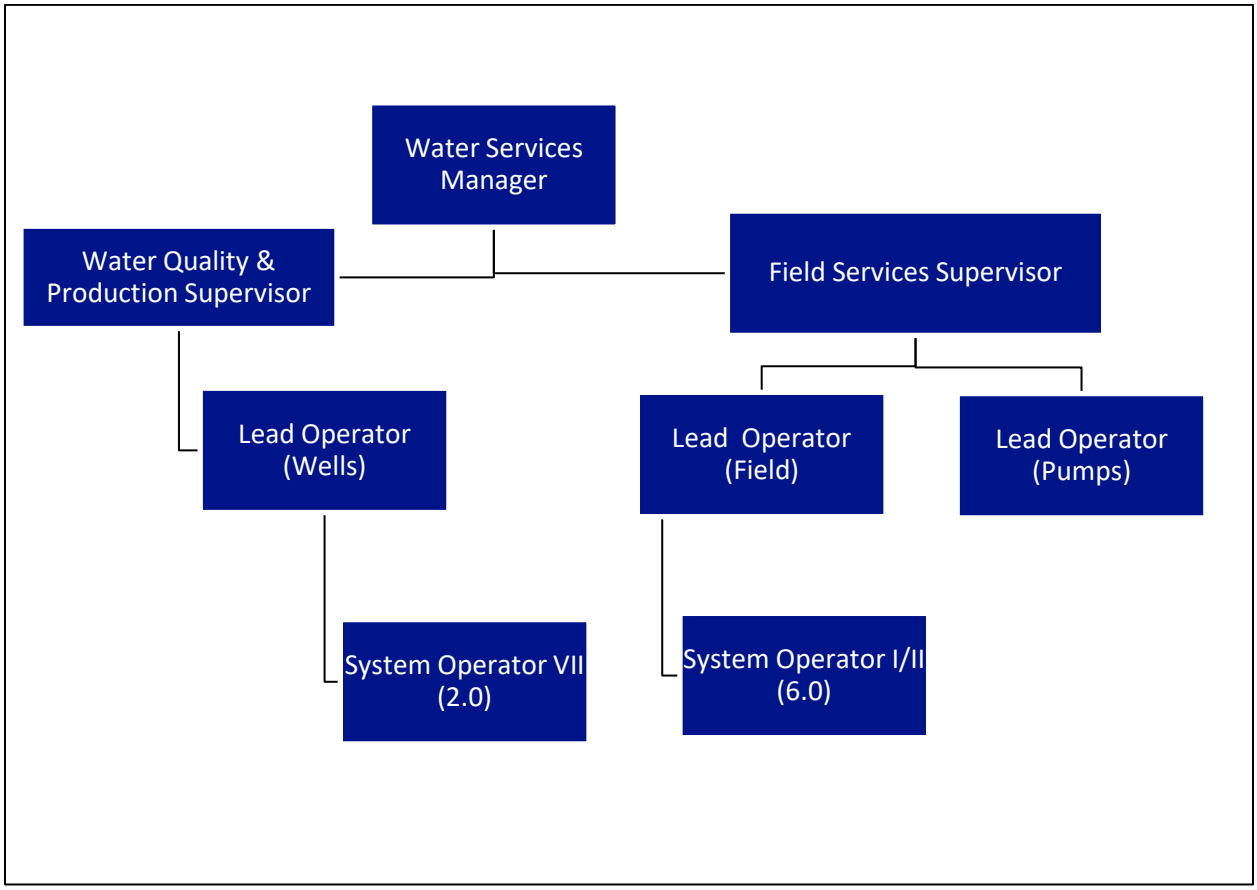

Figure 3-1. Cross-Connection Control Program Organization Chart

4.0 BACKFLOW PREVENTION ASSEMBLY TESTERS AND CROSS-CONNECTION CONTROL SPECIALISTS

This section specifies the certification requirements for BPA Testers and Cross-Connection Control Specialists.

4.1 CCCPH Backflow Prevention Assembly Tester Requirements (CCCPH 3.4.1)

Chapter 3, Article 4 of the CCCPH provides the requirements of a SWRCB recognized and American National Standards Institute accredited organization certifying BPA Testers. Within an accredited organization, the Program must include provisions for revocation of a BPA, testers certification and a publicly available list of certified BPA testers. Certification from an accredited organization requires completion of a Program that includes the following:

- Timed and proctored written exams with prescribed number of test questions and covering specified material.
- Performance of a hands-on exam demonstrating proficiency in accurately determining the operating condition of an RP, DC, PVB, and SVB.
- Recertification no less frequently than every three years including both a written and performance exam.
- Prerequisite of either two years prior experience or completion of an instructional training course.

4.2 Approved Backflow Prevention Assembly Tester List

The City utilizes the approved BPA tester list created and maintained by Environmental Health. The list of approved BPA Testers are authorized to perform backflow field testing related work within the service area. The list of certified BPA Testers is provided to assembly owners with the test notification.

Below are the requirements to be included on the County's list:

- The BPA Tester must hold a valid certification from an SWRCB accredited organization for backflow prevention assembly testing.
- The BPA Tester must provide a yearly copy of tester gauge calibration report results including the make and model of field-testing equipment. Calibration results provided to Environmental Health must have been calibrated within the last calendar year.
- The BPA Tester must have completed an examination created by San Mateo County Environmental Health to demonstrate that the tester understands their responsibilities as detailed in the County Backflow Prevention Ordinance.
- The BPA Tester must have paid an annual tester fee to Environmental Health.

BPA Testers are required to ensure that the Environmental Health has the most recent copy of their certifications and tester gauge calibration reports. After initial authorization, Environmental Health will ensure BPA Tester certifications and calibration reports remain current by tracking expiration dates in a database containing individual accounts of BPA testers.

Testers may be removed from the approved list if any of the following conditions apply:

- Certification expires
- Gauge calibration expires
- Improper testing or repairs
- Falsifying results or documents
- Failure to enter completed tests reports online

Environmental Health Ordinance includes the ability to suspend or revoke an Environmental Health BPA tester authorization. Environmental Health will report to the certifying agency if a tester's authorization has been suspended or revoked.

4.3 Cross-Connection Control Specialist Requirement (CCCPH 3.4.2)

Cross-Connection Control Specialist(s) shall maintain valid certification from a certifying organization recognized by the SWRCB pursuant to CCCPH Chapter 3 Article 4. Certification requires completion of a program that includes the following:

Timed and proctored written exams with prescribed number of test questions and covering specified material.

- Completion of an instructional training course
- Recertification no less frequently than every three (3) years
- Recertification through an exam, 12 contact hours of continuing education, or a combination of both

Similar to program requirements for BPA testers, the program for Cross-Connection Control Specialist from the accredited organization must contain:

- Provisions for revocation of a specialist's certification.
- A publicly available list of certified specialists.
- A valid backflow prevention assembly tester certification as well as completion of an instructional training course for initial certification or when an examinee has not held a valid certification for three (3) or more years.

Cross-Connection Control Specialists working for the City will be required to be certified from an approved accredited organization.

5.0 CROSS-CONNECTION CONTROL PROGRAM REQUIREMENTS

5.1 Program General Requirements (CCCPH 2.2 & Ordinance 4903, Chapter 4.72.050)

Unprotected cross-connections with the PWS are prohibited. Whenever backflow protection has been found necessary, the water user will be required to install an approved backflow prevention assembly by and at the expense of the user, for continued service or before a new service is granted.

The installation and type of backflow protection shall be in accordance with the requirements of this CCCP, the City's and County's ordinances, and Appendix D of the CCCPH. If backflow protection is found to be removed or bypassed, water service will be discontinued until the issue is corrected, and fines may be imposed.

Topics addressed in this section include:

- Backflow Protection Requirements
- Protection Requirements Based on Degree of Hazard
- Hazard Assessments

5.1.1 Backflow Protection Requirements (CCCPH 3.3.2 & Rules & Regulations, Chapter 10.15.050)

5.1.1.1 Backflow Protection General Requirements

Backflow protection is required when the following conditions are present or expected to occur:

- When a premise contains an auxiliary water supply (e.g., wells, rainwater harvesting systems, and water storage tanks or cisterns), the water supply to the premises shall be protected against backflow of water from the premises into the public water system unless the auxiliary water supply is accepted as an additional source by the City.
- When a premise on which any substance is handled in such a fashion as may allow its entry into the water system shall be protected against backflow of the water from the premises into the public system. This shall include the handling of process waters and waters originating from the City's water system which have been subjected to deterioration in sanitary quality.
- When a premise has internal cross-connections that cannot be permanently corrected or controlled to the satisfaction of the City.
- When a premise has intricate piping arrangements or where entry to all or portions of the site are restricted so that inspections for cross-connections cannot be made with sufficient frequency or at sufficiently short notice to assure that no cross-connection exist.
- When a premise has a history of repeated cross-connections.

The City must ensure its distribution system is protected from backflow from identified hazards through the proper installation, continued operation, and field testing of an approved BPA according to Section 6 and 7 of this CCCP. When a DC is required or referenced in this CCCP, a DCDA or DCDA-II type of assembly

may be substituted, if appropriate. When an RP is required or referenced in this CCCP, an RPDA or RPDA-II type of assembly may be substituted, if appropriate.

The BPA installed must be no less protective than that which is commensurate with the degree of hazard at a user premises and as determined based on the results of the hazard assessment as specified in this section.

Unless specified otherwise in this section and in Section 3.2.2 of the CCCPH, the City must, at all times, protect its distribution system from high hazard cross-connections (see Appendix D of the CCCPH for examples), through premises containment through the use of AG(s) or RP(s).

Following SWRCB review and approval, the City may use internal protection in lieu of premises containment when premises containment is infeasible.

5.1.2 Protection Requirements Based on Degree of Hazard

The type of backflow protection that is required is determined based on the degree of hazard that is present at a premises. The City will determine the minimum level of protection required, but a water user may opt for a higher level of protection.

See CCCPH Appendix D for additional information on high hazard cross-connection control premises containment.

5.1.2.1 Toxic, Sewage, or Hazardous Substances

Toxic, sewage, and hazardous substances shall be protected from entering the PWS in the following manner:

1. Premises where toxic or hazardous substances are handled in any manner which may allow for contamination of the PWS shall be protected by an AG or an RP at the service connection.
2. Premises where there are wastewater pumping and/or treatment plants and there is no interconnection with the potable water system shall have a minimum protection type of AG. This does not include a single-family residence that has a sewage lift pump. An RP may be provided in lieu of an AG if approved by the City.

5.1.2.2 Auxiliary Water Supplies

Protection from auxiliary water supplies shall comply with the following:

1. Premises where there is an unapproved auxiliary water supply, which is interconnected with the PWS will use an AG.
2. Premises where there is an unapproved auxiliary water supply and there are no interconnections with the PWS will use an RP.

5.1.2.3 Commercial Fire Systems

Protection from commercial fire systems shall be no less than a DCDA and comply with the following:

1. A high hazard cross-connection fire system, including but not limited to fire systems that may utilize chemical addition (e.g., anti-freeze) or an auxiliary water supply, must have no less than RPDA protection.
2. Premises where the fire system is directly supplied from the PWS and there is an unapproved auxiliary water supply on or to the premises (not interconnected) will use an RPDA.
3. Premises where the fire system is supplied from the PWS and where either elevated storage tanks or fire pumps which take suction from the private reservoirs or tanks are used will use a DCDA.
4. All fire service connections must receive at least the same level of protection on a premises.

5.1.2.4 Single-Family Residence Fire Systems

Low hazard fire systems on single-family residential user premises will require a BPA unless the following five criteria are met:

1. The user premises has only one service connection to the PWS;
2. A single service line onto the user premises exists that subsequently splits on the property for domestic flow and fire protection system flow, such that the fire protection system may be isolated from the rest of the user premises;
3. A single, water industry standard, water meter is provided to measure combined domestic flow and fire protection system flow;
4. The fire protection system is constructed of piping materials certified as meeting NSF/ANSI Standard 61; and
5. The fire protection system's piping is looped within the structure and is connected to one or more routinely used fixtures (such as a water closet) to prevent stagnant water.

The City's preferred protection method will be passive/purge method. The City will perform periodic inspections to confirm the system is still in compliance and meets the five criteria outlined above.

5.1.2.5 Swivel-Ell Assemblies (CCCPH 3.2.2(d))

The City does not currently have RW within the service area, but may in the future. In that case, swivel-ell assemblies shall be installed and maintained in accordance with the General Requirements (CCCPH 3.2.2(d)).

Except as otherwise allowed or prohibited in statute or in CCR Title 22, Division 4, Chapter 3, a swivel-ell assembly may be used instead of an AG for premises isolation protection when substituting interrupted tertiary recycled water use areas with potable water from a public water system in accordance with the requirements of this section.

The design and construction of the swivel-ell assembly shall adhere to the criteria detailed in Section 6.1.2 of this program. At least every 12 months, inspections shall be performed and documented confirming ongoing compliance with the design and construction-related requirements detailed in Section 6.1.2 of this Program.

The BPA used in conjunction with the swivel-ell assembly shall be tested and found to be functioning properly:

1. Immediately prior to each switchover to potable water use, and
2. At least every 12 weeks that the use site is being supplemented with potable water.

The SWRCB shall be notified within 24 hours of all switchovers to or from potable water, will be given an estimate of the timeframe until the next switchover, and will be provided the results of the testing required in this section. A City representative shall be present to supervise each switchover. If requested by the SWRCB, the City shall submit a written report describing compliance with this subsection, as well as potable and recycled water usage information within seven days of each switchover.

5.1.2.6 Design and Construction-Related Requirements (CCCPH Appendix C)

Prior to operation of a swivel-ell, the City shall receive approval for the design and construction plans of that swivel-ell from the SWRCB. The potable water supply must not, under any circumstances, be directly connected to the RW supply, nor be designed such that the RW use site could be supplied concurrently by a RW supply and a potable water supply. The potable water supply line and the RW supply line must be offset in a manner that ensures a tee-connection, spool, or other prefabricated mechanical appurtenance(s) could not be readily utilized in lieu of the swivel-ell connection, nor result in the RW use site being supplied concurrently by RW and potable water (as depicted in Appendix C of the CCCPH). The RW supply line used in conjunction with the swivel-ell assembly must be the only RW supply to the RW use site.

The swivel-ell assembly must be installed as close as practical to the PWS service connection, with the swivel-ell connection being located as close as practical to the BPA upstream of the swivel-ell. The swivel-ell assembly must:

1. Be located above ground;
2. Be color-coded pursuant to Section 116815 of the California Health and Safety Code and its implementing regulations;
3. Include appropriate signage, as required by regulation and the SWRCB;
4. Be provided the security necessary to prevent interconnections, vandalism, unauthorized entry, etc.; and
5. Be provided with meters on both the RW service and potable water service connections.

5.1.3 Hazard Assessments (CCCPH 3.2.1 & Rules and Regulations, Chapter 10.15.060)

An evaluation of hazards on a user's premise will be performed or reviewed by a certified Cross-connection Control Specialist to determine whether a high, low, or no hazard is present. The required BPA at a user premise will be determined by the degree of hazard through observed or understood water use. The observations and final determination of the required BPA will be included in a final report that will be maintained by the City for reference.

While City staff and contracted assistance are primarily responsible for hazard assessments within the service area, Environmental Health and the backflow prevention testers approved through Environmental Health's programs, also support the Program in identifying actual or potential cross-connection hazards, degree of hazard, and any backflow protection needed.

5.1.3.1 Access for Inspection (Ordinance 4903, Section 4.72.120)

Both the City and County ordinances provide for reasonable access to any water user's premises for purposes of conducting cross-connection control surveys, inspecting BPAs, and as otherwise necessary to protect the PWS against cross-connections. If access is refused, the City has the option to discontinue water service to the premises until entry is allowed.

5.1.3.2 New Construction

The City, coordinating across departments, evaluates all new water supply requests through the review of plans and application materials submitted to the City to assess backflow protection requirements.

If a BPA is required, the City requires it to be installed and tested prior to granting water service, as is described in Section 3.3.3(a) of the CCCPH.

5.1.3.3 Existing Customers

5.1.3.3.1 Initial Hazard Assessment (CCCPH 3.2.1)

As required by the CCCPH, the City will conduct initial site hazard assessments at existing premises to evaluate the potential for backflow into the PWS. The hazard assessment will consider the following items:

1. The existence of cross-connections;
2. The type and use of materials handled and present, or likely to be, on the user premises;
3. The degree of piping system complexity and accessibility;
4. Access to auxiliary water supplies, pumping systems, or pressure systems;
5. Distribution system conditions that increase the likelihood or a backflow event;
6. User premises accessibility;
7. Any previous backflow incidents on the user premises; and
8. The requirements and information provided in the CCCPH.

The City will perform the initial assessment using a combination of the following actions:

- Review of Building Permits
- Review of as-built or record drawings
- Date of construction
- Cross reference of billing records with known backflow assemblies
- Field Inspections
- Google Maps and Aerial photos
- Reporting from BPA Testers

High hazard sites have previously had a hazard assessment performed by Environmental Health. Timelines for conducting the remaining initial hazard assessments are provided in Table 5-1.

Table 5-1. Hazard Assessment Completion Goals and Timelines

Customer Types	Tasks	Timeframes
Existing Commercial and Irrigation Services		
Commercial/Irrigation Services With Known Backflow Protection Assemblies	• Determine the Degree of Hazard for existing services with backflow preventors using SIC codes or other classifications • Survey any service the City deems necessary for further evaluation • Send notifications to users that require new installation of backflow protection	• Begin July 2025 and complete January 2026 • Complete July 2030 • Complete July 2030
Commercial/Irrigation with No Known Backflow Protection Assemblies	• Audit billing system versus backflow database system to determine services without backflows • Categorize services based on classification to assign a potential high or low hazard • Survey high hazard sites first to determine if backflow protection is required • Survey remaining sites to determine if backflow protection is required	• Complete by 2025 • Begin January 2026 • Complete July 2030 • Complete July 2030
Commercial/Fire	• Determine fire services without backflow protection assemblies • Survey services to determine a low or high hazard fire system • Begin outreach to fire services requiring backflow protection and begin process for installation	• Complete July 2025 • Begin January 2026 • Installation by 2035
Hydrant Meters	• City will inspect trucks for proper sized air gaps for “floating” meters. For fixed meters, the City will require a combination meter and RP assembly to be tested every 6 months.	• Complete and in practice
Residential Services		
Residential With Possible or Known Auxiliary Water Supplies	• Evaluate areas of the City that may have auxiliary water supplies using county well records or other City records • Begin outreach and education to homes requiring fire protection • Work with homeowners to retrofit to allow a passive/purge system of a DC	• Complete July 2026
Single Family Residential Services with Possible or Known Fire Systems	• Using permit records, service start dates, assessor information, determine age of homes that may have backflows • Begin outreach and education to homes requiring fire protection • Work with homeowners to retrofit to allow a passive/purge system or a DC	• Send notices by July 2025 • Full compliance by 2035
Single Family Residential Properties with Other Potential Hazards	• Send a City wide web-based survey to ask water users about potential hazards on their site. The survey will include educational materials. • Review building permits for swimming pools, major additions, gray water systems, or sewer pumps. Create a list of sites that may require City inspection. • Identity a sampling of homes to inspect to determine typical hazards present on residential sites • Send notices to homes that require backflow installation	• Once the City hits 60%, the City will use results to extrapolate results across the service area • Complete by 2030
Non-Testable Devices		
City Owned Non-Testable Devices	• Evaluate City owned properties to make sure plumbing fixtures are up to code	• Complete by July 2026

5.1.3.4 Follow-Up Hazard Assessments (CCCPH 3.2.1(e))

The program administrator or the Cross-Connection Control Specialist will conduct or review hazard assessments when:

1. A user premises changes ownership, excluding single-family residences
2. A user premises is newly connected to the PWS
3. Evidence exists of potential changes in the activities or materials on a user's premises
4. A backflow event from a user's premises occurs
5. Periodically according to the City's Program
6. The SWRCB requests a hazard assessment of a user's premises
7. The City concludes an existing hazard assessment may no longer be correct

The City will notify water users through a written notice requesting an inspection appointment. Any water user who cannot or will not allow an on-premises inspection of piping system will be required to install a RP or AG.

5.1.3.5 Hazard Assessment Outcomes (Ordinance 4903, Section 4.72.070)

Outcomes following the completion of hazard assessments are described in the following sections.

5.1.3.5.1 Meets Requirements

If the presently installed BPA is found to meet the requirements of the CCCPH and is found to be in good working order, then it will remain in place and be considered adequate protection.

5.1.3.5.2 Non-Complying Assembly

All presently installed BPAs which do not meet the requirements set forth in the CCCPH and this CCCP will be required to be upgraded to the appropriate BPA as determined by the City. The City will provide written notice to the customer to install, at their cost and expenses, an approved BPA within 30 calendar days. If corrective actions are not taken, the City will send a second notice that will give the customer an additional two-week period to take required corrective actions. If no action is taken within the two-week period, the City may terminate water service to the affected customer until the required corrective actions are taken.

5.1.3.5.3 New Assembly Required

If it is determined that an existing premise requires backflow protection, the City and/or Environmental Health will provide written notice to the customer to install, at their cost and expense, an approved BPA within 30 calendar days. Extensions are provided in cases where calculations of fire systems are required before installation of BPA, or BPA in vaults are required to be replaced above grade. Additional extensions may be granted upon request by facility depending on individual circumstances. If corrective action is not taken, a second notice will give the customer an additional two-week period to take required corrective action. If no action is taken after the two-week period, a termination notice of water service will be sent and hand delivered to the affected customer.

5.2 Discontinuation of Water Service (Ordinance 4903, Chapter 4.72.130)

Conditions for discontinuation of water services may include the following items:

- Refusal to install a required BPA;
- Refusal to test a BPA;
- Refusal to repair a faulty BPA;
- Refusal to replace a faulty BPA;
- Direct or indirect connection between the PWS and a sewer line;
- Unprotected direct or indirect connection between the PWS and a system or equipment containing contaminants;
- Unprotected direct or indirect connection between the PWS and an auxiliary water system; or
- A situation which presents an immediate health hazard to the PWS.

The City will make reasonable effort to advise water users, through direct contact or written notices, of the necessary corrective actions. If no action is taken within a reasonable time period, water service will be terminated. The water service will remain inactive until correction of violations has been approved by the City.

6.0 BACKFLOW PREVENTION ASSEMBLIES

Only BPAs approved and deemed acceptable by the City shall be allowed for installation by a water user to protect the PWS. Approved BPAs, which may be subjected to back-pressure or back-siphonage, must have been fully tested and granted a Certificate of Approval by a certified laboratory. The City will provide, upon request, to any water user required to install a backflow preventer a list of approved BPAs.

Approved BPAs must have passed both laboratory and field evaluation tests in accordance with standards found in any of the following:

- The latest edition of the Foundation for Cross-Connection Control and Hydraulic Research of the University of Southern California Manual of Cross-Connection Control;
- The certification requirements for BPAs in the latest edition of Standards of American Society of Safety Engineers International; or
- An equivalent testing organization approved by the SWRCB.

BPAs must not be modified from the approved configuration. The type of device required shall depend on the degree of hazard. Different types of approved BPAs are specified for various scenarios to protect the potable water supply. BPA testers are required to notify the City if a water user or City-owned backflow preventer has been modified.

6.1 Installation Requirements (CCCPH 3.3.2)

BPAs shall be installed by the customer and at their expense when found necessary or prior to installation of a new service per City standards and specifications. The BPAs shall be installed in a manner prescribed in the CCCPH and as close as practical to the user's service connection on the user premises. The final authority in determining the required location shall be the City. If internal protection is proposed for the purpose of containment, the City must be able to access the user's premises and ensure that the on-site protections meet the requirements of the CCCPH. All BPAs shall be readily accessible for field testing and maintenance.

6.1.1 Air-Gap

An AG is to be installed on the user's premises at the water user's service connection and in accordance with CCCPH requirements. The receiving water container must be located on the water user's premises at the water users service connection. Alternate locations must be approved by the City. All piping between the water users service connection and the discharge location of the receiving water container must be above grade and accessible for visual inspection. No water user shall be provided from any point between the service connection and the AG. If installed at the user service connection after the adoption of the CCCPH, the AG must be approved by the SWRCB prior to installation. The water inlet piping shall terminate a distance of twice the diameter of the effective opening, but in no case less than 1 inch above the overflow rim of the receiving tank.

6.1.1.1 Reduced Pressure Principle Backflow Prevention Assembly

The approved RP shall be installed on the user's side of and as close to the service connection as is practical. The RP shall be installed such that the lowest point of the assembly is a minimum of 12 inches above the finished grade and not more than 36 inches above grade measured from the bottom of the assembly and with a minimum of 12 inches side clearance, unless an alternative is approved by the City.

However, a minimum side clearance of 24 inches must be provided on the side of the assembly that contains the test cocks. The assembly should be installed so that it is readily accessible for maintenance and testing.

The same space requirements may be applied to RPDA assemblies.

6.1.1.2 Double Check Valve Backflow Prevention Assembly

DCs installed or replaced after the adoption of the CCCPH must be installed on the user's side of and as close to the service connection as is practical. The DC shall be installed such that the lowest point of the assembly is a minimum of 12 inches above the finished grade and not more than 36 inches above grade measured from the bottom of the assembly and with a minimum of 12 inches side clearance, unless an alternative is approved by the City. However, a minimum side clearance of 24 inches must be provided on the side of the assembly that contains the test cocks. The assembly should be installed so that it is readily accessible for maintenance and testing.

The same space requirements may be applied to DCDA assemblies.

Below ground installation can be considered if approved by the City where no alternative option is available.

6.1.1.3 Pressure Vacuum Breaker Backflow Prevention Assembly

A PVB must be installed a minimum of 12 inches above all downstream piping and outlets. A PVB may only be used for containment when no potential for backpressure is present, such as roadway right of way irrigation systems.

The same requirements may be applied to SVB assemblies.

6.1.2 Swivel-Ell Assemblies

Swivel-ells should be installed according to Appendix C of the CCCPH.

7.0 NOTIFICATION AND TESTING OF BACKFLOW PREVENTION ASSEMBLIES

7.1 BPA Testing and Notification Procedures (CCCPH 3.3.3 & Ordinance 4903, Chapter 4.72.070)

This section outlines the City's overall BPA testing and notification procedures.

7.1.1 Testing

7.1.1.1 Frequency

The City requires all BPAs with active water services be field tested upon installation, repair, or when relocated. The City requires BPAs to be field tested within 30 days of the anniversary date for the BPA as established by the Environmental Health Services Division, but never less than once every 365 days. More frequent testing may be deemed necessary based on site condition, hazards present, or as determined by the City. Prior to initiating or resuming water service, the City must receive from a BPA Tester a backflow test report form indicating a passing test.

7.1.1.2 Procedures

BPA Testers shall follow the testing procedures according to the latest edition of the University of Southern California's Manual of Cross-Connection Control. All costs associated with testing, repairing, replacing, or overhauling a BPA shall be borne by the water user. When a BPA is inspected and has passed the testing procedure, the authorized tester shall immediately affix a numbered inspection tag to the BPA. Testing results shall be submitted to the Environmental Health Services Division on an approved testing form in electronic format or signed paper form within 10 days after the BPA test date.

7.1.1.3 New Installations

The customer must receive a passing field test for all newly installed BPAs providing containment protection before water service can be provided. In addition, visual inspections of all newly installed assemblies will be made to assess proper installation and to validate the information from the initial testing of the assembly.

7.1.1.4 Failed Field Test

When a BPA fails the testing procedure, the authorized tester shall immediately affix a "failed" inspection the to the BPA and should be repaired or replaced and retested within 30 days. Records of failed BPA tests shall be filed with the Environmental Health Services Division withing 10 days. The "failed" inspection tag shall remain affixed to the BPA until the BPA is repaired, has passed the testing procedures, and has been affixed with a numbered inspection tag. Failed assemblies may be removed for repair or replacement provided the water use is either discontinued until repair is completed and the device is returned to service, or the service connection is equipped with other backflow protection approved by the Environmental Health Services.

Pursuant to Section 116875 of the California Health and Safety Code, any failed BPA that is not "lead free" and that is not specifically exempted by Section 116875, must be replaced with an approved "lead free" BPA rather than being repaired.

7.1.2 Notifications

7.1.2.1 Notification Process

It is the responsibility of the City to verify that BPAs receive a passing field test at least once a year. Each BPA (and AG) in the Environmental Health's BPA database is assigned a "next test due date" between January and September of each calendar year (none between October and December to allow for delinquent testing to occur before December 31). To ensure testing occurs, a reminder notice to test is sent to the premise via US mail 30 days before its BPA "next test due date". If a completed test report is not received, a second notice to test is sent to the facility on the "next test due date". If a completed field test report is still not received, an Administrative Enforcement Order (AEO) is sent to the facility 30 days after the "next test due date". If a completed test report is not received within 14 days from the date on the AEO, Environmental Health will coordinate with the City on enforcement action, which may include:

- Hand delivery of AEO to the delinquent facility by the City;
- AEO with fine sent by Environmental Health to the delinquent premise;
- Potential water termination threat by the City;
- Water termination by the City; or
- Other action as seen fit by the City until compliance is met.

After results are received, next test due dates for each BPA move forward one calendar year to ensure a notice is mailed out at the appropriate time the following year.

BPA testers are required by Environmental Health Ordinance 4.72 to submit BPA results to Environmental Health within 10 days of testing.

Notifications include information regarding cross-connection control state regulations, the County Health Department's ordinance and contact information, instructions for accessing the list of backflow tester companies, processes for submitting a backflow test report, and the due date for testing.

7.1.2.2 Notification of Imminent Hazard

BPA Testers are required to notify the City within 24 hours if a backflow incident or an unprotected cross-connection is observed at a user premise during field testing. The City will immediately investigate the incident as described in Section 9 of this CCCP.

8.0 RECORD MAINTENANCE

The City will retain the records described in the following section below in electronic form and make them available to the SWRCB upon request.

8.1 Cross-Connection Control Plan

This CCCP will be retained and reviewed every five years to evaluate for necessary updates.

8.2 Hazard Assessments

The two most recent hazard assessments conducted according to Section 5.6 of this CCCP. The City has the primary responsibility for record keeping for hazard assessments.

8.3 Assembly Records

San Mateo County Environmental Health maintains a Salesforce based database containing electronic records for each BPA type, the associated hazard, location, owner, manufacturer and model, size, installation date, serial number, account number, consumer of record, and repair history.

For each AG installation, the associated hazard, the location, owner, and as-built plans of the AG, shall be maintained by a Salesforce-based database.

8.4 Testing Results

Test results on all BPAs and AGs will be kept electronically for three calendar years and will include the name, test date, repair date, and certification number of the BPA tester.

8.5 Repairs

All repairs made to BPAs for the previous three calendar years.

8.6 User Supervisors

Current contact information for the user supervisor and water user, and any applicable training and qualifications as described by Section 10.1.2 of this CCCP.

8.7 Incident Reports

Descriptions and follow-up actions related to all backflow incidents for the most recent 10 years will be retained.

8.8 Cross-Connection Control Shutdown Tests

The most recent shutdown tests or dye tests will be retained.

8.9 Contracts or Agreements

All contracts or agreements that pertain to the Cross-Connection Control Program will be retained.

8.10 Public Outreach and Educational Materials

Elements required per the CCCPH will be saved for the previous three calendar years.

9.0 INCIDENT RESPONSE AND NOTIFICATION

The City, with assistance from San Mateo County Environmental Health, will investigate potential backflow incidents when any of the following events are reported:

- Water quality complaints that cannot be explained as a "normal" aesthetic problem
- Backflow incident has been suspected or has known to have occurred
- Unknown increase or decrease of system pressure reported

Additionally, the City will initiate notification and water quality sampling procedures when a water main break or power outage causes a negative loss of water pressure within a significant area of the distribution system.

9.1 Incident Response Procedure (CCCPH 3.5.2)

In the event of a potential backflow or cross-connection related incident, the City will take the steps described in the following sections.

9.1.1 Incident Investigation

The City of San Bruno will investigate a potential incident by dispatching a Water System Operator to the location of the reported incident. Through a field investigation and under direction of the Water Quality and Production Supervisor (Cross-Connection Control Specialist), the Water System Operator will determine if contamination is present in the PWS and the extent of the impacted area. Water System Operators will perform the following tasks to investigate for the potential cross-connections:

- Survey the location and surrounding area for possible main breaks
- Investigate the location to observe for potential source(s) of contamination
- Observe the domestic meter(s) for negative consumption
- Survey hydrants, blow offs, and air inlet valves for possible sources of contamination

If a backflow incident is discovered, the City will discontinue water service to that location until a corrective action is taken.

The City will have a Cross-Connection Control Specialist or a designee familiar with investigating backflow incidents available to be reached and respond within one hour to comply with the CCCPH. If an investigation is required during non-business hours the designee will be the On-Call Water Operator who will begin the investigation and pass of the findings to the Cross-Connection Control Specialist when their shifts begin.

9.1.2 Source of Contamination Isolation

The City will isolate the portion of the system suspected of being contaminated by closing isolation valves or the water service and will notify impacted customers.

9.1.3 Notification and Coordination with Outside Agencies

The City of San Bruno will be responsible for notifying, within 24 hours, the SWRCB and the San Mateo County Public Health Officer of a potential incident.

San Mateo County Environmental Health will assist in responses to backflow incidents by joining in field response, providing representation as the health officer, following up with installation and subsequent testing requirements of BPA, and acting as an overall resource to the PWS in these instances.

9.1.4 Sampling Plan

A sampling plan will be implemented to confirm that the potable system meets Safe Drinking Water Standards. The Sampling Plan will be submitted to the SWRCB and the San Mateo County Health Officer and will describe the steps required to identify the contaminants, assess the extent of the contamination, and define the necessary remediation efforts.

9.1.5 Notification of Affected Customers

When required, the City of San Bruno will issue a Tier 1 public notification pursuant to CCR, Title 22, Section 64463.1. If the contamination is of biological nature, the City of San Bruno will issue a Boil Water Order Notice. If the contamination is of chemical nature, the City of San Bruno will issue Unsafe Water Alerts as “Do-Not-Use” or “Do-Not-Drink” Notices. Notices include instructions on what consumers should do, where potable water is available, and if applicable, dates of notice issuance and expected resolution, and location where additional information can be obtained.

9.1.6 Incident Reporting (CCCPH 3.5.3)

If required by the SWRCB, the City will submit to the SWRCB a written incident report describing the nature and severity of the backflow, the actions taken by the City in response to the incident, and any follow up actions required to prevent future incidents. The written report will contain, at a minimum, the information provided in Appendix F of the CCCPH.

10.0 PUBLIC OUTREACH, EDUCATION, AND COORDINATION

10.1 Public Outreach and Education

The City uses public outreach as an opportunity to educate the general public, staff, and BPA owners on the City's Program and the importance of testing and maintaining BPAs. Public outreach may include:

- Fliers or pamphlets
- New construction packets for developers
- Water bill inserts
- Consumer confidence report
- Emails
- Website

10.1.1 Training

The City encourages its Water Systems Operators and other staff to obtain and maintain water related certifications such as BPA Tester and Cross-Connection Control Specialist certifications.

10.1.2 User Supervisors (CCCPH 3.2.2)

The City may require, when necessary and at its discretion, a water user to designate a user supervisor. The water user shall inform the City of the user supervisor's identity on, at a minimum, an annual basis and whenever a change occurs.

The user supervisor will be responsible for monitoring BPAs and avoiding cross-connections. In the event of contamination or pollution of the PWS due to a cross-connection on the premises, the City shall be promptly notified by the user supervisor.

The user supervisor will be required to attend, at the owner's expense, a yearly training provided by the City that covers the Program, types of hazards, and concerns typically found on the user's premises.

At the time of this CCCP, no sites require a User Supervisor.

10.1.3 Inter-Agency Coordination

The City regularly coordinates with the San Mateo County Environmental Health to assist in coordination with other relevant agencies, to ensure hazard assessments can be performed, appropriate backflow protection is provided, and provide assistance in investigating backflow incidents.

10.1.4 Inter-Department Coordination

Additionally, the City's Program is handled across several departments within the City of San Bruno. Table 10-1 provides a high-level breakdown of how each department handles various aspects of the Program.

Table 10-1. Inter-Department Coordination

Entity	Responsibility	Coordination
Public Works/Water Division	• Administers the Cross-Connection Control Program • Performs hazard assessments • Coordinates with the SWRCB inspects newly installed service protection backflow assemblies for proper installation • Issues hydrant meters and performs air gap inspection	• Assumes primary responsibility in the CCCP administration • Performs field investigations • Reporting water main breaks or other water complaints for further investigation
Engineering	• Maintains City standards and specifications • Reviews development project construction plans for public infrastructure	• Ensures appropriate backflow protection as required by the Water Division is provided for new developments within the City
Building Department	• Reviews tenant improvement projects • Enforces building and plumbing codes • Identifies projects that may require a backflow due to tenant improvements	• Flags permits that contain potential hazards associated with tenant improvements • Confirms backflow assemblies are installed as part of Tenant Improvement permits
Finance	• Opens new water services	• Communicates change of use type to Water Division for review
Fire Department	• Reviews fire sprinkler plans	• Will reviews pressure and operational calculations for backflow retrofits

The City is working on how to best communicate between departments to fully protect the PWS.

Appendix A

Cross-Connection Control Policy Handbook
(Amended June 17, 2025)

State Water Resources Control Board

Cross-Connection Control Policy Handbook

Standards and Principles for California's Public Water Systems

Adopted: December 19, 2023
Effective: July 1, 2024
Amended: June 17, 2025

California Environmental Protection Agency

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Acronyms and Abbreviations

As used in this policy, acronyms and abbreviations reference the following:

Acronym or Abbreviation	***Meaning***
AB	Assembly Bill
AG	Air Gap separation
BAT	Best Available Technology
BPA	Backflow Prevention Assembly
Bus. & Prof. Code	Business and Professional Code
CA	California
CBSC	California Building Standards Commission
CCCPH	Cross-Connection Control Policy Handbook
CCR	California Code of Regulations
C.F.R.	Code of Federal Regulations
CHSC	California Health and Safety Code
Civ. Code	Civil Code
DC	Double Check valve backflow prevention assembly
DCDA	Double Check Detector backflow prevention Assembly
DCDA-II	Double Check Detector backflow prevention Assembly – type II
Division	Division of Drinking Water
EPA	Environmental Protection Agency
Gov. Code	Government Code
MCL	Maximum Contaminant Level
Pen. Code	Penal Code
PVB	Pressure Vacuum Breaker backsiphonage prevention assembly
PWS	Public Water System
RP	Reduced Pressure principle backflow prevention assembly
RPDA	Reduced Pressure principle Detector backflow prevention Assembly
RPDA-II	Reduced Pressure principle Detector backflow prevention Assembly – type II
RW	Recycled Water
SB	Senate Bill
SDWA	Safe Drinking Water Act
State Water Board	State Water Resources Control Board
SVB	Spill-resistant Pressure Vacuum Breaker backsiphonage prevention assembly
U.S.	United States

Chapter 1 – Policy Overview

1.1 Objective

The primary objective of the Cross-Connection Control Policy Handbook (CCCPH) is the protection of public health through the establishment of standards intended to ensure a public water system's (PWS) drinking water distribution system will not be subject to the backflow of liquids, gases, or other substances. In addition, by providing basic educational information on backflow prevention, the State Water Resources Control Board (State Water Board) intends to build a foundation of awareness within the regulated community regarding the importance of backflow protection and cross-connection control, leading to the implementation of a robust cross-connection control program for PWSs.

1.2 Applicability

The CCCPH and its standards apply to all California PWSs, as defined in California's Health and Safety Code (CHSC, section 116275 (h)). Compliance with this CCCPH is mandatory for all California PWSs.

1.3 Policy Development Background and Legal Authorities

Through the adoption of the CCCPH, the State Water Board is exercising its authority, under California's Safe Drinking Water Act[1] (SDWA), to establish enforceable standards applicable to California's PWSs. Failure to comply with the CCCPH may result in the issuance of compliance, enforcement, or other corrective actions against a PWS.

1.3.1 California Safe Drinking Water Act

On October 6, 2017, Assembly Bill 1671 (AB 1671) was approved and filed with the Secretary of State (see Appendix A). AB 1671 amended California's SDWA through the establishment of CHSC sections 116407 and 116555.5. AB 1671 also amended section 116810 of the CHSC, which is briefly discussed in Appendix G.

On October 2, 2019, Assembly Bill 1180 (AB 1180) was approved and filed with the Secretary of State. AB 1180 amended Section 116407 of the CHSC and added section 13521.2 to the Water Code. AB 1180 requires that the CCCPH include provisions for the use of a swivel or changeover device (swivel-ell).

[1] CHSC, div. 104, pt. 12, ch. 4, section 116270 et seq.

AB 1671 and 1180 established the following:

- The State Water Board must adopt standards for backflow protection and cross-connection control by January 1, 2020.
- The State Water Board may establish standards for backflow protection and cross-connection control through the adoption of the CCCPH, with the CCCPH not being subject to the requirements of the CA Administrative Procedure Act.[2]
- If standards for backflow protection and cross-connection control are established via the CCCPH, the State Water Board must:
    - Consult with state and local agencies and persons, identified by the State Water Board, as having expertise on the subject of backflow protection and cross-connection control.
    - Hold at least two public hearings before adoption of the CCCPH.
    - Post the CCCPH on the State Water Board website.
- Upon the effective date of the CCCPH, the previous cross-connection control standards[3] become inoperative, and are repealed 90 days later, unless the State Water Board determines not to repeal a specific existing regulation.
- A PWS must implement a cross-connection control program that complies with the standards adopted by the State Water Board.
- Use of a swivel-ell must be consistent with any notification and backflow protection provisions contained in the CCCPH.

The development of the CCCPH included consultation with stakeholders, including state and local agencies, on an array of subjects related to cross-connection control, consistent with the statutory mandate, as well as consideration of input from other stakeholders and the general public in a February 20, 2020 workshop.

Prior to adoption of the CCCPH, in accordance with the statutory mandate, the State Water Board held two public hearings - one on April 27, 2021, and the other on December 5, 2022. A Board Workshop was held on October 18, 2023.

Pursuant to sections 116407 and 116555.5 of the CHSC, the State Water Board chose to adopt standards for backflow protection and cross-connection control through the adoption of this CCCPH, which became effective July 1, 2024.

Aside from the mandates of AB 1671 related to the State Water Board's need and authority to develop and adopt an enforceable CCCPH, there are long-standing statutory mandates in California's SDWA concerning backflow protection and cross-connection control, some of which are summarized below.

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[2] Gov. Code, tit. 2, div. 3, pt. 1, ch. 3.5, section 11340 et seq.
[3] Cal. Code Regs., tit. 17, div. 1, ch. 5, subch. 1, grp. 4, arts. 1 & 2, section 7583 et seq.

- The State Water Board is required to adopt regulations for the control of cross-connections that it determines to be necessary for ensuring PWSs "distribute a reliable and adequate supply of pure, wholesome, potable, and healthy water." (CHSC section 116375, subd. (c).)
- Any person who owns a PWS is required to ensure that the distribution system will not be subject to backflow under normal operating conditions. (CHSC section 116555, subd. (a)(2).)

Prior to AB 1671 and the adoption of this CCCPH, California's regulations pertaining to cross-connection control were set forth in regulations in CCR Title 17,[4] which were adopted in 1987 with minor revisions in 2000. Although still protective to public health, the CCR Title 17 cross-connection regulations required updating as both the drinking water and cross-connection control industries had evolved. This CCCPH updates those regulations, which as previously noted are no longer operative following the adoption of the CCCPH.

The State Water Board may update its standards for backflow protection and cross-connection control through revisions of the CCCPH. Prior to adopting substantive revisions to the CCCPH, the State Water Board will consult with state and local agencies and persons identified as having expertise on the subject by the State Water Board, and the State Water Board will hold at least one public hearing to consider public comments.

[4] Cal. Code Regs., tit. 17, div. 1, ch. 5, subch. 1, grp. 4, arts. 1 & 2, section 7583 et seq.

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Chapter 2 – Background on Backflow Protection and Cross-Connection Control

2.1 What is a Cross-Connection?

A cross-connection is an interconnection between a potable water supply and a non-potable source via any actual or potential connection or structural arrangement between a PWS and any source or distribution system containing liquid, gas, or other substances not from an approved water supply. Bypass arrangements, jumper connections, removable sections, improperly installed swivel or change-over devices and other temporary or permanent devices through which, or because of which backflow can occur are considered to be cross-connections.[5] The CCCPH includes acceptable installation criteria for swivel-ell and other types of backflow prevention assemblies (BPAs) to prevent backflow.

Backflow is the undesired or unintended reversal of flow of water and/or other liquids, gases, or other substances into a PWS's distribution system or approved water supply.

The presence of a cross-connection represents a location in a distribution system through which backflow of contaminants or pollutants can occur. Backflow occurs when a non-potable source is at a greater pressure than the potable water distribution system. Backflow can occur from either backsiphonage or backpressure. Backsiphonage occurs when a non-potable source enters the drinking water supply due to negative (i.e., sub-atmospheric) distribution system pressure. Backpressure occurs when the pressure from a non-potable source exceeds the pressure in the potable water distribution system.

Backsiphonage may be caused by a variety of circumstances, such as main breaks, flushing, pump failure, or emergency firefighting water demand. Backpressure may occur when heating, cooling, waste disposal, or industrial manufacturing systems are connected to potable supplies and the pressure in the external system exceeds the pressure in the distribution system. Both situations act to change the direction of water, which normally flows from the distribution system to the customer, so that non-potable substances from industrial, commercial, or residential premises flows back into the distribution system through a cross-connection.

Cross-connections are not limited to industrial or commercial facilities. Submerged inlets are found on many common plumbing fixtures and are sometimes necessary features of the fixtures if they are to function properly. Examples of this type of design are siphon-jet urinals or water closets, flushing rim slop sinks, and dental cuspidors.

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[5] California Department of Health Services (DHS), Public Water Supply Branch. (1988). *Guidance Manual for cross connection Control Program (Green Manual).* California Department of Health Services.

Older bathtubs and lavatories may have supply inlets below the flood level rims, but modern sanitary design has minimized or eliminated this cross-connection in new fixtures. Chemical and industrial process vats sometimes have submerged inlets where the water pressure is used as an aid in diffusion, dispersion and agitation of the vat contents. Even though a supply pipe may be installed above a vat, backsiphonage can still occur. Siphon action has been shown to raise a liquid in a pipe such as water almost 34 feet. Some submerged inlets are difficult to control, including those which are not apparent until a significant change in water level occurs or where a supply may be conveniently extended below the liquid surface by means of a hose or auxiliary piping. A submerged inlet may be created in numerous ways, and its detection may be difficult.

Chemical and biological contaminants have caused illness and deaths during known incidents of backflow, with contamination affecting several service connections, and the number of incidents reported is believed to be a small percentage of the total number of backflow incidents that actually occur. The public health risk from cross-connections and backflow is a function of a variety of factors including cross-connection and backflow occurrence and type and amount of contaminants.

2.2 Purpose of a Cross-Connection Control Program

The purpose of a cross-connection control program is to prevent the occurrence of backflow into a PWS's distribution system in order to protect customers from contamination or pollution from any on-site hazards. Properly installed and maintained BPAs, devices or methods provide protection against the threat posed by many conditions typically found on a user's premise.

The use of approved BPAs ensures that the appropriate performance evaluation of the assembly was conducted. It is important and required by the CCCPH to select and properly install an approved BPA that is capable of protecting the distribution system from the hazard identified. The success of a program depends on individuals that are knowledgeable about cross-connection control to identify actual and potential hazards, apply principles of backflow protection and prevention, and implement cross-connection control policies and procedures. A successful program will have ongoing surveillance of a PWS to ensure BPAs, devices or methods are working, and identify new hazards or changes in the distribution system. Certified specialists are needed to properly evaluate the degree of hazard that exists in the distribution system. Hazards typically identified in distribution systems along with the required level of protection are specified in Chapter 3 of the CCCPH.

2.3 Notes on Applicability of the Cross-Connection Control Policy Handbook

The CCCPH provides the basis for regulating the use and management of cross-connection control programs and BPAs in PWSs, and related requirements for supporting programs and policies. Activities or uses outside of the scope of the

authority of the State Water Board to regulate PWSs are not regulated by the CCCPH, including California Plumbing Code requirements and definitions not related to PWSs.

Recycled water cross-connection control installations and programs for the purposes of protecting the recycled water supply are not regulated by the CCCPH, although a PWS that uses recycled water is regulated by the CCCPH to ensure that a PWS's drinking water system has adequate backflow protection from a recycled water system.

Water systems that do not meet the definition of a PWS (e.g. "State Small Water Systems" under CCR Title 22, Article 3) are not regulated by the CCCPH, although they may need to comply with the California Plumbing Code, local health agencies, and other laws or entities.

Transient noncommunity and nontransient noncommunity systems are PWSs and must comply with both the California Plumbing Code and CCCPH. The California Plumbing Code and the CCCPH will overlap in protection of these user premises. To ensure compliance, these noncommunity water systems may need to have internal cross-connection control programs within the user premises.

Noncommunity water systems must have the ability to enforce backflow protection within the premises. Compliance with the California Plumbing Code can be verified by the PWS and used for compliance with the CCCPH. Compliance with the CCCPH is documented through the hazard assessment and maintenance of an inventory of field-testable BPAs and methods. Annual field testing of BPAs is required. Where the minimum backflow protection differs between the California Plumbing Code and the CCCPH, the more protective minimum protection will be required.

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Chapter 3 – Standards for Backflow Protection and Cross-Connection Control

Article 1 – Definitions and General Requirements

3.1.1 Definitions

The following definitions apply to the terms used in the CCCPH:

"**Air-gap separation**" or "**AG**" means a physical vertical separation of at least two (2) times the effective opening, as defined in section 207.0 of the California Plumbing Code, between the free-flowing discharge end of a potable water supply pipeline and the flood level of an open or non-pressurized receiving vessel, and in no case less than one (1) inch.

"**Approved water supply**" means a water source that has been approved by the State Water Board for domestic use in a public water system and designated as such in a domestic water supply permit issued pursuant to section 116525 of the CHSC.

"**Auxiliary water supply**" means a source of water, other than an approved water supply, that is either used or equipped, or can be equipped, to be used as a water supply and is located on the premises of, or available to, a water user.

"**Backflow**" means an undesired or unintended reversal of flow of water and/or other liquids, gases, or other substances into a public water system's distribution system or approved water supply.

"**Backflow prevention assembly**" or "BPA" means a mechanical assembly designed and constructed to prevent backflow, such that while in-line it can be maintained and its ability to prevent backflow, as designed, can be field tested, inspected and evaluated.

"**Backflow prevention assembly tester**" means a person who is certified as a backflow prevention assembly tester.

*"***Community water system"** means a public water system that serves at least 15 service connections used by yearlong residents or regularly serves at least 25 yearlong residents of the area served by the system.

*"***Contact hour"** means not less than 50 minutes of a continuing education course.

*"***Continuing education course"** means a presentation or training that transmits information related to cross-connection control programs and backflow prevention and protection.

"**Cross-connection**" means any actual or potential connection or structural arrangement between a public water system, including a piping system connected to the public water system and located on the premises of a water user or available to the water user, and any source or distribution system containing liquid, gas, or other substances not from an approved water supply.

"**Cross-connection control specialist**" means a person who is certified as a cross-connection control specialist.

"**Distribution system**" has the same meaning as defined in section 63750.50 of CCR, Title 22, Division 4, Chapter 2.

"**Double check detector backflow prevention assembly**" or "**DCDA**" means a double check valve backflow prevention assembly that includes a bypass with a water meter and double check backflow prevention assembly, with the bypass's water meter accurately registering flow rates up to two gallons per minute and visually showing a registration for all rates of flow. This type of assembly may only be used to isolate low hazard cross-connections. See Diagram 1, Appendix C.

"**Double check detector backflow prevention assembly – type II**" or "**DCDA-II**" means a double check valve backflow prevention assembly that includes a bypass around the second check, with the bypass having a single check valve and a water meter accurately registering flow rates up to two gallons per minute and visually showing a registration for all rates of flow. This type of assembly may only be used to isolate low hazard cross-connections. See Diagram 2, Appendix C.

"**Double check valve backflow prevention assembly**" or "**DC**" means an assembly consisting of two independently-acting internally-loaded check valves, with tightly closing shut-off valves located at each end of the assembly (upstream and downstream of the two check valves) and fitted with test cocks that enable accurate field testing of the assembly. This type of assembly may only be used to isolate low hazard cross-connections. See Diagram 3, Appendix C.

"**Existing public water system**" or "**existing PWS**" means a public water system initially permitted on or before July 1, 2024 as a public water system by the State Water Board.

"Hazard Assessment" means an evaluation of a user premises designed to evaluate the types and degrees of hazard at a user's premises.

"**High hazard cross-connection**" means a cross-connection that poses a threat to the potability or safety of the public water supply. Materials entering the public water supply through a high hazard cross-connection are contaminants or health hazards. See Appendix D for some examples.

"**Low hazard cross-connection**" means a cross-connection that has been found to not pose a threat to the potability or safety of the public water supply but may adversely affect the aesthetic quality of the potable water supply. Materials entering the public water supply through a low hazard cross-connection are pollutants or non-health hazards.

"**New public water system**" or "**new PWS**" means a public water system permitted after July 1, 2024 as a public water system by the State Water Board. A new public water system includes a public water system receiving a new permit because of a change in ownership.

"**Noncommunity water system"** means a public water system that is not a community water system.

"**Nontransient noncommunity water system"** means a public water system that is not a community water system and that regularly serves at least 25 of the same persons over six months per year.

"**Premises containment**" means protection of a public water system's distribution system from backflow from a user's premises through the installation of one or more air gaps or BPAs, installed as close as practical to the user's service connection, in a manner that isolates the water user's water supply from the public water system's distribution system.

"**Pressure vacuum breaker backsiphonage prevention assembly**" or "**PVB**" means an assembly with an independently-acting internally-loaded check valve and an independently-acting loaded air inlet valve located on the discharge side of the check valve; with test cocks and tightly closing shutoff valves located at each end of the assembly that enable accurate field testing of the assembly. This type of assembly may only be used for protection from backsiphonage and is not to be used to protect from backpressure. See Diagram 4, Appendix C.

"**Public water system**" or "**PWS**" has the same meaning as defined in section 116275(h) of the CHSC.

"**Recycled Water"** is a wastewater which as a result of treatment is suitable for uses other than potable use.

"**Reduced pressure principle backflow prevention assembly**" or "**RP**" means an assembly with two independently acting internally-loaded check valves, with a hydraulically operating mechanically independent differential-pressure relief valve located between the check valves and below the upstream check valve. The assembly shall have shut-off valves located upstream and downstream of the two check-valves, and test cocks to enable accurate field testing of the assembly. See Diagram 5, Appendix C.

"**Reduced pressure principle detector backflow prevention assembly**" or "**RPDA**" means a reduced pressure principle backflow prevention assembly that includes a bypass with a water meter and reduced pressure principle backflow prevention assembly, with the bypass's water meter accurately registering flow rates up to two gallons per minute and visually showing a registration for all rates of flow. See Diagram 6, Appendix C.

"**Reduced pressure principle detector backflow prevention assembly – type II**" or "**RPDA-II**" means a reduced pressure principle backflow prevention assembly that includes a bypass around the second check, with the bypass having a single check valve and a water meter accurately registering flow rates up to two gallons per minute and visually showing a registration for all rates of flow. See Diagram 7, Appendix C.

"**Spill-resistant pressure vacuum breaker backsiphonage prevention assembly**" or "**SVB**" means an assembly with an independently-acting internally-loaded check valve and an independently-acting loaded air inlet valve located on the discharge side of the check valve; with shutoff valves at each end and a test cock and bleed/vent port, to enable accurate field testing of the assembly. This type of assembly may only be used for protection from backsiphonage and is not to be used to protect from backpressure. See Diagram 8, Appendix C.

"**State Water Board**", unless otherwise specified, means the State Water Resources Control Board or the local primacy agency having been delegated the authority to enforce the requirements of the CCCPH by the State Water Resources Control Board.

"**Swivel-Ell**" means a reduced pressure principle backflow prevention assembly combined with a changeover piping configuration (swivel-ell connection) designed and constructed pursuant to this Chapter. See design and construction criteria, as well as Diagrams 9a and 9b, Appendix C.

"**Transient noncommunity water system"** means a noncommunity water system that does not regularly serve at least 25 of the same persons over six months per year.

"**User premises**" means the property under the ownership or control of a water user and is served, or is readily capable of being served, with water via a service connection with a public water system.

"**User's service connection**" means either the point where a water user's piping is connected to a water system or the point in a water system where the approved water supply can be protected from backflow using an air gap or backflow prevention assembly.

"**User Supervisor"** means a person designated by a water user to oversee a water use site and responsible for the avoidance of cross-connections.

"**Water supplier**" means a person who owns or operates a public water system.

"**Water user**" means a person or entity who is authorized by the PWS to receive water.

3.1.2 Applicability

A public water system (PWS) must comply with the requirements of the CCCPH.

3.1.3 Program for Public Water System Cross-Connection Control

(a) A PWS must protect the public water supply through implementation and enforcement of a cross-connection control program. Unless otherwise specified by this Chapter or directed by the State Water Board, a PWS may implement its cross-connection control program, in whole or in part, either directly or by way of contract or agreement with another party. The PWS, however, shall not be responsible for abatement of cross-connections which may exist within a user's premises. The cross-connection control program must include at a minimum the following elements:

(1) **Operating rules or ordinances** – Each PWS must have operating rules, ordinances, by-laws or a resolution to implement the cross-connection program. The PWS must have legal authority to implement corrective actions in the event a water user fails to comply in a timely manner with the PWS's provisions regarding the installation, inspection, field testing, or maintenance of BPAs required pursuant to this Chapter. Such corrective actions must include the PWS's ability to perform at least one of the following:

(A) deny or discontinue water service to a water user,
(B) install, inspect, field test, and/or maintain a BPA at a water user's premises, or
(C) otherwise address in a timely manner a failure to comply with the cross-connection control program.

(2) **Cross-Connection Control Program Coordinator** – The PWS must designate at least one individual involved in the development of and be responsible for the reporting, tracking, and other administration duties of its cross-connection control program. For PWS with 3,000 service connections or more the Cross-Connection Control Program Coordinator must be a cross-connection control specialist.
(3) **Hazard Assessments** – The PWS must survey its service area and conduct hazard assessments per Article 2 of this Chapter that identifies actual or potential cross-connection hazards, degree of hazard, and any backflow protection needed.
(4) **Backflow Prevention** – The PWS must ensure that actual and potential cross-connections are eliminated when possible or controlled by the installation of approved BPAs or AG's consistent with the requirements of the Article 3 of this Chapter.

(5) **Certified Backflow Prevention Assembly Testers and Certified Cross-Connection Control Specialists** – The PWS must ensure all BPA testers and cross-connection control specialists used are certified per Article 4 of this Chapter.
(6) **Backflow Prevention Assembly Testing** – The PWS must develop and implement a procedure for ensuring all BPAs are field tested, inspected, and maintained and AG's are inspected and maintained in accordance with CCCPH section 3.3.3.
(7) **Recordkeeping** – The PWS must develop and implement a recordkeeping system in accordance with CCCPH section 3.5.1.
(8) **Backflow Incident Response, Reporting and Notification** – The PWS must develop and implement procedures for investigating and responding to suspected or actual backflow incidents in accordance with Article 5 of this chapter.
(9) **Public Outreach and Education –** The PWS must implement a cross-connection control public outreach and education program element that includes educating staff, customers, and the community about backflow protection and cross-connection control. The PWS may implement this requirement through a variety of methods which may include providing information on cross-connection control and backflow protection in periodic water bill inserts, pamphlet distribution, new customer documentation, email, and consumer confidence reports.
(10) **Local Entity Coordination** – The PWS must coordinate with applicable local entities that are involved in either cross-connection control or public health protection to ensure hazard assessments can be performed, appropriate backflow protection is provided, and provide assistance in the investigation of backflow incidents. Local entities may include but are not limited to plumbing, permitting, or health officials, law enforcement, fire departments, maintenance, and public and private entities.

(b) The cross-connection control program must be developed in consultation with a cross-connection control specialist if:

(1) The PWS has 1,000 or more service connections, or
(2) required by the State Water Board.

(c) A PWS must have at least one cross-connection control specialist as a permanent or contracted employee of the PWS, and that specialist, or their designee, must be able to be contacted within one hour, if:

(1) The PWS has 3,000 or more service connections, or
(2) the PWS has less than 3,000 service connections and is directed by the State Water Board based on hazard assessments conducted pursuant to CCCPH section 3.2.1. or the PWS's history of backflow incidents.

3.1.4 Plan for Public Water System Cross-Connection Control

(a) After adoption of the CCCPH, each PWS must submit a written Cross-Connection Control Plan for State Water Board review in accordance with the following schedule:

(1) An Existing PWS must submit the Cross-Connection Control Plan no later than 12 months after the effective date of the CCCPH.
(2) A new PWS must submit the Cross-Connection Control Plan for review and approval prior to issuance of a domestic water supply permit.
(3) A PWS may submit a written request to the State Water Board for an extension of the deadline for submittal of its initial Cross-Connection Control Plan. The PWS's application must include a written description of the need for an extension. Approval of an extension will be at the sole discretion of the State Water Board.

(b) The Cross-Connection Control Plan for a community water system must include, at a minimum, the following cross-connection control program procedures and documentation:

(1) a description of how the community water system will achieve and maintain compliance with each requirement in this Chapter;
(2) a description of the process, personnel, and timeframes for completing initial and ongoing hazard assessments pursuant to CCCPH section 3.2.1;
(3) a description of the legal authority pursuant to CCCPH section 3.1.3 to implement corrective actions in the event a water user fails to comply in a timely manner with the provisions of the PWS's cross-connection control program;
(4) a description of the process and timeframes for ensuring each BPA is inspected and field tested, and AG is inspected, at a frequency no less than required by this Chapter;
(5) a description of the process and timeframe for ensuring each non-testable backflow preventer that is under the PWS ownership or administration is installed and maintained according to the California Plumbing Code;
(6) a description of the process for ensuring individuals field testing and inspecting BPAs are no less qualified than required by this Chapter, including but not limited to confirmation of the individual's:

(A) certification as a backflow prevention assembly tester,
(B) field test kit or gage equipment accuracy verification, and
(C) BPA field test result reports;

(7) a description of the procedures and timeframes of activities for responding to backflow incidents, including notification of customers, and reporting of backflow incidents pursuant to CCCPH section 3.5.2;
(8) contact information for cross-connection control personnel including any cross-connection control program coordinator and specialist;
(9) a description of the tracking system that maintains current and relevant information, including:

(A) recordkeeping information required pursuant to CCCPH section 3.5.1,
(B) location and type of each BPA, and
(C) highest threat potential hazard from which a given BPA is protecting the public water system distribution system;

(10) for user supervisors, if used, the required information pursuant to CCCPH section 3.2.2 (f);
(11) the corrective actions, including timeframes for the corrective actions, that a community water system will implement when:

(A) a cross-connection exists and the BPA installed is not commensurate with the user premises' hazard or no BPA has been installed, or
(B) a BPA needs to be replaced or maintained;

(12) a description of the public outreach and education program to comply with CCCPH section 3.1.3(a)(9); and
(13) the procedures for coordination with local entities

(c) The Cross-Connection Control Plan for a noncommunity water system must include, at a minimum, the following cross-connection control program procedures and documentation:

(1) a description of how the noncommunity water system will achieve and maintain compliance with each requirement in this Chapter that is applicable to the noncommunity water system;
(2) a description of the process, personnel, and timeframes for completing initial and ongoing hazard assessments pursuant to CCCPH section 3.2.1;
(3) a description of the legal authority pursuant to CCCPH section 3.1.3 to implement corrective actions in the event a water user fails to comply in a timely manner with the provisions of the PWS's cross-connection control program;
(4) a description of the process and timeframes for ensuring each BPA is inspected and field tested and AG is inspected, at a frequency no less than required by this Chapter;
(5) a description of the process and timeframe for ensuring each non-testable backflow preventer for internal protection that is under the PWS ownership or administration is installed and maintained according to the California Plumbing Code;
(6) a description of the process for ensuring individuals field testing and inspecting BPAs are no less qualified than required by this Chapter, including but not limited to confirmation of the individual's:

(A) certification as a backflow prevention assembly tester,
(B) field test kit or gage equipment accuracy verification, and
(C) BPA field test result reports;

(7) a description of the procedures and timeframes of activities for responding to backflow incidents, including notification of customers, and reporting of backflow incidents pursuant to CCCPH section 3.5.2;
(8) contact information for cross-connection control personnel including the cross-connection control program coordinator;
(9) maintaining a tracking system with current and relevant information, including:

(A) recordkeeping information required pursuant to CCCPH section 3.5.1,
(B) location and type of each BPA,
(C) location and type of each non-testable backflow preventer used for internal protection in accordance with the California Plumbing Code, if applicable, and
(D) potential hazard from which a BPA is protecting the public water system distribution system;

(10) for user supervisors, if used, the required information pursuant to CCCPH section 3.2.2(f);
(11) the corrective actions, including timeframes for the corrective actions, that a noncommunity water system will implement when:

(A) a cross-connection exists and the BPA installed is not commensurate with the user premises' hazard or no BPA has been installed, or
(B) a BPA or non-testable backflow preventer needs to be replaced or maintained;

(12) a description of the public outreach and education program to comply with CCCPH section 3.1.3(a)(9); and,
(13) the procedures for coordination with local entities (e.g., local health departments with internal cross-connection control programs, building officials, plumbing officials, etc.).

(d) A PWS must ensure its Cross-Connection Control Plan is, at all times, representative of the current operation of its Cross-Connection Control program. The PWS must make its Cross-Connection Control Plan available to the State Water Board for review upon request. If a PWS makes a substantive revision to its Cross-Connection Control Plan, the PWS must submit the revised Cross-Connection Control Plan to the State Water Board for review.

Article 2 – Hazard Assessments and Required Protection

3.2.1 Hazard Assessments

(a) To evaluate the potential for backflow into the PWS, each community water system must conduct an initial hazard assessment of the user premises within its service area and each noncommunity water system must conduct an initial hazard assessment of its water distribution system. The hazard assessment must consider:

(1) The existence of cross-connections;
(2) the type and use of materials handled and present, or likely to be, on the user premises;
(3) the degree of piping system complexity and accessibility;
(4) access to auxiliary water supplies, pumping systems, or pressure systems;
(5) distribution system conditions that increase the likelihood of a backflow event (e.g., hydraulic gradient differences impacted by main breaks and high water-demand situations, multiple service connections that may result in flow-through conditions, etc.);
(6) user premises accessibility;
(7) any previous backflow incidents on the user premises; and
(8) the requirements and information provided in the CCCPH.

(b) Each hazard assessment must identify the degree of hazard to the PWS's distribution system as either a high hazard cross-connection, a low hazard cross-connection, or having no hazard. Examples of some high hazard cross-connection activities may be found in Appendix D.

(c) The hazard assessment must determine whether an existing BPA, if any, provides adequate protection based on the degree of hazard.

(d) Hazard assessments completed prior to the adoption of the CCCPH may be considered as an initial hazard assessment provided that such hazard assessments and associated backflow protection provide protection consistent with the CCCPH and the PWS describes their review of these assessments in the Cross-Connection Control Plan required in CCCPH section 3.1.4.

(e) Subsequent to the initial hazard assessment described in subsection (a), a community water system must perform a hazard assessment under the following criteria:

(1) if a user premises changes account holder, excluding single-family residences;
(2) if a user premises is newly or re-connected to the PWS;
(3) if evidence exists of changes in the activities or materials on a user's premises;
(4) if backflow from a user's premises occurs;
(5) periodically, as identified in the PWS's Cross-Connection Control Plan required pursuant to CCCPH section 3.1.4.;

(6) if the State Water Board requests a hazard assessment of a user's premises; or
(7) if the PWS concludes an existing hazard assessment may no longer accurately represent the degree of hazard.

(f) Noncommunity water systems must conduct an initial or follow-up hazard assessment within three years of the effective date of the CCCPH.

(g) Noncommunity water system must conduct a follow-up hazard assessment of its water distribution system if any changes are made that could result in a cross-connection or any backflow incidents occur.

(h) A cross-connection control specialist must review or conduct each initial and follow-up hazard assessment pursuant to this section and make a written finding that, in the specialist's judgment based on cross-connection control principles, the PWS's hazard assessment properly identified all hazards at the time of the assessment, the appropriate degree of hazards, and the corresponding backflow protection.

3.2.2 Backflow Protection Required

(a) A PWS must ensure its distribution system is protected from backflow from identified hazards through the proper installation, continued operation, and field testing of an approved BPA (see Article 3 for installation and approved BPA criteria). When a DC is required or referenced in the CCCPH, a DCDA or DCDA-II type of assembly may be substituted if appropriate. When an RP is required or referenced in the CCCPH, an RPDA or RPDA-II type of assembly may be substituted if appropriate.

(b) The BPA installed must be no less protective than that which is commensurate with the degree of hazard at a user premises, as specified in this Chapter and as determined based on the results of the hazard assessment conducted pursuant to CCCPH section 3.2.1.

(c) Unless specified otherwise in this Chapter, a PWS must, at all times, protect its distribution system from high hazard cross-connections (see Appendix D for examples), through premises containment, through the use of AG(s) or RP(s).

(1) Following State Water Board review and approval, a PWS may implement an alternate method of premises containment in lieu of a required AG provided that the proposed alternative would not increase the level of risk to protection of public health.
(2) Following State Water Board review and approval, a PWS may accept internal protection in lieu of containment when premises containment is not feasible.

(d) Except as otherwise allowed or prohibited in statute or in CCR Title 22, Division 4, Chapter 3, a swivel-ell may be used instead of an AG for premises containment protection when temporarily substituting tertiary recycled water use areas with potable water from a PWS if all the following criteria are met:

(1) the swivel-ell is approved by the State Water Board;
(2) the PWS has a cross-connection control program, required pursuant to CCCPH section 3.1.3, and the use and operation of the swivel-ell is described in the Cross-Connection Control Plan required pursuant to CCCPH section 3.1.4;
(3) the design and construction-related requirements of the swivel-ell adheres to the criteria in Appendix C;
(4) at least every 12 months, inspections are performed and documented to confirm ongoing compliance with the design and construction-related requirements in Appendix C;
(5) the RP used in conjunction with the swivel-ell is field tested and found to be functioning properly:

(A) immediately upon each switchover to potable water use, a visual inspection of the RP must be completed
(B) within 72 hours of each switchover to potable water use, a field test must be completed, and
(C) at least every 12 weeks the use site is supplied with potable water; and

(6) there is a legally binding agreement between the PWS and the entity supplying the recycled water, signed by those with relevant legal authority, that includes the following requirements:

(A) The State Water Board will be notified within 24 hours of all switchovers to or from potable water, will be given an estimate of the timeframe until the next switchover, and will be provided the results of the field testing required in paragraph (5);
(B) a trained representative of the PWS be present to supervise each switchover; and
(C) within seven days of each switchover, if requested by the State Water Board, the PWS will submit a written report describing compliance with this subsection, as well as potable and recycled water usage information.

(e) Except as noted below, a PWS must ensure its distribution system is protected with no less than DC protection for a user premises with a fire protection system within ten years of the effective date of the CCCPH.

(1) A high hazard cross-connection fire protection system, including but not limited to fire protection systems that may utilize chemical addition (e.g., wetting agents, foam, anti-freeze, corrosion inhibitor, etc.) or an auxiliary water supply, must have no less than RP protection.

(2) For existing fire protection systems that do not meet Section 3.2.2 (e)(3) or cannot install DC protection within ten years of the effective date of the CCCPH, a PWS may propose in the cross-connection control plan submitted for CCCPH Section 3.1.4:

(A) an alternative date; or
(B) an alternative method of backflow protection that provides at least the same level of protection to public health.

(3) A BPA is not necessary for a low hazard fire protection system on a residential user premises if the following criteria are satisfied:

(A) the user premises has only one service connection to the PWS;
(B) a single service line onto the user premises exists that subsequently splits on the property for domestic flow and fire protection system flow, such that the fire protection system may be isolated from the rest of the user premises;
(C) a single, water industry standard, water meter is provided to measure combined domestic flow and fire protection system flow;
(D) the fire protection system is constructed of piping materials certified as meeting NSF/ANSI Standard 61; and
(E) the fire protection system's piping is looped within the structure and is connected to one or more routinely used fixtures (such as a water closet) to prevent stagnant water.

(f) The State Water Board and PWS may, at their discretion, require a water user to designate a user supervisor when the user premises has a multi-piping system that conveys various types of fluids and where changes in the piping system are frequently made. If a user supervisor is designated the following is required:

(1) The user supervisor is responsible for the avoidance of cross-connections during the installation, operation and maintenance of the water user's pipelines and equipment. The user supervisor must be trained on the fluids used and backflow protection for the premise, and must inform the PWS of changes in piping, and maintain current contact information on file with the PWS; and
(2) The PWS must include in the Cross-Connection Control Plan required in CCCPH section 3.1.4 the training and qualification requirements for user supervisors, identify the entity that will provide the user supervisor training, and frequency of any necessary recurring training. The training must adequately address the types of hazards and concerns typically found.

(g) Facilities producing, treating, storing, or distributing drinking water that are an approved water supply or water recycling plants as defined by CCR Title 22, Section 60301.710 must have proper internal protection from cross-connections to ensure that all drinking water produced and delivered to customers and workers at those facilities is free from unprotected cross-connections.

Article 3 – Backflow Prevention Assemblies

3.3.1 Standards for Types of Backflow Protection

(a) The PWS must ensure that each AG used for its Cross-Connection Control Program meets the requirements in Table 1, Minimum Air Gaps for Generally used Plumbing Fixtures, page 4 of the American Society of Mechanical Engineers (ASME) A112.1.2-2012(R2017) (See Appendix B).

(b) The PWS must ensure that each replaced or newly installed PVB, SVB, DC, and RP for protection of the PWS is approved through both laboratory and field evaluation tests performed in accordance with at least one of the following:

> (1) Standards found in Chapter 10 of the *Manual of Cross-Connection Control, Tenth Edition*, published by the University of Southern California Foundation for Cross-Connection Control and Hydraulic Research; or
> (2) certification requirements for BPAs in the Standards of ASSE International current as of 2022 that include ASSE 1015-2021 for the DC, ASSE 1048-2021 for the DCDA & DCDA-II, ASSE 1013-2021 for the RP, and ASSE 1047-2021 for the RPDA & RPDA-II and must have the 1YT mark.

(c) BPAs must not be modified following approval granted under section 3.3.1 (b). PWS must require BPA testers to notify the PWS if a water user or PWS-owned BPA has been modified from the CCCPH section 3.3.1 (b) approval.

3.3.2 Installation Criteria for Backflow Protection

(a) For AGs, the following is required:

> (1) The receiving water container must be located on the water user's premises at the water user's service connection unless an alternate location has been approved by the PWS;
> (2) all piping between the water user's service connection and the discharge location of the receiving water container must be above finished grade and be accessible for visual inspection unless an alternative piping configuration is approved by the PWS;
> (3) the PWS must ensure that the AG specified in CCCPH section 3.3.1 (a) has been installed; and
> (4) any new air gap installation at a user's service connection must be reviewed and approved by the State Water Board prior to installation.

(b) RPs must be installed such that the lowest point of an assembly is a minimum of twelve inches above grade, and, unless an alternative is approved by the PWS, a maximum of thirty-six inches above the finished grade.

(c) DCs installed or replaced after the adoption of the CCCPH must be installed according to CCCPH section 3.3.2 (b). Below ground installation can be considered if approved by the PWS where it determines no alternative options are available.

(d) A PVB or SVB must be installed a minimum of twelve inches above all downstream piping and outlets.

(e) SVBs may not be used for premises containment. PVBs may only be used for roadway right of way irrigation systems as premises containment where there is no potential for backpressure.

(f) A RP or DC installed after the adoption of the CCCPH must have a minimum side clearance of twelve inches, except that a minimum side clearance of twenty-four inches must be provided on the side of the assembly that contains the test cocks. The PWS may approve alternate clearances providing that there is adequate clearance for field testing and maintenance.

(g) Backflow protection must be located as close as practical to the water user's service connection unless one or more alternative locations have been approved by the PWS. If internal protection is provided in lieu of premises containment, the PWS must obtain access to the user premises and must ensure that the on-site protection meets the requirements of this Chapter for installation, field testing, and inspections.

(h) Each BPA and air gap separation must be accessible for field testing, inspection, and maintenance.

3.3.3 Field Testing and Repair of Backflow Prevention Assemblies and Air Gap Inspection

(a) PWS must ensure that all BPAs installed for its Cross-Connection Control Program are field tested following installation, repair, depressurization for winterizing, or permanent relocation. All required field testing must be performed by certified backflow prevention assembly testers.

(b) BPAs must be field tested at least annually. The CCCPH does not preclude a PWS, the State Water Board, or a local health agency from requiring more frequent field testing for premises with high hazard cross-connection or BPA at increased risk of testing failure.

(c) Air-gap separations must be visually inspected at least annually to determine compliance with this Chapter by persons certified as backflow prevention assembly testers or certified as a cross-connection control specialist pursuant to this Chapter.

(d) PWS must receive passing field tests before providing continuous service to a water user with a newly installed BPA.

(e) PWS must ensure that BPAs that fail the field test are repaired or replaced within 30 days of notification of the failure. Extensions may be allowed by the PWS if included as part of the Cross-Connection Control Plan.

(f) PWS must require backflow prevention assembly testers to notify the PWS as soon as possible within 24 hours if a backflow incident or an unprotected cross-connection is observed at the BPA or prior to the user premises during field testing. PWS must immediately conduct an investigation and discontinue service to the user premises if a backflow incident is confirmed, and water service must not be restored to that user premises until the PWS receives a confirmation of a passing BPA field test from a backflow prevention assembly tester and the assembly is protecting the PWS.

Article 4 – Backflow Prevention Assembly Testers and Cross-Connection Control Specialists

3.4.1 Backflow Prevention Assembly Tester Certification

(a) A PWS must ensure that each BPA required by this Chapter to protect the public water system is field tested by a person with valid certification from a certifying organization recognized by the State Water Board pursuant to this Article.

(b) A State Water Board-recognized organization certifying backflow prevention assembly testers is one that has a certification process that, at a minimum, includes the following:

(1) A timed and proctored written[6] exam, using a closed-book, objective grading format, consisting of no less than 100 questions for initial certification and no less than 50 questions for recertification. A passing score must be achieved by an examinee as a requirement for certification.

(A) Written exam proctors must:

1. not provide an examinee any assistance in answering exam questions, verbal or otherwise; and
2. be impartial.

(B) Passing scores for the written exams are to be determined prior to exam sessions, such that passing a written exam demonstrates sufficient knowledge of subjects associated with the proper field testing of BPAs, including but not limited to:

1. the hydraulics and theory of backflow;
2. California's laws, regulations, and requirements related to cross-connection control;
3. types of BPA field test equipment and the need to verify accuracy, at least annually and when otherwise necessary, to ensure accuracy of field test results;
4. field test procedures for an RP, RPDA, RPDA-II, DC, DCDA, DCDA-II, PVB, and SVB using the procedures provided in the *Manual of Cross-Connection Control, Tenth Edition,* published by the University of Southern California Foundation for Cross-Connection Control and Hydraulic Research or equivalent;
5. identification of improperly functioning BPAs (i.e., diagnostics or troubleshooting); and
6. recordkeeping and safety.

[6] The requirement for a written exam does not preclude using computerized exams.

(2) A performance (i.e., hands-on) exam, using a closed-book, objective grading process and the field test procedures in paragraph (1)(B)(4), designed such that passing the performance exam demonstrates proficiency in accurately determining the operating condition of an RP, DC, PVB, and SVB, when properly or improperly functioning, including but not limited to BPAs with leaks in shutoff valves, and failures in check valves, air inlet valves, or relief valves. A passing score must be achieved by an examinee as a requisite for certification. The performance exam process must include the following:

(A) Performance exam proctors must:

1. be certified as a backflow prevention assembly tester pursuant to this Article;
2. evaluate no more than one examinee at a time;
3. not provide an examinee any assistance in answering exam questions, verbal or otherwise;
4. provide no indication an examinee has erred until completion of a BPA field test, at which time only the fact the examinee has erred may be indicated (i.e., not the nature of the error);
5. be impartial and not affiliated with the certifying organization's preparation of, or preparatory course for (if applicable), the performance exam; and
6. not evaluate an examinee who was trained by the proctor during the six-month period prior to the exam or other conflict of interest.

(B) An examinee is considered to have failed a performance exam if the examinee:

1. makes a field test procedure or recording error that could impact an accurate determination of the operating condition of a BPA,
2. completes the BPA performance exam form with an error,
3. is informed of making an error (see subparagraph (A)(4)) and begins the procedure a second time, and
4. errs a second time and completes the BPA performance exam form accordingly.

(3) recertification requirements of no less frequently than every three years which includes both a written and performance exam;
(4) provisions for revocation of a backflow prevention assembly tester's certification, including but not limited to, revocation for falsifying field test results or field test reports;

(5) a website providing public access to the most recent list of backflow prevention assembly testers:

(A) who hold a valid certification from the certifying organization. At a minimum, the list is to include each backflow prevention assembly tester's last name, first name, certification number, and the date on which each backflow prevention assembly tester's certification expires; and
(B) whose certification was revoked, pursuant to paragraph (4), in the three years preceding the date of the list. At a minimum, the list is to include each backflow prevention assembly tester's last name, first name, revoked certification number, the date on which each backflow prevention assembly tester's certification was revoked, and the reason for revocation.

(6) as a prerequisite to sections 3.4.1(b)(1) and (b)(2), completion of an instructional training course accepted by the certifying organization[7] that covers the subjects in subsection (1)(B) and is no less than 30 hours in length over no fewer than four days for:

(A) a backflow prevention assembly tester's initial certification;
(B) a backflow prevention assembly tester's recertification as a result of revocation; or

(7) In lieu of compliance with section 3.4.1(b)(6) a certifying organization may accept two years prior experience in backflow prevention assembly testing.

(c) To be recognized by the State Water Board as a certifying organization for backflow prevention assembly testers, a certifying organization shall:

(1) submit an application with the following information to the State Water Board for review:

(A) written documentation of a certification program that includes a process that is no less stringent than the criteria in subsection (b);
(B) evidence that the organization's certification program and exam process has been reviewed, with concerns adequately addressed, by a credentialed psychometrician proficient in the design of objective exams, experienced in the assessment of certification or licensing organizations, and familiar with the application of the requirements of *ISO[8]/IEC[9] 17024: Conformity Assessment- General Requirements for Bodies Operating Certification of Persons*; and

[7] But not limited only to training provided by the certifying organization or its affiliates.
[8] International Organization for Standardization
[9] International Electrotechnical Commission

(C) a written statement, signed by the certifying organization's representative(s) having the authority and legal responsibility for operation of the certifying organization, attesting that the certifying organization will implement its certification program in a manner meeting or exceeding the criteria in subsection (b) and consistent with the application submitted to the State Water Board.

(2) adequately address each State Water Board comment and/or question concerning the application, and
(3) receive written acknowledgment from the State Water Board that the application is complete.

(d) A certifying organization, accredited by the American National Standards Institute (ANSI) in accordance with ISO/IEC 17024, which complies with subsection (b), will be considered to be a State Water Board-recognized certifying organization. Beginning three years after the effective date of the CCCPH, only those testers with a valid certification from an ANSI-accredited certifying organization shall satisfy subsection (a) and certifications obtained by organizations in accordance with subsection (c) will be invalid.

(e) This Article does not preclude a local health agency from maintaining a backflow prevention assembly tester certification program for the field testing of BPAs within the local health agency's jurisdiction. Accepting a tester certified by a local health agency does not relieve a PWS from meeting the requirements of this Article.

(f) This Article does not preclude a PWS from disallowing the use of an individual tester certified pursuant to this Article if the PWS has reason to believe a certified tester may not be proficient in accurately determining the operating condition of BPA, or for any other reason (e.g., fraud, deceit, negligence, misconduct, etc.). A PWS must report any evidence of a tester falsifying reports to that tester's certifying organization.

(g) This Article is effective July 1, 2026.

3.4.2 Cross-Connection Control Specialist Certification

(a) A PWS must ensure that cross-connection control specialists, used pursuant to the CCCPH, have valid certification from a certifying organization recognized by the State Water Board pursuant to this Article.

(b) A State Water Board-recognized organization certifying cross-connection control specialists is one that has a certification process that, at a minimum, includes the following:

(1) A timed and proctored, written[10] exam, using a closed-book, objective grading format, consisting of no less than 100 questions for certification. A passing score must be achieved by an examinee as a requirement for certification.

(A) Written exam proctors must:

1. not provide an examinee any assistance in answering exam questions, verbal or otherwise; and
2. be impartial.

(B) Passing scores for the exams are to be determined prior to exam sessions, such that passing an exam demonstrates sufficient and comprehensive range of knowledge of the subjects provided in Appendix E, as they may relate to cross-connection control and the causes, effects, and prevention of backflow.

(2) recertification requirements of no less frequently than every three years. Recertification may be done through at least one of the following:

(A) an exam as required by section 3.4.2 (b)(1),
(B) through 12 contact hours from continuing education courses covering material in Appendix E or,
(C) a combination of exam and continuing education contact hours equivalent to (A) or (B);

(3) provisions for revocation of a specialist's certification, including but not limited to, falsifying information or providing negligent recommendations inconsistent with industry-standard cross-connection control guidelines;
(4) a website providing public access to the most recent list of cross-connection control specialists:

(A) who hold a valid certification from the certifying organization. At a minimum, the list is to include each specialist's last name, first name, certification number, and the date on which each specialist's certification expires; or

[10] The requirement for a written exam does not preclude using computerized exams.

(B) whose certification was revoked, pursuant paragraph (3), in the three years preceding the date of the list. At a minimum, the list is to include each specialist's last name, first name, revoked certification number, the date on which each specialist's certification was revoked, and the reason for revocation.

(5) initial certification requirements:

(A) a valid backflow prevention assembly tester certification from a certification organization recognized by the State Water Board pursuant to section 3.4.1; and
(B) completion of an instructional training course (acceptable to the certifying organization[11]) that covers the subjects in Appendix E and is no less than 30 hours in length over no fewer than five days (inclusive of an exam, if provided). This paragraph does not preclude a certification organization from providing the instructional training course to the public, including certified specialists.
(C) As an alternative to (A) the certifying organization may accept additional instruction in the subject areas of testing, maintaining and repairing BPAs equivalent in length and scope to the requirements in 3.4.1(b)(6).
(D) As an alternative to (A) the certifying organization may accept a minimum of five (5) years documented experience performing cross-connection control specialist duties, as outlined in Appendix E.

(c) To be recognized by the State Water Board as a certifying organization for cross-connection control specialists, a certifying organization shall:

(1)submit an application with the following information to the State Water Board for review:

(A) Written documentation of a certification program that includes a process that is no less stringent than the criteria in subsection (b);
(B) evidence that the organization's certification program and exam process has been reviewed, with concerns adequately addressed, by a credentialed psychometrician proficient in the design of objective exams, experienced in the assessment of certification or licensing organizations, and familiar with the application of the requirements of *ISO[12]/IEC[13] 17024: Conformity Assessment- General Requirements for Bodies Operating Certification of Persons*; and

[11] But not limited only to training provided by the certifying organization or its affiliates.
[12] International Organization for Standardization
[13] International Electrotechnical Commission

(C) a written statement, signed by the certifying organization's representative(s) having the authority and legal responsibility for operation of the certifying organization, attesting that the certifying organization will implement its certification program in a manner meeting or exceeding the criteria in subsection (b) and consistent with the application submitted to the State Water Board.

(2) adequately address each State Water Board comment and question concerning the application, and
(3) receive a written acknowledgment from the State Water Board that the application is complete:

(d) A certifying organization, accredited by the American National Standards Institute (ANSI) in accordance with ISO/IEC 17024, which complies with subsection (b), will be considered to be a State Water Board-recognized certifying organization. Beginning three years after the effective date of the CCCPH, only those specialists with a valid certification from an ANSI-accredited certifying organization shall satisfy subsection (a) and certifications obtained by organizations in accordance with subsection (c) will be invalid.

(e) This Article does not preclude a local health agency from maintaining a cross-connection control specialist certification program for specialists within the local health agency's jurisdiction. Using a specialist certified by a local health agency does not relieve a PWS from meeting the requirements of this Article.

(f) This Article does not preclude a PWS from disallowing the use of an individual cross-connection control specialist certified pursuant to this Article if the PWS has reason to believe a certified specialist may not be proficient in their knowledge of cross-connection control and the causes, effects, and prevention of backflow, or for any other reason (e.g., fraud, deceit, negligence, misconduct, etc.). A PWS must report any evidence of a specialist falsifying reports to that specialist's certifying organization.

(g) This Article is effective July 1, 2026.

Article 5 – Recordkeeping, Backflow Incident Response, and Notification

3.5.1 Recordkeeping

(a) Each PWS must maintain the following records:

(1) The two most recent hazard assessments for each user premise, conducted pursuant to CCCPH section 3.2.1 (Hazard Assessment);
(2) for each BPA, the associated hazard or application, location, owner, type, manufacturer and model, size, installation date, and serial number;
(3) for each AG installation, the associated hazard or application and the location, owner, and as-built plans of the AG;
(4) results of all BPA field testing, AG inspection, and swivel-ell inspections and field tests for the previous three calendar years, including the name, test date, repair date, and certification number of the backflow prevention assembly tester for each BPA field test and AG and swivel-ell;
(5) repairs made to, or replacement or relocation of, BPAs for the previous three calendar years;
(6) the most current cross-connection tests (e.g. shutdown test, dye test);
(7) if a user supervisor is designated for a user premise, the current contact information for the user supervisor and water user, and any applicable training and qualifications as described by CCCPH section 3.2.2(f);
(8) descriptions and follow-up actions related to all backflow incidents;
(9) if any portion of the cross-connection control program is carried out under contract or agreement, a copy of the current contract or agreement;
(10) the current Cross-Connection Control Plan as required in CCCPH section 3.1.4.; and
(11) any public outreach or education materials issued as required in CCCPH section 3.1.3.(a)(9) for the previous three calendar years.

(b) All information in subsection (a) must be available to the State Water Board upon request.

3.5.2 Backflow Incident Response Procedure

Each PWS must include backflow incident response procedures in the Cross-Connection Control Plan required in CCCPH section 3.1.4. The PWS must describe its procedures for investigating and responding to suspected backflow incidents including, but not limited to, the following:

(a) Consideration of complaints or reports of changes in water quality as possible incidents of backflow;

(b) Water quality sampling and pressure recording; and

(c) Documentation of the investigation, and any response and follow-up activities.

3.5.3 Backflow Incident Notification

(a) Each PWS must notify the State Water Board and local health agencies of any known or suspected incident of backflow within 24 hours of the determination. If required by the State Water Board, a PWS must issue a Tier 1 public notification pursuant to CCR, Title 22, Section 64463.1.

(b) If required by the State Water Board, the PWS must submit, by a date specified by the State Water Board, a written incident report describing the details and affected area of the backflow incident, the actions taken by the PWS in response to the backflow incident, and the follow up actions to prevent future backflow incidents. The written report must contain, at a minimum, the information requested in Appendix F.

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Appendix

Appendix A: Assembly Bill 1671 (2017, Chapter 533) and Assembly Bill 1180 (2019, Chapter 455).
Appendix B: ASME A112.1.2-2012(R2017) Table 1, Minimum Air Gaps for Generally used Plumbing Fixtures, page 4
Appendix C: Backflow Prevention Assembly Diagrams
Appendix D: High Hazard Premises
Appendix E: General Range of Knowledge for Cross-Connection Control Specialists
Appendix F: Example Backflow Incident Reporting Form
Appendix G: Related Statutes and Regulations

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Appendix A

Assembly Bill 1671 (2017, Chapter 533)
Assembly Bill 1180 (2019, Chapter 455)

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Assembly Bill No. 1671

CHAPTER 533

An act to amend Section 116810 of, and to add Sections 116407 and 116555.5 to, the Health and Safety Code, relating to drinking water.

[Approved by Governor October 6, 2017. Filed with Secretary of State October 6, 2017.]

LEGISLATIVE COUNSEL'S DIGEST

AB 1671, Caballero. Backflow protection and cross-connection controls: standards.

(1) Existing law, the California Safe Drinking Water Act, requires the State Water Resources Control Board to administer provisions relating to the regulation of drinking water to protect public health, including, but not limited to, conducting research, studies, and demonstration projects relating to the provision of a dependable, safe supply of drinking water, enforcing the federal Safe Drinking Water Act, adopting regulations, and conducting studies and investigations to assess the quality of private domestic water wells. Existing law makes certain violations of the act a misdemeanor.

Existing law requires any person who owns a public water system to ensure that the system does certain things, including, but not limited to, that it will not be subject to backflow under normal operating conditions. Existing law, to ensure that testing and maintenance of backflow prevention devices are performed by persons qualified to do testing and maintenance, authorizes local health officers to maintain programs for certification of backflow prevention device testers and requires the certification program to be consistent with backflow protection regulations adopted by the state board. A violation of these provisions, or an order by a local health officer pursuant to these provisions, is a misdemeanor.

This bill would require a public water system to implement a cross-connection control program that complies with, and would require the certification program to be consistent with, applicable regulations and the standards described in (2).

(2) Existing regulations establish standards for a backflow prevention device and cross-connection control.

This bill, on or before January 1, 2020, would require the state board to adopt standards for backflow protection and cross-connection control and would authorize the state board to do so through the adoption of a policy handbook, as specified. By authorizing the state board to adopt standards, the violation of which would be a crime, the bill would create a new crime and impose a state-mandated local program.

(3) The California Constitution requires the state to reimburse local agencies and school districts for certain costs mandated by the state. Statutory provisions establish procedures for making that reimbursement.

This bill would provide that no reimbursement is required by this act for a specified reason.

The people of the State of California do enact as follows:

SECTION 1. Section 116407 is added to the Health and Safety Code, to read:

116407. (a) On or before January 1, 2020, the state board shall adopt standards for backflow protection and cross-connection control.

(b) The state board may implement subdivision (a) through the adoption of a policy handbook that is not subject to the requirements of Chapter 3.5 (commencing with Section 11340) of Part 1 of Division 3 of Title 2 of the Government Code. The policy handbook shall include standards for backflow protection and cross-connection control. In developing the standards and any amendments to those standards, the state board shall consult with state and local agencies and other persons whom the state board has identified as having expertise in the subject of backflow protection and cross-connection control. The state board shall hold at least two public hearings before adopting the policy handbook. The policy handbook shall be posted on the board's Internet Web site.

(c) (1) Upon the effective date of a policy handbook adopted by the state board pursuant to subdivision (b), the regulations set forth in Article 1 (commencing with Section 7583) and Article 2 (commencing with Section 7601) of Group 4 of Subchapter 1 of Chapter 5 of Division 1 of Title 17 of the California Code of Regulations shall become inoperative, and, 90 days thereafter, are repealed, unless the state board makes a determination not to repeal a specific regulation.

(2) If the state board determines not to repeal a specific regulation pursuant to paragraph (1), the state board shall provide to the Office of Administrative Law and the Secretary of State written notice of its determination, including identification of the specific regulation that is not repealed. That regulation, upon the provision of that written notice to the Office of Administrative Law and the Secretary of State, shall become operative.

SEC. 2. Section 116555.5 is added to the Health and Safety Code, to read:

116555.5. A public water system shall implement a cross-connection control program that complies with applicable regulations and with standards adopted by the board pursuant to Section 116407.

SEC. 3. Section 116810 of the Health and Safety Code is amended to read:

116810. To ensure that testing and maintenance of backflow prevention devices are performed by persons qualified to do testing and maintenance,

local health officers may maintain programs for certification of backflow prevention device testers. The local health officer may suspend, revoke, or refuse to renew the certificate of a tester, if, after a hearing before the local health officer or his or her designee, the local health officer or his or her designee finds that the tester has practiced fraud or deception or has displayed gross negligence or misconduct in the performance of his or her duties as a certified backflow prevention device tester. The local health officer may collect fees from certified testers to offset the cost of the certification program provided pursuant to this section. The certification standards shall be consistent with standards adopted by the state board pursuant to Section 116407 and any other applicable backflow protection regulations.

SEC. 4. No reimbursement is required by this act pursuant to Section 6 of Article XIII B of the California Constitution because the only costs that may be incurred by a local agency or school district will be incurred because this act creates a new crime or infraction, eliminates a crime or infraction, or changes the penalty for a crime or infraction, within the meaning of Section 17556 of the Government Code, or changes the definition of a crime within the meaning of Section 6 of Article XIII B of the California Constitution.

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Assembly Bill No. 1180

CHAPTER 455

An act to amend Section 116407 of the Health and Safety Code, and to add Section 13521.2 to the Water Code, relating to water.

[Approved by Governor October 2, 2019. Filed with Secretary of State October 2, 2019.]

LEGISLATIVE COUNSEL'S DIGEST

AB 1180, Friedman. Water: recycled water.

(1) Existing law, the California Safe Drinking Water Act, requires the State Water Resources Control Board to administer provisions relating to the regulation of drinking water to protect public health. Existing law requires, on or before January 1, 2020, the state board to adopt standards for backflow protection and cross-connection control through the adoption of a policy handbook, as specified.

This bill would require that handbook to include provisions for the use of a swivel or changeover device to supply potable water to a dual-plumbed system during an interruption in recycled water service.

(2) Existing law requires the state board to establish uniform statewide recycling criteria for each varying type of use of recycled water where the use involves the protection of public health.

This bill would require the state board, on or before January 1, 2023, as specified, to update the uniform statewide criteria for nonpotable recycled water uses.

The people of the State of California do enact as follows:

SECTION 1. The Legislature finds and declares all of the following:

(a) On December 11, 2018, the State Water Resources Control Board unanimously adopted an amendment to the policy for water quality control for recycled water, which included a goal to increase the use of recycled water in the state from 714,000 acre-feet per year in 2015 to 1,500,000 acre-feet per year by 2020 and 2,500,000 acre-feet per year by 2030.

(b) Section 13521 of the Water Code requires the state board to establish uniform statewide recycling criteria for each varying type of use of recycled water where the use involves the protection of public health.

(c) The regulations establishing the uniform statewide criteria for recycled water uses are set forth in Chapter 3 (commencing with Section 60301.050) of Division 4 of Title 22 of the California Code of Regulations. The regulations that pertain to nonpotable recycled water uses have not been updated since 2000.

(d) The regulations relating to backflow protection and cross-connection control for recycled water are set forth in Article 1 (commencing with Section 7583) and Article 2 (commencing with Section 7601) of Group 4 of Subchapter 1 of Chapter 5 of Division 1 of Title 17 of the California Code of Regulations. These regulations have not been updated since 1987.

(e) Section 1 of Chapter 533 of the Statutes of 2017 (Assembly Bill 1671 of the 2017–18 Regular Session) requires, on or before January 1, 2020, the state board to adopt backflow protection and cross-connection control standards and authorizes their implementation through a policy handbook.

(f) In order to maximize the amount of recycled water California can safely use for beneficial purposes, it is necessary to update the uniform statewide criteria for nonpotable recycled water uses and specify certain associated backflow protection and cross-connection control provisions.

SEC. 2. Section 116407 of the Health and Safety Code is amended to read:

116407. (a) On or before January 1, 2020, the state board shall adopt standards for backflow protection and cross-connection control.

(b) (1) The state board may implement subdivision (a) through the adoption of a policy handbook that is not subject to the requirements of Chapter 3.5 (commencing with Section 11340) of Part 1 of Division 3 of Title 2 of the Government Code. The policy handbook shall include standards for backflow protection and cross-connection control. In developing the standards and any amendments to those standards, the state board shall consult with state and local agencies and other persons whom the state board has identified as having expertise in the subject of backflow protection and cross-connection control. The state board shall hold at least two public hearings before adopting the policy handbook. The policy handbook shall be posted on the board's internet website.

(2) (A) The policy handbook described in this subdivision shall include provisions for the use of a swivel or changeover device to supply potable water to a dual-plumbed system during an interruption in recycled water service.

(B) The use of a swivel or changeover device shall be consistent with any notification and backflow protection provisions contained in the policy handbook.

(c) (1) Upon the effective date of a policy handbook adopted by the state board pursuant to subdivision (b), the regulations set forth in Article 1 (commencing with Section 7583) and Article 2 (commencing with Section 7601) of Group 4 of Subchapter 1 of Chapter 5 of Division 1 of Title 17 of the California Code of Regulations shall become inoperative, and, 90 days thereafter, are repealed, unless the state board makes a determination not to repeal a specific regulation.

(2) If the state board determines not to repeal a specific regulation pursuant to paragraph (1), the state board shall provide to the Office of Administrative Law and the Secretary of State written notice of its determination, including identification of the specific regulation that is not repealed. That regulation, upon the provision of that written notice to the

Office of Administrative Law and the Secretary of State, shall become operative.

SEC. 3. Section 13521.2 is added to the Water Code, to read:

13521.2. (a) On or before January 1, 2023, the state board shall update the uniform statewide criteria for nonpotable recycled water uses established in Chapter 3 (commencing with Section 60301.050) of Division 4 of Title 22 of the California Code of Regulations. The deadline imposed by this section is mandatory only if the Legislature has appropriated sufficient funds, as determined by the executive director of the state board, in the annual Budget Act or otherwise to cover the state board's costs associated with the performance of the duties imposed by this section.

(b) For purposes of the update to the uniform statewide criteria for nonpotable recycled water uses described in subdivision (a), the state board shall adopt a regulation that incorporates by reference the criteria and applicable backflow protection provisions, including the provisions for the use of a swivel or changeover device for dual-plumbed systems, that are contained in the most recently adopted version of the policy handbook adopted pursuant to Section 116407 of the Health and Safety Code and any future versions of the policy handbook.

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Appendix B

ASME A112.1.2-2012(R2017) Table 1, Minimum Air Gaps for Generally used Plumbing Fixtures, page 4

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Appendix B
ASME A112.1.2-2012(R2017) Table 1, Minimum Air Gaps for Generally used Plumbing Fixtures,[1] page 4

TABLE 1
Minimum Air Gaps for Generally used Plumbing Fixtures[4]

FIXTURES	WHERE NOT AFFECTED BY SIDEWALLS[1] (inches)	WHERE AFFECTED BY SIDEWALLS[2] (inches)
Effective opening[3] not greater than ½ of an inch in diameter	1	1 1/2
Effective openings[3] not greater than ¾ of an inch in diameter	1 1/2	2 1/4
Effective openings[3] not greater than 1 inch in diameter	2	3
Effective openings[3] greater than 1 inch in diameter	Two times the diameter of effective opening	Three times the diameter of effective opening

For SI units: 1 inch = 25.4 mm

Notes:

[1] Sidewalls, ribs, or similar obstructions do not affect air gaps where spaced from the inside edge of the spout opening at a distance exceeding three times the diameter of the effective opening for a single wall, or at a distance exceeding four times the effective opening for two intersecting walls.

[2] Vertical walls, ribs, or similar obstructions extending from the water surface to or above the horizontal plane of the spout opening other than specified in Footnote 1 above. The effect of three or more such vertical walls or ribs has not been determined. In such cases, the air gap shall be measured from the top of the wall.

[3] The effective opening shall be the minimum cross-sectional area at the seat of the control valve or the supply pipe or tubing that feeds the device or outlet. Where two or more lines supply one outlet, the effective opening shall be the sum of the cross-sectional areas of the individual supply lines or the area of the single outlet, whichever is smaller.

[4] Air gaps less than 1 inch (25.4 mm) shall be approved as a permanent part of a listed assembly that has been tested under actual backflow conditions with vacuums of 0 to 25 inches of mercury (85 kPa).

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Appendix C

Backflow Prevention Assembly Diagrams

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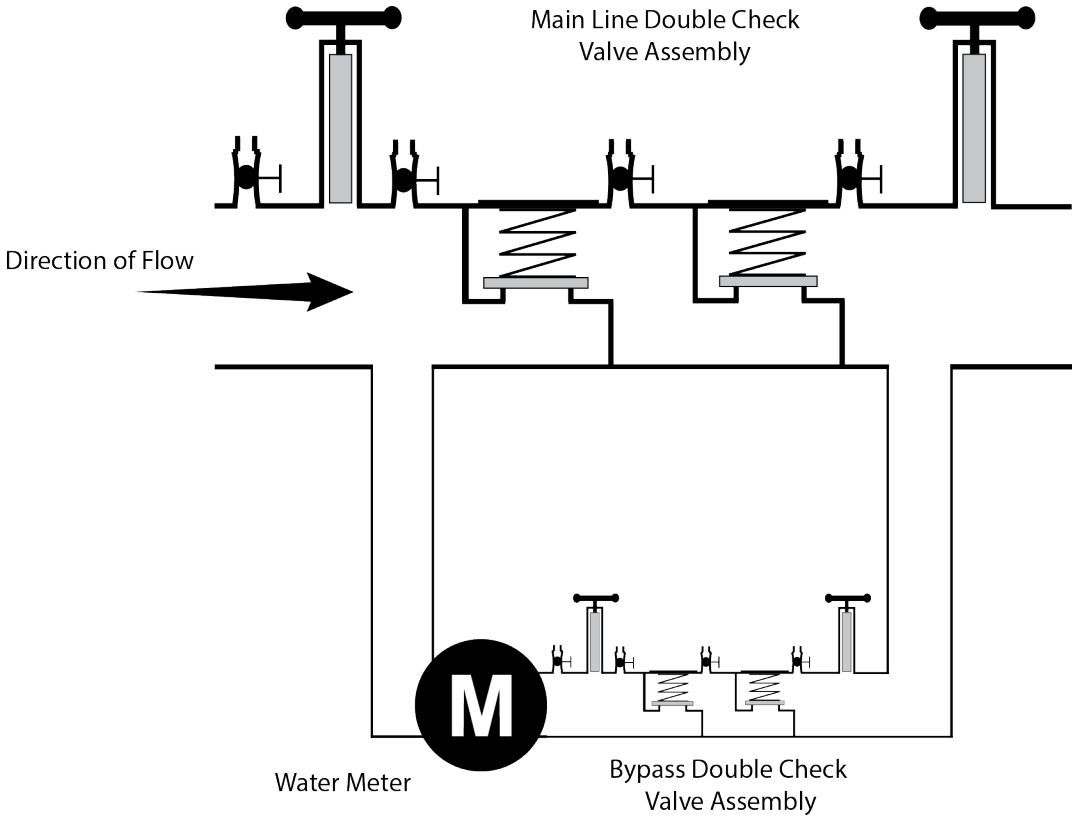
Appendix C

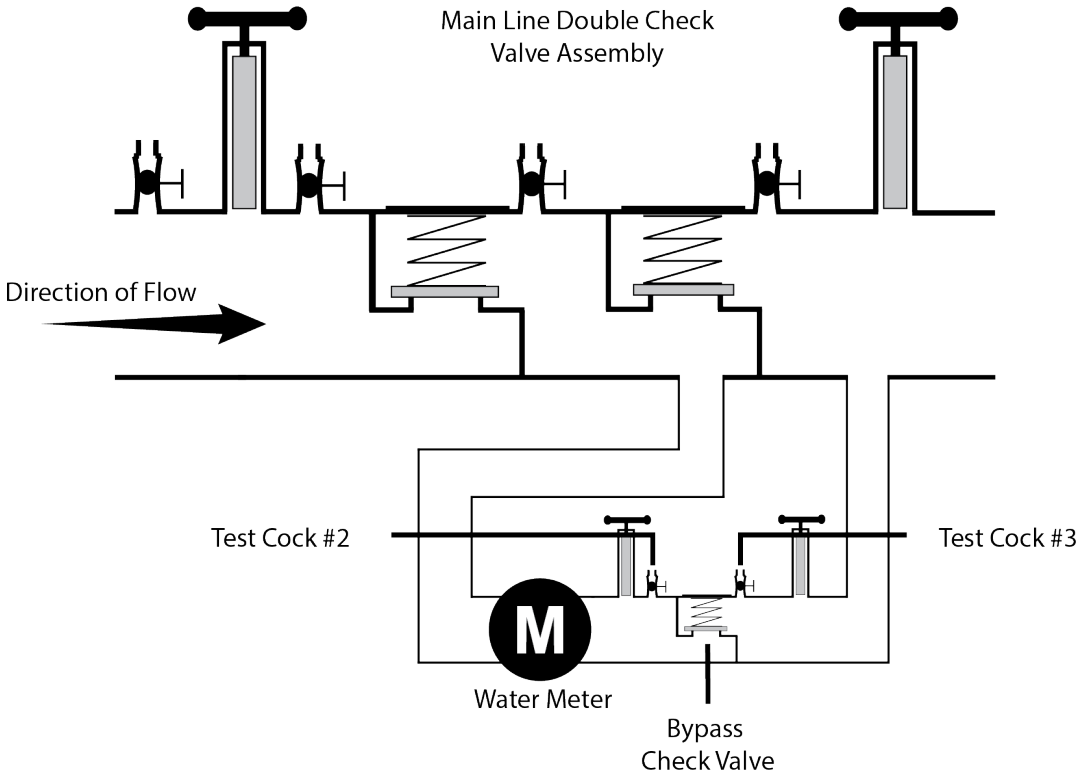
Diagram 1
Double check detector backflow prevention assembly[1]



[1] © 2023 University of Southern California. Used with permission.

Appendix C

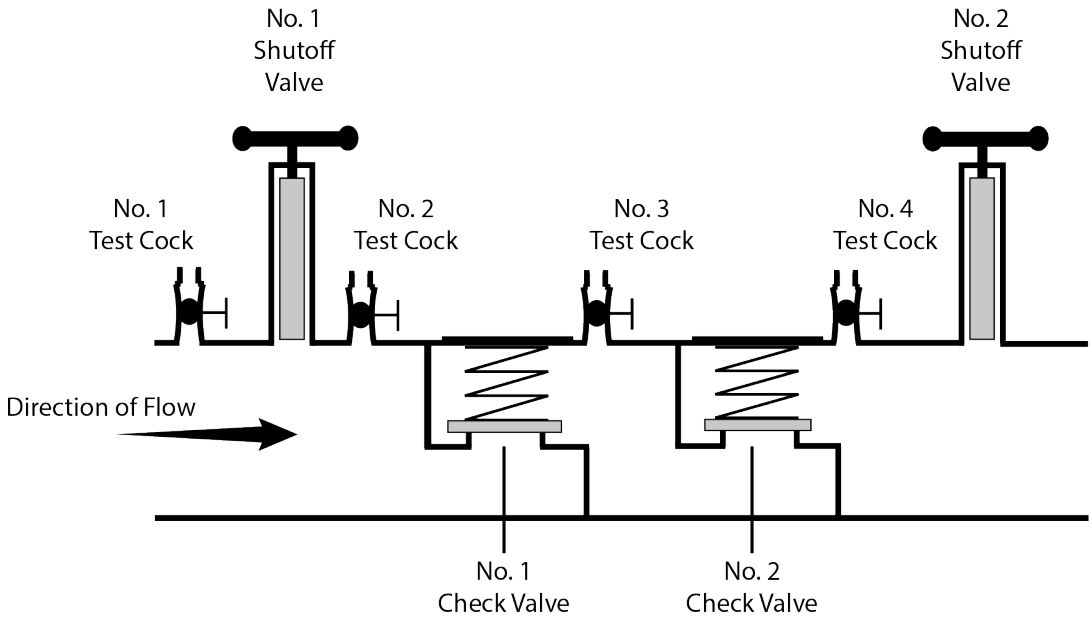
Diagram 2
Double check detector backflow prevention assembly – type II [2]



[2] © 2023 University of Southern California. Used with permission.

Appendix C

Diagram 3
Double check valve backflow prevention assembly[3]

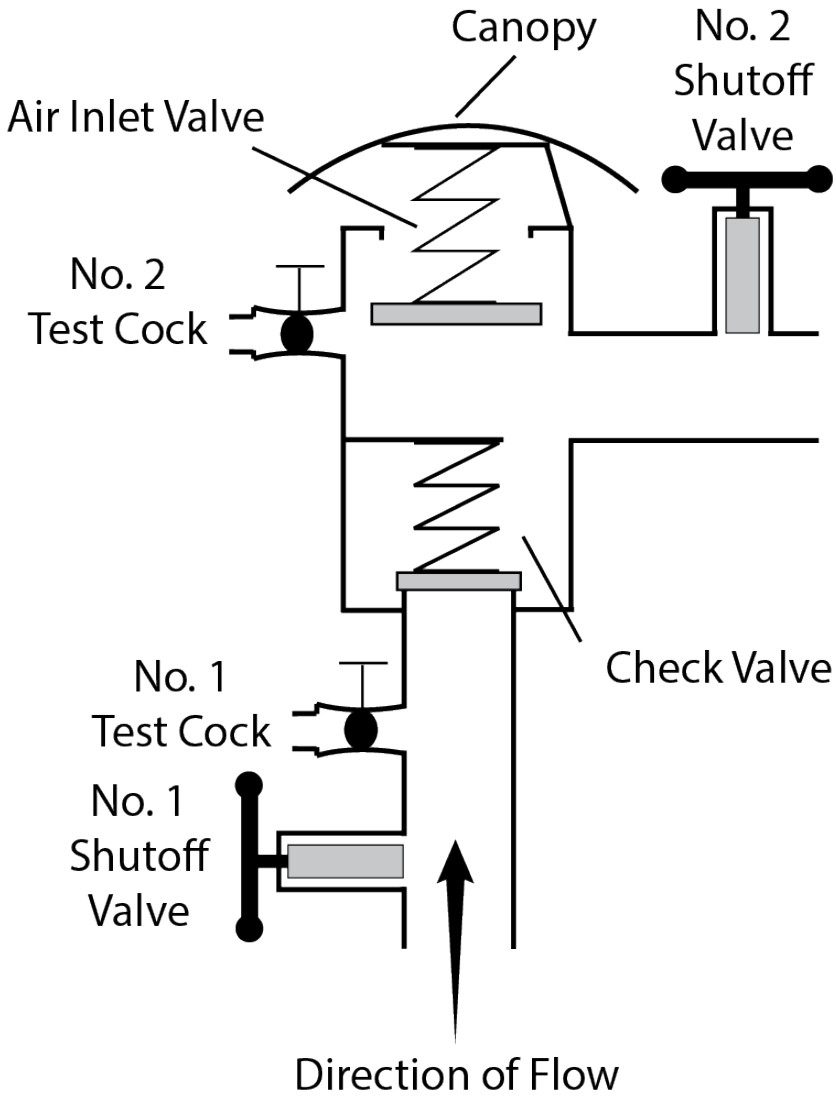


[3] © 2023 University of Southern California. Used with permission

Appendix C

Diagram 4

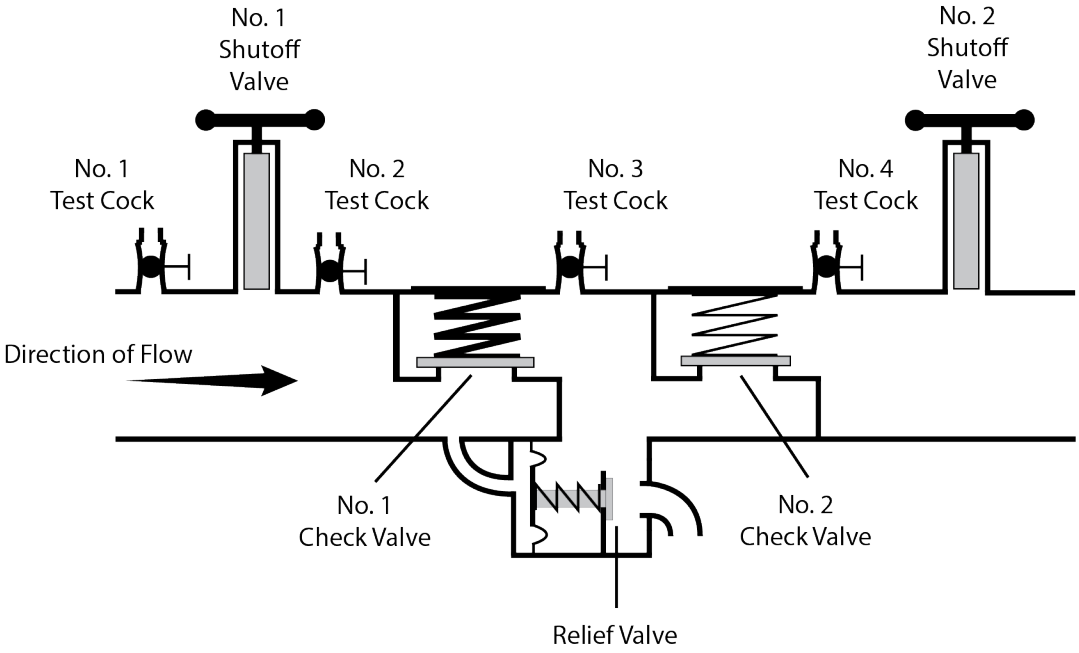
Pressure vacuum breaker backsiphonage prevention assembly [4]



[4] © 2023 University of Southern California. Used with permission

Appendix C

Diagram 5
Reduced pressure principle backflow prevention assembly [5]

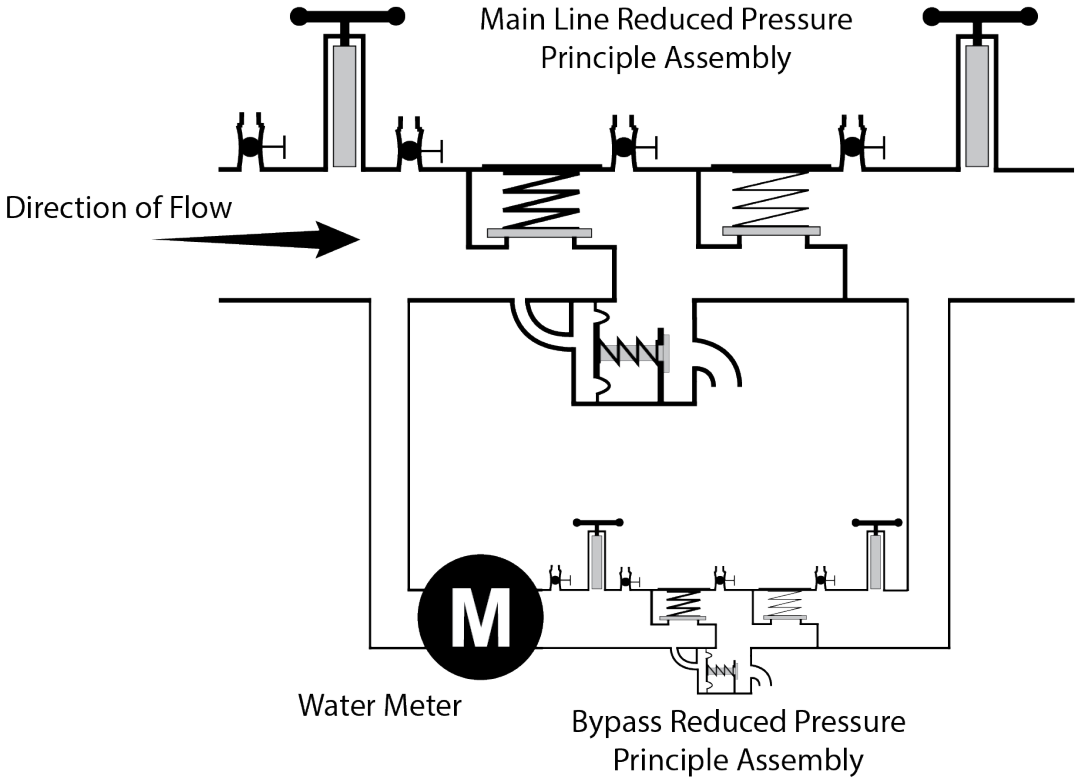


[5] © 2023 University of Southern California. Used with permission

Appendix C

Diagram 6

Reduced pressure principle detector backflow prevention assembly [6]

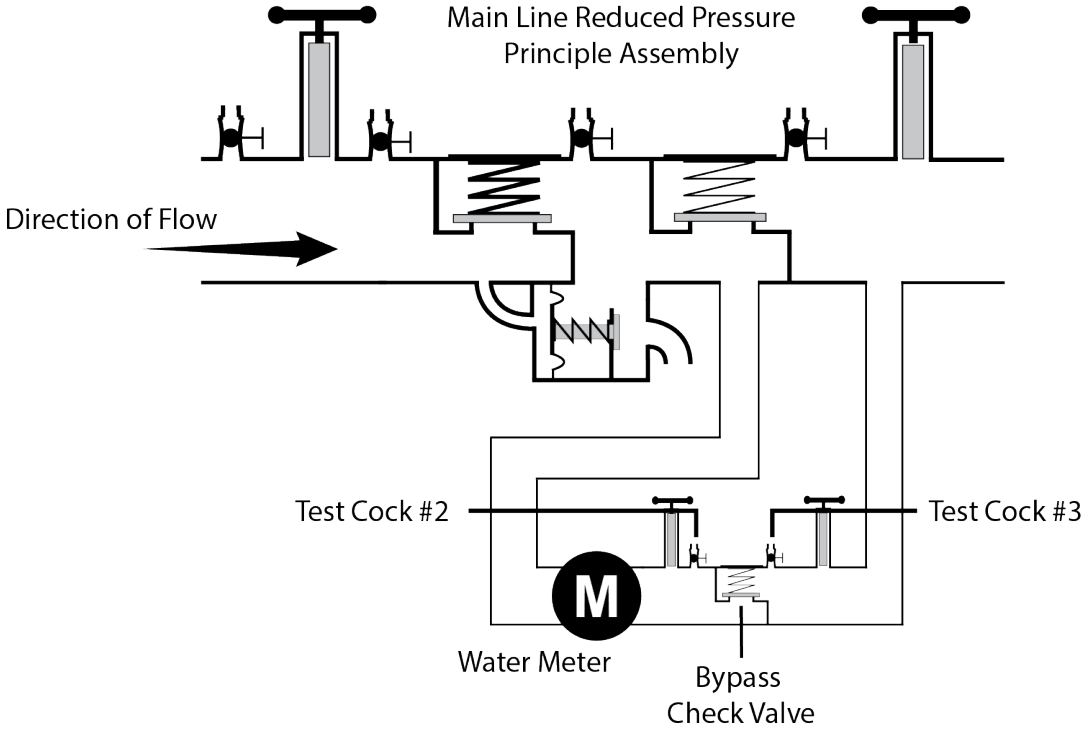


[6] © 2023 University of Southern California. Used with permission

Appendix C

Diagram 7

Reduced pressure principle detector backflow prevention assembly – type II [7]

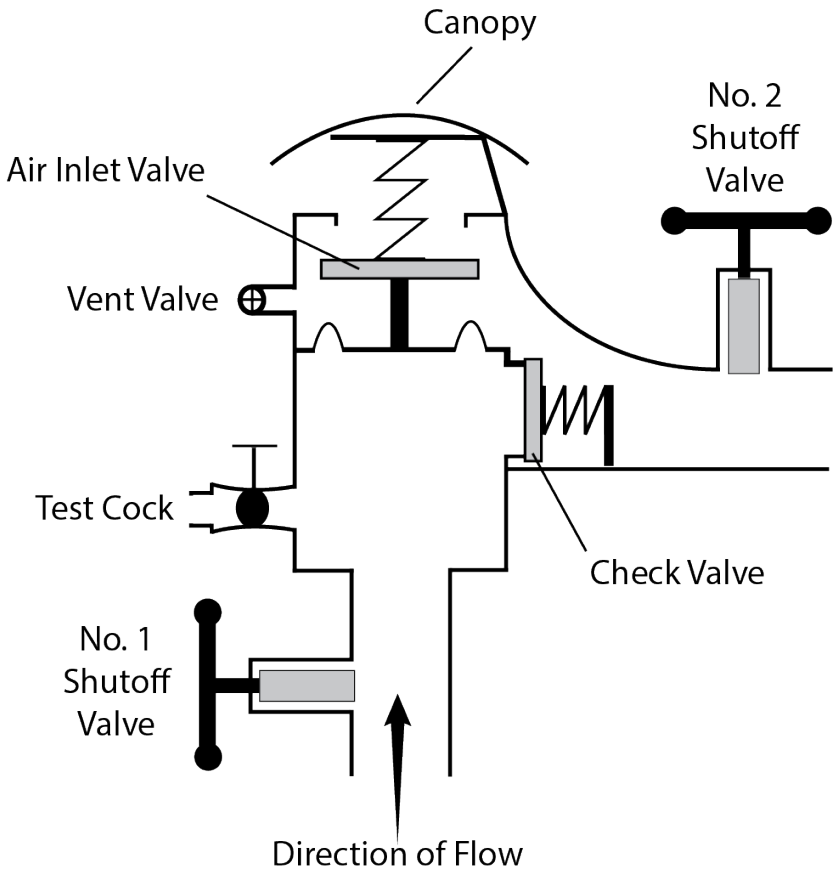


[7] © 2023 University of Southern California. Used with permission

Appendix C

Diagram 8

Spill-resistant pressure vacuum breaker backsiphonage prevention assembly [8]



[8] © 2023 University of Southern California. Used with permission

Appendix C

Swivel-Ell Design and Construction Criteria

The criteria below, in conjunction with the swivel-ell diagrams that follow (Diagrams 9a and 9b), are **minimum** acceptable design and construction-related requirements for utilizing a swivel-ell. For restrictions and allowances for utilizing a swivel-ell, see CCCPH section 3.2.2.

A. Prior to operation of a swivel-ell, the PWS will receive approval for the design and construction plans of that swivel-ell from the State Water Board.

B. The drinking water supply must not, under any circumstances, be directly connected to the recycled water supply, nor be designed such that the recycled water use site could be supplied concurrently by a recycled water supply and a drinking water supply.

C. The drinking water supply line and the recycled water supply line must be offset (see Diagram 9b) in a manner that ensures a tee-connection, spool, or other prefabricated mechanical appurtenance(s) could not be readily utilized in lieu of the swivel-ell connection, nor result in the recycled water use site being supplied concurrently by recycled water and drinking water.

D. The recycled water supply line used in conjunction with the swivel-ell must be the only recycled water supply to the recycled water use area.

E. The swivel-ell must be located as close as practical to the public water system service connection, with the swivel-ell connection being located as close as practical to the RP upstream of the swivel-ell.

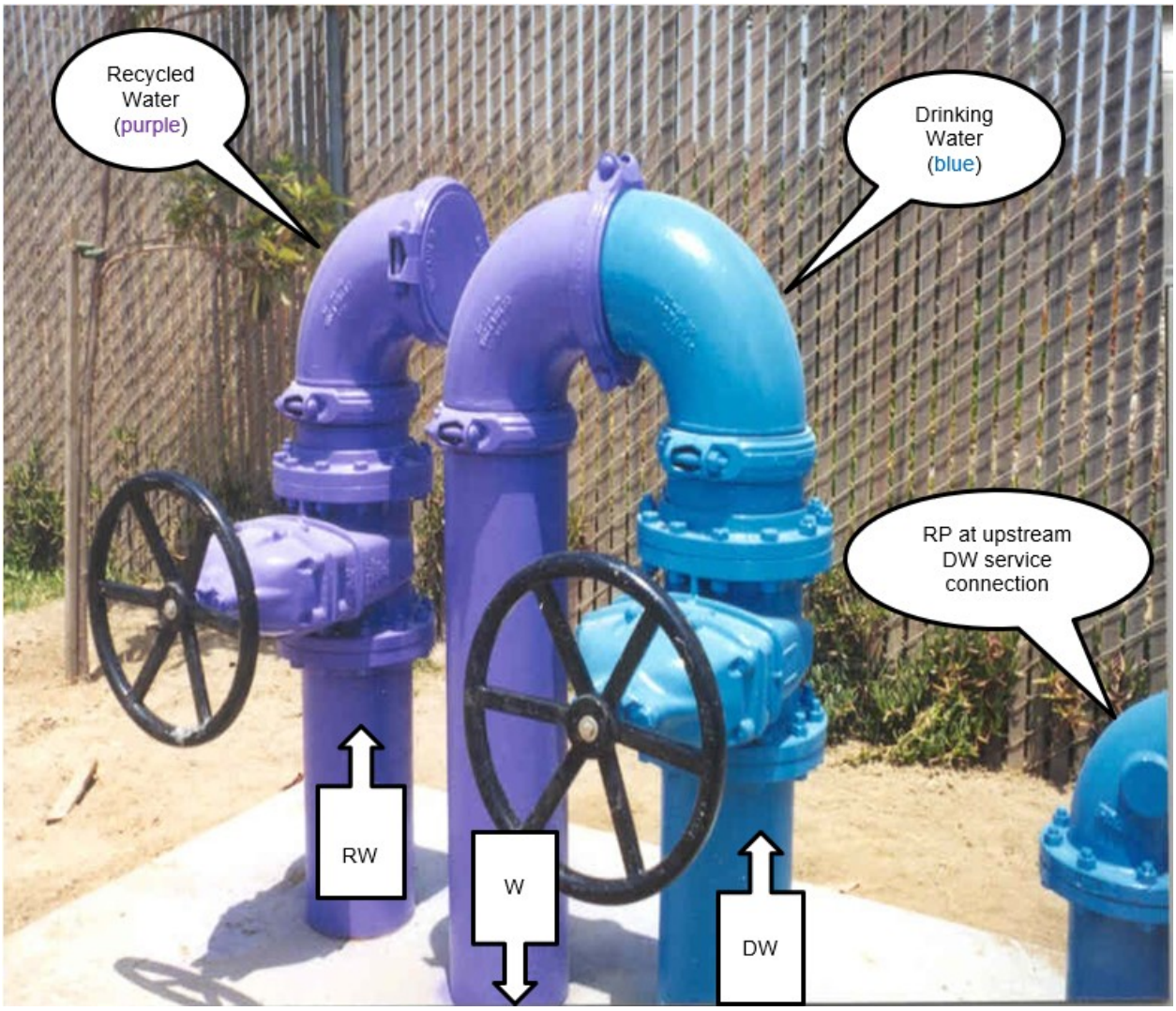
F. The swivel-ell must:

1. be located above ground;
2. be color-coded pursuant to section 116815 of the CHSC and its implementing regulations;
3. include appropriate signage, as required by regulation and the State Water Board;
4. be provided the security necessary to prevent interconnections, vandalism, unauthorized entry, etc.; and
5. be provided with meters on both the recycled water service and drinking water service connections.

Legend for Diagram 9a and 9b (also see next page)

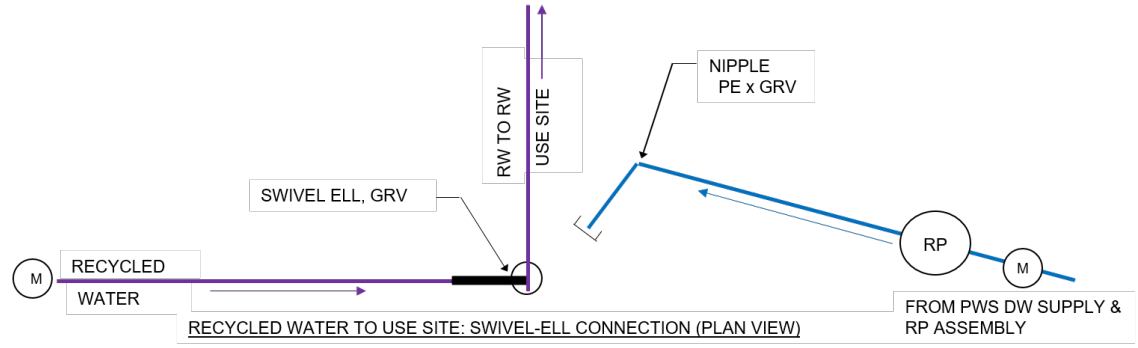
RP = Reduced pressure principle backflow prevention assembly
RW = Tertiary-treated recycled water originating from wastewater treatment facility
DW = Drinking water originating from a public water system
W = Water (tertiary recycled water **or** drinking water) to use site. As pictured, configured for supplemental drinking water to the use site.
M = Meter (*next page*)
PE = Plain End (*next page*)
GRV = Groove (*next page*)
PWS = Public Water System (*next page*)

Diagram 9a: Example Swivel-Ell Pictorial (also see Plan View Schematics)

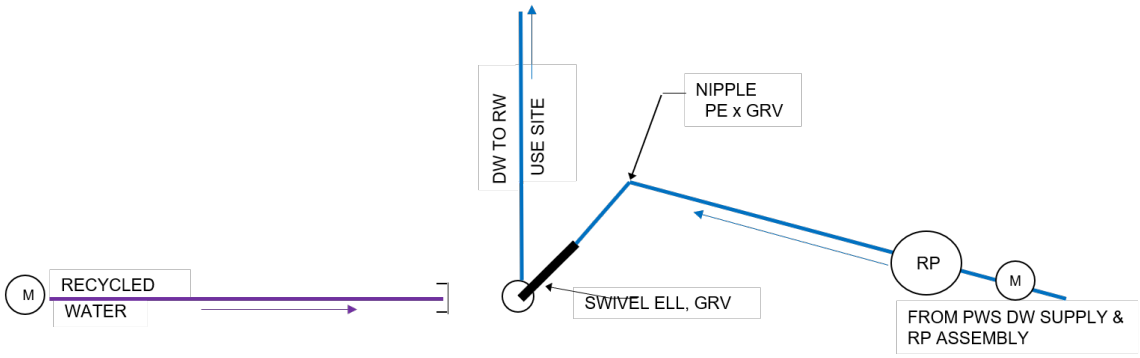


Note: The RP, a required component of an acceptable swivel-ell, is not shown in the picture.

Diagram 9b: Swivel-Ell Typical Plan View Schematics
(not intended to be an exact portrayal of the pictorial)



RECYCLED WATER TO USE SITE: SWIVEL-ELL CONNECTION (PLAN VIEW)



POTABLE WATER TO USE SITE: SWIVEL-ELL CONNECTION (PLAN VIEW)

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Appendix D

High Hazard Premises

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APPENDIX D

HIGH HAZARD CROSS-CONNECTION CONTROL PREMISES

The list below identifies premises that require backflow protection provided by an air gap or a reduced pressure principle backflow prevention assembly, unless noted otherwise. The list below is not intended to be all-inclusive. A PWS, State Water Board, or local health agency may require an AG, RP, or both to protect a PWS from other hazards not listed below and identified in premises through the hazard assessment completed in CCCPH Chapter 3, section 3.2.1. A PWS may reduce or increase the minimum protection required for a previously hazard-assessed user premise following a hazard reassessment as described in CCCPH Chapter 3, section 3.2.1.

1. Sewage handling facilities
2. Wastewater lift stations and pumping stations
3. Wastewater treatment processes, handling, or pumping equipment that is interconnected to a piping system connected to a PWS (+)
4. Petroleum processing or storage plants
5. Radioactive material storage, processing plants or nuclear reactors
6. Mortuaries
7. Cemeteries
8. Sites with an auxiliary water supply interconnected with PWS (+)
9. Sites with an auxiliary water supply not interconnected with PWS
10. Premises with more than one connection to the PWS (++++)
11. Recycled water (++)(+++)
12. Recycled water interconnected to piping system that contains water received from a PWS (+)
13. Graywater systems, as defined in California Water Code Section 14876, that are interconnected to a piping system that is connected to a PWS
14. Medical facilities
15. Kidney dialysis facilities
16. Dental office with water-connected equipment
17. Veterinarian facilities
18. Chemical plants
19. Laboratories
20. Biotech facilities
21. Electronics manufacture
22. Dry cleaner facilities
23. Industrial or commercial laundry facilities
24. Metal-plating facilities
25. Business park with a single meter serving multiple businesses
26. Marine-port facilities
27. Car wash facilities
28. Mobile home park, RV park, or campgrounds with RV hookups

29. Hotels/motels
30. Gas stations
31. Fire stations
32. Solid waste disposal facilities
33. Pet groomers
34. Agricultural premises
35. Hazard assessment access denied or restricted
36. Railroad maintenance facilities
37. Incarceration facilities (e.g. prisons)
38. Temporary connections to fire hydrants for miscellaneous uses, including construction
39. Private water distribution mains
40. Drinking water storage tank overflow connected to a sump or storm drain (+)
41. Airports

(+) Premise isolated by air gap only except as allowed through CCCPH Section 3.2.2(c)

(++) Dual-plumbed use areas established per CCR Title 22, Section 60313 through 60316.

(+++) Residences using recycled water for landscape irrigation as part of an approved dual plumbed use area established pursuant to CCR Title 22, sections 60313 through 60316 shall use, at a minimum, a DC. If the water supplier is also the supplier of the recycled water, then the recycled water supplier may obtain approval of the local public water supplier or the State Water Board, to utilize an alternative backflow protection plan that includes an annual inspection of both the recycled water and potable water systems and an annual cross-connection test of the recycled water and potable water systems pursuant to subsection 60316(a) in lieu of any BPA.

(++++) All connections must receive at least the same level of protection excluding fire protection when connected to the PWS distribution system (e.g. if one connection requires an RP then all connections must have RPs installed).

Appendix E

General Range of Knowledge for Cross-Connection Control Specialists

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APPENDIX E

General Range of Knowledge for Cross-Connection Control Specialists

To effectively prevent unintended backflow into a PWS's distribution system, it is necessary for a cross-connection control specialist to have an understanding of a range of subjects related to cross-connection control. This appendix provides a list of such subjects.

This appendix is not meant to preclude instruction of additional subjects that may be necessary or beneficial to the goal of a prospective or existing cross-connection control specialist in being proficient in protecting public health from backflow through cross-connection control measures. Emphasis on particular subjects should be in a manner that best achieves that goal.

(a) GENERAL

(1) Cross-connection control terminology.
(2) The history leading to the need for cross-connection control, including causes, impacts, including but not limited to:

(A) potable water distribution systems;
(B) examples of backflow incidents and actual or potential public health impacts; and
(C) evolution of methods of cross-connection control and backflow prevention assemblies.

(3) Hydraulics (general) – An understanding of hydraulic gradients, pressure variations, flow rates, temperature, the properties of water, backsiphonage, backpressure, and other elements necessary to understand the causes for backflow.
(4) Public outreach – How to appropriately convey the value of cross-connection control to PWS personnel and the public.

(b) LAWS, REGULATIONS, AND GUIDANCE

(1) Federal – Applicable federal laws, regulations, and guidance.
(2) State – California laws and regulations, including, but not limited to, the State Water Resources Control Board's most recent edition of its *Cross-Connection Control Policy Handbook* and other requirements related to cross-connection control.
(3) Local – An understanding of the need to ensure local requirements are considered and how best to find such requirements.

(c) HAZARD ASSESSMENTS AND METHODS TO PREVENT BACKFLOW

A comprehensive understanding of how to conduct cross-connection surveys of water systems for the purpose of identifying cross-connections, assessing hazards, and identifying the most effective and legally appropriate methods for protection from backflow. At a minimum, the following topics should be considered to achieve such an understanding:

(1) Surveys:

(A) Preparation (e.g., authority, notification, prioritizing customers/premises, coordinating with public water systems, etc.);
(B) Design and as-built drawings related to water supply and cross-connection control;
(C) Public water system schematics;
(D) How to identify existing and new construction, with an understanding of how construction may impact backflow protection;
(E) How to identify cross-connections (actual and potential);
(F) How to identify and differentiate between high hazard and low hazard cross-connections; and
(G) Problems associated with multi-story buildings, multiple service connections at a premises, typical water-use equipment, etc., and varying types of water service, including irrigation, recycled water, gray water, fire prevention systems, and dual plumbed premises.

(2) Assessing Hazards:

(A) Identifying and differentiating between premises activities leading to high hazard cross-connections and low hazard cross-connections (for examples of high hazard activities, see Appendix D); and
(B) Understanding potential public health impacts from backflow associated with the problems in section (c)(1)(G) of this appendix.

(3) Assemblies and Methods for Backflow Prevention:

(A) A comprehensive understanding of approved methods for cross-connection control and preventing backflow with respect to an assessed hazard;
(B) Identifying unapproved methods for cross-connection control and preventing backflow;
(C) An understanding of components, design and operation, proper installation and location of backflow prevention assemblies, including air gaps, and backflow prevention assembly field test methods, field test results, and the assessment of air gaps; and
(D) Identifying unapproved assemblies, as well as those assemblies whose operation and/or state of repair necessitates replacement with an approved assembly.

(d) CROSS-CONNECTION CONTROL PROGRAMS

A comprehensive understanding of the development, elements, and administration of cross-connection control programs, including, but not limited to:

(1) An ability to assess the federal, state, and local requirements applicable to a public water system's cross-connection control program, such that adherence to the cross-connection control program would result in compliance with the requirements;
(2) The roles, responsibilities, and authority of individuals and entities involved in the critical elements of a successful plan for cross-connection control (see CCCPH section 3.1.4); and
(3) The ability to assess the components of a public water system's Cross-Connection Control Plan (see CCCPH section 3.1.4) that best assures the prevention of undesired backflow into the public water system's distribution system, and to communicate deficiencies to public water system personnel.

(e) CROSS-CONNECTION TESTS

A comprehensive understanding of:

(1) The purpose of a cross-connection test and when a cross-connection test should be performed;
(2) The ability to develop protocols and make arrangements for cross-connection tests, and subsequently oversee and/or perform such cross-connection tests, in a manner that determines whether interconnections exist between unapproved sources and approved water supplies; and
(3) Follow-up actions and notifications if a cross-connection test indicates an interconnection.

(f) RECORDKEEPING AND INCIDENT RESPONSE

A comprehensive understanding of:

(1) The agencies and authorities to be notified in the event of a backflow incident;
(2) How to determine the cause of a backflow incident and the actions necessary to prevent similar incidents in the future;
(3) How to properly document a backflow incident, including but not limited to the information in the example backflow incident response form in Appendix F; and
(4) How to properly document the elements associated with surveys and hazard assessments, including those identified in section (c) of this appendix.

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Appendix F

Example Backflow Incident Reporting Form

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BACKFLOW INCIDENT REPORT FORM

Water System: _____

Water System Number: _____

Incident Date: _____

Incident Time (if known):_____

Incident Location: _____

How was the incident discovered?

_____

Backflow Originated from:

Premise Location: _____

Address: _____

Premise Contact Person: _____ Title:_____

Phone:_____ Email: _____

Connection Type: (please check one)

□ Industrial □ Commercial □ Single-Family Residential □ Multi-Family Residential

□ Irrigation □ Recycled Water □ Water System Facility

□ Other: _____

Description and source of backflow substance (please be as descriptive as possible):

_____

_____

If available, please attach an MSDS or other chemical description form

Was the backflow fluid contained within the user side? YES □ NO □

Estimated Number of Affected Persons: _____

Number and description of consumer complaints received:

_____

_____

Did any consumers report illness? Please describe.

_____

_____

If applicable, please describe the consumer notification:

_____

_____

INVESTIGATION

Please describe the water system investigation including time frames:

_____
_____
_____
_____
_____
_____

What was the area system pressure? _____

Is this within typical range: YES ☐ NO ☐ - typical pressure: _____

Was a sample of the water contaminated by the backflow incident collected and stored before flushing? YES ☐ NO ☐

Please describe all sampling:

_____

_____

_____

DDW recommends laboratory or field sampling for the following parameters: total coliform, E. coli, free and total chlorine residual, pH, odor, turbidity, temperature, and color. Additional sampling should be collected at the PWS and regulatory agency's discretion.

CORRECTIVE ACTIONS

Please describe the corrective actions taken by the water system:

_____
_____
_____
_____
_____
_____

Was the chlorine residual increased after discovery of backflow incident? YES ☐ NO ☐

Date of the last cross-connection control hazard assessment of the premise with the backflow incident conducted: _____

Did the premise have backflow prevention assemblies? YES ☐ NO ☐

Date of most recent backflow prevention assembly test(s): _____

When was the Division of Drinking Water or Local County Health office notified?

Date: _____Time: _____ Contact Person: _____

Was the Division or Local County Health notified within 24 hours? YES ☐ NO ☐

Other agencies or organizations contacted?

CERTIFICATION

Name: _____ Job Title: _____

Certification(s): _____

_____

Please list all cross-connection control related certifications including number and expiration date

I certify that the forgoing information is true and correct to the best of my ability.

Signature: _____ Date: _____

Attach the following applicable documentation

1. Laboratory Test Results
2. Sketch of the cross-connection and modifications
3. MSDS or chemical information forms if chemical hazard is known
4. Applicable backflow assembly test reports including the most recent test before the incident
5. Other relevant supporting documentation

Appendix G

Related Statutes and Regulations

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The following laws and regulations are considered related or tangential to the CCCPH, and are included in a descriptive format to provide additional, relevant background information

California Laws and Regulations

In addition to the California SDWA statutory requirements cited in CCCPH Chapter 1, section 1.3.1, California has statutes addressing certain authorities and requirements that may have influenced the CCCPH or may otherwise be of interest.

- Urban and community water systems must have a written policy on discontinuation of residential service for nonpayment and must not discontinue residential service for nonpayment if certain conditions are met. (CHSC sections 116900 – 116926)

- Senate Bill 1263 (2017) requires that before a person submits an application for a permit for a proposed new public water system, the person shall first submit a preliminary technical report which must include a cost comparison of a new public water system and consolidations with an existing system. (CHSC section 116527)

- Effective June 24, 2015, Senate Bill 88 (SB 88) (Statutes 2015, Chapter 27) added sections 116680-116684 to the CHSC, allowing the State Water Board to require certain water systems that consistently fail to provide safe drinking water to consolidate with, or receive an extension of service from, another public water system. The consolidation can be physical or managerial.

- Local health officers may maintain programs for the control of cross-connections by water users, within water users' premises, where public exposure to backflow may occur. Such programs may include water user premises inspections, collection of fees, certification of backflow prevention assembly[1] (BPA) testers, and other discretionary elements. Local health officer BPA tester certification standards must be consistent with the standards prescribed in the CCCPH. Water users are required to comply with all orders, instructions, regulations, and notices from the local health officer regarding installation, testing, and maintenance of a BPA. (CHSC sections 116800 - 116820).

- Pursuant to the California Building Standards Law (CHSC sections 18901 - 18949.31), the California Building Standards Commission (CBSC) must administer the processes related to the adoption, approval, and publication of regulations referred to as the California Building Standards Code (Title 24, California Code of Regulation). Title 24 serves as the basis for the minimum design and construction

[1] California statutes use a variety of terms when referencing a 'backflow prevention assembly' (e.g., backflow protective device, backflow protection equipment, backflow prevention device, backflow or back siphonage protection device, backflow preventer, or backflow device). For consistency with industry terminology, 'backflow prevention assembly' is used in the CCCPH, unless directly quoted otherwise.

of buildings in California and includes the California Plumbing Code (Part 5 of Title 24), which contains requirements pertaining to cross-connection control and backflow prevention.

- A BPA intended to convey or dispense water for human consumption via drinking or cooking must meet California's "lead free" requirements. (CHSC section 116875)

- Limits are established for the installation of backflow protection equipment where automatic fire sprinkler systems are utilized. (CHSC section 13114.7)[2]

- Cross-connection control must be addressed in engineering reports that are required (CCR Title 22, section 60323) for recycled water projects. (Wat. Code section 13552.8)

- If a public agency requires the use of recycled water for toilet and urinal flushing in a structure (except certain mental health facilities), the public health agency must prepare an engineering report that addresses cross-connection control. (Wat. Code section 13554)

- Prior to indoor use of recycled water in a condominium project, the entity delivering the recycled water must submit a report, for State Water Board[3] approval, and include the following related to cross-connection control (Wat. Code section 13553(d)(1)):

    - The condominium project must be provided with a backflow prevention assembly approved by the State Water Board.

    - The backflow prevention assembly must be inspected and tested annually by a certified tester.

    - The condominium project must be tested by the recycled water agency or local agency at least once every four years for indications of possible cross-connections between the condominium's potable and non-potable systems.

- California's Department of Water Resources was required to convene a task force, known as the 2002 Recycled Water Task Force, to identify constraints, impediments, and opportunities for the increased use of recycled water and report

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[2] CHSC section 13114.7 historically provided potential limits for backflow prevention assemblies on fire sprinklers. Even though current standards differ from the language stated in CHSC section 13114.7, it is still being provided as a historical reference as there may still be installations with the now outdated limits established in section 13114.7

[3] The California Department of Public Health's authority and responsibility pertaining to this reference was transferred to the State Water Board via Senate Bill 861 (2014, Chapter 35). As such, applicable statutory mandates that may refer to "California Department of Public Health" or "Department" may be referred to as "State Water Board" in this document.

to the Legislature by July 1, 2003. The task force was also asked to advise and make recommendations concerning cross-connection control, including the applicability of visual inspections instead of pressure tests for cross-connections between potable and non-potable water systems. (Wat. Code section 13578(b)(1). The final report[4] provided the following recommendations to the State Water Board – Division of Drinking Water (Division):

- ▫ Prepare guidance on dual plumbed regulations (22 CCR sections 60313-60316) consistent with Appendix J of plumbing code (Chapter 15 of 2019 California Plumbing Code, formerly Chapter 16A).
- ▫ Support thorough assessment of risk associated with cross-connections between disinfection tertiary recycled water and potable water.
- ▫ Ensure uniform interpretation of cross-connection control requirement of Title 22 regulations (recycled water) and Title 17 (cross-connection control regulations)
- ▫ Recommend stakeholders to review draft Title 17 regulations.

▪ A person engaged in the salvage, purchase, or sale of scrap metal who knowingly possesses a backflow prevention assembly (or connections to the assembly or any part of the assembly), or who failed to report the possession of such items, which was previously owned by a utility or public agency, is guilty of a crime. (Pen. Code section 496e)

▪ Junk dealers or recyclers who possess a backflow prevention assembly (or connections to that assembly or any part of the assembly) without a written certification from the agency or utility owning or previously owning the assembly will be liable to the agency or utility for the wrongful possession. (Civ. Code section 3336.5 and, similarly, Bus. & Prof. Code section 21609.1)

Please note that a number of the codes, regulations, and statutes cited above are implemented under the authority of regulatory entities other than the State Water Board and would therefore be beyond the scope of this CCCPH. The intent of providing such citations is to increase general awareness with respect to other potential statutory requirements associated with cross-connection control. The list is not exhaustive and does not include other requirements that may exist, including those via regulations that may have been adopted by an appropriate regulatory entity.

Federal Laws and Regulations

[4] California Department of Water Resources. (2003). *Water Recycling 2030: Recommendations of California's Recycled Water Task Force*

All suppliers of domestic water to the public are subject to regulations adopted by the U.S. Environmental Protection Agency (EPA) under the U.S. Safe Drinking Water Act (SDWA) of 1974, as amended (42 U.S.C. section 300f et seq.), as well as by the State Board under the California SDWA (Health & Saf. Code, div. 104, pt. 12, ch. 4, section 116270 et seq.). Additionally, the State Water Board has been delegated primacy - the responsibility and authority to administer U.S. EPA's drinking water regulations within California – on the condition that California adopt enforceable requirements no less stringent than U.S. EPA's.

The U.S. EPA currently has no distinct cross-connection control requirements that apply broadly to public water systems (PWS); however, the importance of cross-connection control is evident by the issue papers and guidance documents developed by U.S. EPA and their recognition that cross-connections and backflow represent a significant public health risk (see discussion in Chapter 2). Although U.S. EPA currently has no distinct cross-connection control requirements, the subject of cross-connection or backflow prevention assemblies is included in the U.S. SDWA and the Code of Federal Regulations (C.F.R.) in relation to PWS, including the following:[5]

- If used exclusively for non-potable services, a backflow prevention assembly (BPA) is exempt from the federal lead prohibitions. (42, U.S.C. section 300g)
- Allows increasing disinfectant concentrations in a PWS distribution system in the event of a cross-connection (backflow) event. (40 C.F.R. section 141.130(d))
- Proper maintenance of the distribution system, including cross-connection control, is identified as a best available technology (BAT) for microbial contaminant control. (40 C.F.R. section 141.63(e))
- Under the federal Revised Total Coliform Rule, a PWS having a cross-connection control program is one of the enhancements necessary to reduce monitoring for a PWS that had been under an increased monitoring frequency. (40 C.F.R. section 141.854(h)(2))
- Under the federal Revised Total Coliform Rule, a PWS having a cross-connection control program is a criterion for a state to allow a reduced monitoring frequency (40 C.F.R. section 141.855(d)(1))
- If a state allows the monitoring frequency reductions previously mentioned under the federal Revised Total Coliform Rule, a state is required to include in its primacy package to U.S. EPA how a PWS will be required to demonstrate cross-connection control. (40 C.F.R. section 142.16(q))

[5] For requirements unrelated to cross-connection control, please consult California's laws and regulations specific to the topic of interest. California may have more stringent requirements (e.g., reduced monitoring allowed via federal regulations may be prohibited in California).

Appendix B

Title 10 Municipal Services Chapter 10.15
Cross-Connection and Backflow Standards

City of San Bruno, CA
Sunday, March 9, 2025

Title 10. Municipal Services

Chapter 10.15. CROSS-CONNECTION AND BACKFLOW STANDARDS

§ 10.15.010. Purpose.

The purpose of this chapter is to describe the cross-connection control program implemented by the city of San Bruno public services department to protect the public water supply against actual or potential contamination through cross-connection and backflow.
(Ord. 1844 § 2, 2016; Ord. 1902 § 3, 2021)

§ 10.15.020. Scope.

The scope of the cross-connection control program includes all of the elements necessary to ensure compliance with the California **Code of Regulations**, Title 17, Public Health Sections 7583 through 7605. The city of San Bruno partners with the San Mateo County environmental health services division to implement the majority of the scope of this program, including compliance with required program personnel certifications, surveying of residential, industrial and commercial user facilities for potential cross-connection hazards, designation of appropriate backflow preventers, requirements for testers and testing of backflow prevention assemblies, and maintenance of records.
(Ord. 1844 § 2, 2016; Ord. 1902 § 3, 2021)

§ 10.15.030. Definitions.

The following definitions describe those terms and phrases that are pertinent to the various elements of a cross-connection control program:

Approved Backflow Prevention Assembly. The term "approved backflow prevention assembly" shall mean assemblies listed, and installed as prescribed, on the most current List of Approved Backflow Prevention assemblies, published by the University of Southern California Foundation for Cross-Connection Control and Hydraulic Research (USC Foundation), and meet any additional requirements deemed necessary by the city or environmental health.

Approved Water Supply. The term "approved water supply" means any local water supply whose potability is regulated by a state or local health agency.

Auxiliary Water Supply. The term "auxiliary water supply" means any water supply on or available to the premises other than the approved water supply as delivered by the water purveyor to the service connection.

AWWA. The term "AWWA" is an acronym for the American Water Works Association.

Backflow. The term "backflow" shall mean a flow condition, caused by a differential in pressure, which causes the flow of water or other liquid, gases, mixtures or substances into the distributing pipes of a

potable supply of water from any source or sources other than an approved water supply source. Back siphonage is one cause of backflow. Back pressure is the other cause.

Backflow Preventer. An approved assembly or means designed to prevent backflow.

1. Air Gap. The unobstructed vertical distance through the free atmosphere between the lowest opening from any pipe or faucet conveying water to a tank, plumbing fixture, receptor or other assembly and the flood level rim of the receptacle. These vertical physical separations must be at least twice the diameter of the water supply outlet, never less than one inch.

2. Reduce Pressure Principle Backflow Prevention Assembly. This assembly consists of two independently acting approved check valves together with a hydraulically operating, mechanically independent pressure differential relief valve located between the check valves and below the first check valve. These units are located between two tightly closing resilient-seated shutoff valves as an assembly and equipped with properly located resilient-seated test cocks.

3. Double Check Valve Assembly. This assembly consists of two internally loaded check valves, either spring-loaded or internally weighted, installed as a unit between two tightly closed resilient-seated shutoff valves and equipped with properly located resilient-seated test cocks.

4. Double Check Valve Detector Assembly. This assembly is a specially designed backflow assembly composed of a line-sized-approved double check valve assembly with a bypass containing a water meter and an approved double check valve assembly. The meter shall register accurately for only very low rates and is used to show unauthorized usage or leaks in the customers system.

5. Pressure Vacuum Breaker Assembly. This assembly contains one or two independently operated spring loaded check valves and an independently operated spring loaded air inlet valve located on the discharge side of the check or checks. It also includes two tightly closing shutoff valves on each side of the check valves and equipped with properly located resilient-seated test cocks.

6. Atmospheric Vacuum Breaker Assembly. This assembly contains an air inlet valve, a check seat and an air inlet port(s). A shut off valve immediately upstream may be an integral part of the assembly, but there shall be no shutoff valves or obstructions downstream. The assembly shall not be subject to operating pressure for more than twelve hours in any twenty-four-hour period.

7. Hose Bibb Vacuum Breaker. This device is permanently attached to a hose bibb and acts as an atmospheric vacuum breaker.

Certified Tester. The term "certified tester" means a person certified by AWWA or an approved equivalent certificate and certified by San Mateo County environmental health services to perform backflow prevention assembly testing.

City. Unless otherwise specified, the term "city" shall refer to the city of San Bruno department of public services water division or San Mateo County environmental health working as a partner to the water division.

Contamination. The term "contamination" means a degradation of the quality of the potable water by any foreign substance which creates a hazard to the public health, or which may impair the usefulness or quality of the water.

Cross-Connection. The term "cross-connection" as used in this document means any unprotected actual or potential connection between a potable water system used to supply water for drinking purposes and any source or system containing unapproved water or a substance that is not or cannot be approved as safe, wholesome, and potable. By-pass arrangements, jumper connections, removable sections, swivel or changeover devices, or other devices through which backflow could occur, shall be considered to be cross-connections.

Cross-Connection Control Program Specialist. The term "cross-connection control program specialist" means a person certified by AWWA, or an approved equivalent certifying entity, to evaluate the hazards inherent in supplying a customer's water system.

Customer or Responsible Party. The "customer or responsible party" is the person that either has applied for water service from the city, or owns or controls water piping or fixtures served by the city water supply. The terms customer and responsible party have the same meaning within this chapter.

Facility. The term "facility" means any and all areas on a water user's property which are served or have the potential to be served by the public water system.

Inspection Tag. "Inspection tag" means a current-calendar-year backflow tag purchased from San Mateo County environmental health.

Person. The term "person" means an individual, corporation, company, association, partnership, municipality, public utility, or other public body or institution.

Pollution. The term "pollution" shall mean an impairment of the quality of the water to a degree which does not create a hazard to the public health, but, which does adversely and unreasonably affect the aesthetic qualities of such waters for domestic use.

Public Water System. The term "public water system" means a system for the provision to pipe water to the public for human consumption that has fifteen or more service connections or regularly serves an average of twenty-five individuals daily at least sixty days out of the year.

Service Connection. The term "service connection" refers to the point of connection of a facility's piping to the water supplier's facilities, usually considered the point at the outlet from the water meter.

Water Supplier. The term "water supplier" means the person who owns or operates the approved water supply system.

Water User. The term "water user" means any person obtaining water from an approved water supply system.
(Ord. 1844 § 2, 2016; Ord. 1902 § 3, 2021)

§ 10.15.040. Administration of program.

A. Authority. The city of San Bruno department of public services is the administrative authority for the cross-connection control program. The authority to administer this program comes from state of California, Title 17; state of California, Public Utilities Commission Rule 16c; and state of California, Department of Public Health Services (and any successor agencies).

B. Program Administrator. The program administrator for the cross-connection control program in the city of San Bruno is the public services director or designee. The city also partners with the San Mateo County environmental health services division through an agreement to implement portions of the program, as allowed by California **Health and Safety Code**. However, the city is ultimately responsible for the implementation of the program.

(Ord. 1844 § 2, 2016; Ord. 1902 § 3, 2021)

§ 10.15.050. Appropriate backflow protection.

A. New Construction, Remodels and Tenant Improvements.

1. Residential, Single-Family and Duplexes Only.

a. Domestic Water. The city may require an approved backflow prevention assembly to be installed on the customer's facility, as close as possible to the service connection. The assembly shall be a reduced pressure principle backflow prevention assembly (RP) or a double check valve assembly (DC) as determined by the city. If it is determined that a backflow prevention assembly is required, the customer may also need to install a thermal expansion tank in accordance with the California Plumbing Code.

b. Irrigation System. The city requires an approved backflow prevention assembly to be installed on the customer's facility on the branch line serving an irrigation system. The assembly shall be a pressure vacuum breaker (PVB), reduced pressure principle backflow prevention assembly (RP), or atmospheric pressure vacuum breaker (AVB) as determined by the city.

c. Fire Suppression System. All facilities with an installed fire suppression system must have an approved backflow prevention assembly, excluding flow-through fire systems, on the branch line serving the fire suppression system. The assembly shall be a double check valve assembly (DC) or as determined by the city. Flow-through fire protection systems shall be constructed with approved potable water piping and material

2. Commercial, Industrial, Institutional, Multi-Family.

a. Domestic Water. The city may require an approved backflow prevention assembly to be installed on the customer's facility, as close as possible to the service connection. The assembly shall be a reduced pressure principle backflow prevention assembly (RP) or a double check valve assembly (DC) as determined by the city, the customer may also be required to install a thermal expansion tank in accordance with the California Plumbing Code.

b. Irrigation System. The city requires an approved backflow prevention assembly to be installed on the customer's facility, as close as possible to any irrigation system service connections or on any irrigation branch line. The assembly shall be a pressure vacuum breaker (pvb), reduced pressure principle backflow prevention assembly (RP) or atmospheric pressure vacuum breaker (AVB) as determined by the city.

c. Fire Suppression System. All facilities with an installed fire suppression system must have an approved backflow prevention assembly. The assembly shall be a double check valve detector assembly (DCDA) and installed according to city standard specifications and drawings, and this chapter. The assembly must incorporate a city-supplied bypass water meter at customer's cost which is also protected with an approved double check valve assembly.

B. Existing Service Connection. When it is determined in a survey by a city or environmental health cross-connection control program specialist that an actual or potential cross connection or backflow condition is present on an existing facility, the installation of an appropriate backflow preventer shall be required. Should an existing backflow prevention assembly be in place that does not meet the city's installation requirements, does not comply with this ordinance, or does not provide adequate protection with the degree of hazard found on site, the assembly shall be replaced or upgraded as required by the city, at the expense of the customer or responsible party.

(Ord. 1844 § 2, 2016; Ord. 1902 § 3, 2021)

§ 10.15.060. Surveys.

A. Identification of Survey Candidates. The city may identify specific industries that might pose an actual or potential backflow hazard to the public water supply. Some of these industries are identified from common lists of industries where cross-connections are likely to be found, as provided by the state of California, the USC Foundation, and other recognized organizations. From these lists, specific facilities in the city's service area may be identified by directories, mailing lists, associations, and business licenses.

B. Survey. Surveys may take the form of office surveys or field surveys. Office surveys may include determination of facility hazards based on business type or known water use on the facility. Office surveys could also include evaluation of responses to mailed or on-line surveys.

Field surveys may include evaluation of water use by observations made from public or private areas not on the subject facility, or physical inspection on all or a portion of the facility. When possible, a request to survey the facility shall be made at least twenty-four hours in advance, and a date and time agreed upon with a responsible party.

Should the request to survey be denied by a responsible party, notice shall be sent to the customer or responsible party directing installation of the appropriate backflow assembly, at the water meter, based on best available knowledge of the water use and potential hazards at the facility.

During the survey many factors are considered to determine if activities or water use on facility are or could be a potential hazard to the public water supply. Factors that may be considered include:

1. Alternative sources of water on site (auxiliary water supplies).
2. Piping configurations on site.
3. Uses of water on site.
4. Types of water using equipment.
5. Condition of water using equipment.
6. Complexity and elevations of plumbing on site, and the potential for alterations of that system.
7. Storage and use of hazardous materials on site.

All the factors found and recorded during the survey shall be considered in the determination of the degree of potential hazard (degree of hazard) to the public water supply. This information shall be considered in the determination of the appropriate backflow preventer. The customer or responsible party shall be informed of the requirement to provide backflow protection and the type of backflow prevention assembly required in accordance with Title 17 of the California Regulations related to drinking water or the direction of the county health officer.

(Ord. 1844 § 2, 2016; Ord. 1902 § 3, 2021)

§ 10.15.070. Location and configuration of backflow assemblies.

Backflow prevention assemblies shall be installed in accordance with Title 17 of the **California Code of Regulations**, Section 7603, the city's Standard Specifications, and the most recent edition of the USC Foundation manual. Any deviation from these requirements shall require the city's approval. Unless otherwise permitted by the city, all backflow preventers shall be installed on the customer's or responsible party's facility.

A. Air-Gap Separation (AG). The 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.

B. Double Check Valve Assembly (DC). A double check valve assembly and double check valve detector assembly shall be installed a minimum of twelve inches above grade and not more than thirty-six inches above grade measured from the bottom of the assembly in a manner where it is readily accessible for testing and maintenance.

C. Reduced Pressure Principle Backflow Prevention Assembly (RP). A reduced pressure principle backflow prevention assembly shall be installed a minimum of twelve inches above grade and not more than thirty-six inches above grade measured from the bottom of the assembly, and with a minimum of twelve inches side clearance in a manner where the assembly is readily accessible for testing and maintenance.

D. Pressure Vacuum Breaker (PVB). A pressure vacuum breaker check valve assembly shall be installed a minimum of twelve inches above all downstream piping and flood level rims of receptors and in a manner where it is readily accessible for testing and maintenance.

E. Atmospheric Vacuum Breaker (AVB). An atmospheric vacuum breaker check valve assembly shall be installed a minimum of six inches above all downstream piping and flood level rims of receptors and in a manner where it is readily accessible for testing and maintenance.

F. Backflow Prevention Assembly Enclosures. A backflow prevention assembly enclosure, cage or locked bag may be required by the city to be installed at the customer's expense, to combat against tampering, vandalism or theft. The city may require that any enclosure, cage or locked bag be secured to a concrete slab and securely locked.

Any deviation of installation from the descriptions provided shall require the city's approval prior to installation. All backflow prevention assembly installations may be inspected by the city to ensure compliance with all relevant statutes, regulations, ordinances, and city requirements.
(Ord. 1844 § 2, 2016; Ord. 1902 § 3, 2021)

§ 10.15.080. Testing and maintenance of backflow preventers.

A. Responsibility. As per the **California Code of Regulations**, Title 17, the city shall ensure that adequate maintenance and periodic testing of backflow prevention assemblies are provided by the customer or responsible party, to ensure the proper operation of the assemblies. Therefore, the city declares that the customer or responsible party is ultimately responsible for the installation, testing, and maintenance of all required backflow prevention assemblies on or related to the customer's facility.

B. Certified Testers. No person shall test and/or make reports on backflow prevention assemblies to comply with this chapter unless he or she possesses a current certification issued by the San Mateo County environmental health services division as defined in County Ordinance Code.

C. Frequency of Testing. Backflow prevention assemblies shall be tested by a certified tester immediately after they are installed, relocated or repaired and not placed in service unless they are functioning as required. All backflow prevention assemblies shall be tested at least annually or more frequently if determined to be necessary by the city or environmental health, in accordance with the **California Code of Regulations**, Title 17, and San Mateo County Ordinance Code. Exception is Section 8.4.1.A.

D. Fire Suppression System Backflow Preventer Testing.

1. Single-Family and Duplex Residential. Single-family and duplex residential (SFDR) fire suppression systems with an installed backflow prevention assembly shall be tested upon installation only, unless otherwise required by the city. After completion of successfully testing the assembly, the #1 and #2 shut off valves shall remain in the open position and the handles removed. The handles shall be stored in the spare head box. SFDR fire suppression system backflow assemblies are not required to be tested annually because of the low degree of hazard.

2. Commercial, Industrial, Multi-Family.

a. Commercial, industrial, multi-family fire suppression system backflow preventers must be tested annually by a certified tester.

b. If an existing fire suppression system backflow assembly is located in a vault, and has adequate physical clearance to test, it is considered "existing non-conforming" and approved for testing.

c. If an existing assembly fails the field test, the assembly must be repaired or replaced with an appropriate, approved backflow prevention assembly, installed to current city

standards. If any failed assembly is currently in a vault, the assembly must be relocated above grade, to meet all current codes and city standards.

d. If an existing fire system does not have testable approved backflow prevention assembly, the city shall require that a new appropriate assembly that meets all current codes be installed at customer or responsible party expense.

(Ord. 1844 § 2, 2016; Ord. 1902 § 3, 2021)

§ 10.15.090. Procedures for testing and inspection.

A. Testable backflow prevention assemblies shall be tested using current USC Foundation test procedures.

B. When a backflow prevention assembly is inspected and has passed the testing procedure, the certified tester shall immediately affix a numbered inspection tag to the assembly purchased from the county of San Mateo environmental health services division.

C. When a backflow prevention assembly fails the testing procedure, the certified tester shall immediately affix a "Failed" inspection tag to the assembly. Records of failed and passed assembly tests shall be filed/submitted as directed within ten days. The "Failed" inspection tag shall remain affixed to the assembly until the assembly is repaired, has passed the testing procedures and has been affixed with a numbered inspection tag.

D. Certified testers are solely responsible to comply with applicable municipal requirements for additional permits or licenses (i.e., local business license, plumbing permit, etc.) to test or repair backflow prevention assemblies within the city.

(Ord. 1844 § 2, 2016; Ord. 1902 § 3, 2021)

§ 10.15.100. Enforcement.

San Mateo County environmental health has the authority to take enforcement action as allowed in the county ordinance code relating to backflow prevention, and as it applies to the agreement between the city and environmental health. The city shall have the authority to enforce this chapter as follows.

A. Any person who violates any provision of this chapter, or bypasses or renders inoperative any backflow prevention assembly installed under the provisions of this chapter, shall be subject by San Mateo County environmental health or fines as detailed in the city of San Bruno Municipal Code Chapter **1.28** Violations of Code.

B. Failure to comply with any section of this chapter may be cause for the discontinuance of water service by the city. The program administrator shall give notice in writing of any violations of this chapter to the customer or responsible party. If appropriate action is not taken within ten days after such notice has been mailed or delivered in person, the program administrator may discontinue delivery of water. However, if the program administrator or San Mateo County environmental health determines that the violation constitutes an immediate threat to the public health or safety or to the integrity of the public water system, the program administrator or the health officer may discontinue delivery of water immediately without prior notice; in such an instance, the program administrator or the health officer shall deliver notice of discontinuance as soon as practicable to the property owner and customer or responsible party. Delivery of water shall not be resumed until all required corrective actions have been made and certified as complete by the city or environmental health.

C. All costs incurred by the city for discontinuance of water service and all fees associated with reinstating water service shall be paid by the customer or responsible party. Costs incurred by environmental health for inspections shall be paid by the customer or responsible party at the rate set forth by San Mateo County Ordinance.

(Ord. 1844 § 2, 2016; Ord. 1902 § 3, 2021)

§ 10.15.110. Reporting.

All reporting required by this chapter at the city shall be the responsibility of the program administrator. This includes any reports to local, state, and federal regulatory or health agencies such as; California Department of Health Services, and San Mateo County environmental health services division.
(Ord. 1844 § 2, 2016; Ord. 1902 § 3, 2021)

§ 10.15.120. Training of personnel.

A. Program Administrator. The program administrator of the cross-connection control program at the city shall be a minimum of a supervisor capacity. He or she shall be a cross-connection control program specialist as defined in this chapter.

B. Cross-Connection Control Inspector and Tester. The city representative assigned to the inspection and survey of customers to determine if backflow prevention is warranted shall be a cross-connection control program specialist as defined in this chapter. The city employee assigned to the testing of city-owned assemblies shall be a certified tester as defined in this chapter.

(Ord. 1844 § 2, 2016; Ord. 1902 § 3, 2021)

§ 10.15.130. Maintenance of records.

A. Assembly Records. Records of assembly type, size, manufacturer, installation date, location, account number, customer or responsible party of record, and repair history shall be kept electronically or in hard copy form. Assembly records shall be kept for the life of the assembly by either the city or by environmental health as appropriate.

B. Testing Records. Test results on all assemblies shall be kept electronically or in hard copy form for a minimum of three years.

(Ord. 1844 § 2, 2016; Ord. 1902 § 3, 2021)

Appendix C

San Mateo County Backflow Prevention Ordinance Amendment

ORDINANCE NO. 4903

BOARD OF SUPERVISORS, COUNTY OF SAN MATEO, STATE OF CALIFORNIA

* * * * * *

ORDINANCE REPEALING AND REPLACING CHAPTER 4.72 OF THE SAN MATEO COUNTY ORDINANCE CODE CONCERNING BACKFLOW PREVENTION

SECTION 1. FINDINGS. The Board of Supervisors of the County of San Mateo ("County") hereby finds and declares as follows:

WHEREAS, the County's Backflow Prevention Ordinance, Chapter 4.72 of the San Mateo County Ordinance Code, which was last amended in January 2013, protects potable water supplies from contamination by establishing County requirements for backflow prevention; and

WHEREAS, on December 19, 2023, the California State Water Resources Control Board (SWRCB) adopted new regulatory requirements related to cross-connection control for all public water systems in the form of the Cross-Connection Control Policy Handbook, Standards and Principles for California's Public Water Systems (Policy Handbook); and

WHEREAS, this Policy Handbook, promulgated as regulation, became effective July 1, 2024, with relevant milestones requiring updates to the County's Backflow Prevention Ordinance by July 1, 2025; and

WHEREAS, the Board of Supervisors now wishes to update Chapter 4.72 of the San Mateo County Ordinance Code, codifying County requirements for backflow

prevention, to align the Ordinance Code with the recently enacted Policy Handbook.

NOW, THEREFORE, the Board of Supervisors of the County of San Mateo ordains as follows:

SECTION 2. Chapter 4.72 of the San Mateo County Ordinance Code is hereby repealed in its entirety and is replaced by a new Chapter 4.72 to read as follows:

CHAPTER 4.72 BACKFLOW PREVENTION

4.72.010 Purpose and authority.

The purpose of this Chapter is to ensure the health, safety, and general welfare of the County of San Mateo citizens through protecting the potable water supplies from contamination by establishing County requirements for backflow prevention complementary to those established by the State Water Resources Control Board Cross-Connection Control Policy Handbook ("CCCPH"). Sections 116407, 116800, 116805, and 116810 of the California Health and Safety Code, and Section 3.1.3 of the CCCPH provide the County authority to implement this backflow prevention program, also known as a cross-connection control program, which is described in this Chapter.

4.72.020 Responsibility for administration.

This Chapter shall be administered and enforced by the Director of the San Mateo County Environmental Health Services Division of San Mateo County Health or the Director's designee, on behalf of the County Health Officer.

4.72.030 Scope and application.

Backflow prevention requirements imposed by the CCCPH and this Chapter, and fees enacted in accordance with San Mateo County Ordinance Code section 5.64.070, shall apply to all facilities (businesses, dwellings, activities, and piping systems of whatever sort) within the Water Supplier service areas of Water Suppliers that have entered into an agreement with the County of San Mateo, by and through the Environmental Health Services Division, for backflow prevention and enforcement. Pursuant to section 116800, et seq., of the California Health and Safety Code, this Chapter also applies within all Water Users' premises within the County of San Mateo where public exposure to drinking water contaminated by backflow may occur.

4.72.040 Definitions.

For the purposes of this Chapter, the following definitions shall govern unless the context clearly requires otherwise:

(a) “Authorized tester” is a backflow prevention assembly tester who meets all requirements specified in section 4.72.080 of this chapter and is approved to test backflow prevention assemblies that are included in San Mateo County’s Cross-Connection Control Program.

(b) “Backflow prevention assembly” (“BPA”) shall have the same meaning as defined in section 3.1.1 of the CCCPH.

(c) “Cross-connection” shall have the same meaning as defined in section 3.1.1 of the CCCPH.

(d) “Cross-Connection Control Policy Handbook” (“CCCPH”) means the Cross-Connection Control Policy Handbook adopted by the State Water Resources Control Board pursuant to California Health and Safety Code Section 116407.

(e) “Director” means the Director of the Environmental Health Services Division of the San Mateo County Health System.

(f) “Division” means the Environmental Health Services Division of the San Mateo County Health System.

(g) “Double check valve backflow prevention assembly” (“DC”) shall have the same meaning as defined in section 3.1.1 of the CCCPH.

(h) “Double check detector backflow prevention assembly” (“DCDA”) shall have the same meaning as defined in section 3.1.1 of the CCCPH.

(i) “Double check detector backflow prevention assembly – type II” (“DCDA-II”) shall have the same meaning as defined in section 3.1.1 of the CCCPH.

(j) “Graywater” shall have the same meaning as defined in California Water Code Section 14876.

(k) “Inspection tag” means a current-calendar-year backflow tag purchased from the Division, at a fee enacted pursuant to San Mateo County Ordinance Code section 5.64.070.

(l) “Lead free” shall have the same meaning as defined in California Health and Safety Code Section 116875.

(m) “Person” means any natural person, partnership, cooperative association, corporation, personal representative, receiver, trustee, assignee, or any other entity.

(n) “Pressure vacuum breaker backsiphonage prevention assembly” (“PVB”) shall have the same meaning as defined in section 3.1.1 of the CCCPH.

(o) “Public Water System” (“PWS”) shall have the same meaning as defined in section 3.1.1 of the CCCPH.

(p) "Recycled water” shall have the same meaning as defined in section 3.1.1 of the CCCPH.

(q) “Reduced pressure principle backflow prevention assembly” (“RP”) shall have the same meaning as defined in section 3.1.1 of the CCCPH.

(r) “Reduced pressure principle detector backflow prevention assembly” (“RPDA”) shall have the same meaning as defined in section 3.1.1 of the CCCPH.

(s) “Reduced pressure principle detector backflow prevention assembly – type II” (“RPDA-II”) shall have the same meaning as defined in section 3.1.1 of the CCCPH.

(t) “Spill-resistant pressure vacuum breaker backsiphonage prevention assembly” (“SVB”) shall have the same meaning as defined in section 3.1.1 of the CCCPH.

(u) “State Water Resources Control Board” (“Board” or “SWRCB”) means the California State Water Resources Control Board.

(v) “Water Supplier” shall have the same meaning as defined in section 3.1.1 of the CCCPH.

(w) “Water User” shall have the same meaning as defined in section 3.1.1 of the CCCPH.

4.72.050 Maintenance of cross-connection prohibited.

It shall be unlawful for any Person to have, keep, maintain, install, or allow the existence of a cross-connection.

4.72.060 Correction of cross-connections.

Any BPA installed for the purpose of eliminating a cross-connection shall conform to State law and this chapter. Only BPAs tested and approved in accordance with the CCCPH and this chapter at or before the time of installation shall be approved for use under this Chapter, and such BPAs shall be installed as indicated by the approving entity, pursuant to section 3.3.1(b) and (c) of the CCCPH, and under permit from the local building official. BPAs must not be modified without authorization following approval granted by the approving entity.

4.72.070 Tests of backflow prevention assemblies.

All testable BPAs, including but not limited to a DC, DCDA, DCDA-II, RP, RPDA,

RPDA-II, PVB, and SVB which have been installed to meet the requirements of the CCCPH and this Chapter shall be tested when initially installed and at least once each year thereafter. The annual re-test must occur within thirty (30) days of the anniversary date for the BPA as established by the Division, but never less than once every 395 days, by a Person authorized pursuant to section 4.72.080 of this Chapter. Records of such BPA tests shall be filed with the Division within ten (10) days after such tests. Records shall be on forms provided by, or by mechanism specified by the Division, or on a similar form that includes all the same equivalent data as determined by the Division.

Testable BPAs shall be tested using current University of Southern California, Foundation for Cross-Connection Control and Hydraulic Research test procedures as recognized by the Division. When a BPA is inspected and has passed the testing procedure, the authorized tester shall immediately affix a numbered inspection tag to the BPA. When a BPA fails the testing procedure, the authorized tester shall immediately affix a ”failed” inspection tag to the BPA. Records of failed BPA tests shall be filed with the Division within ten (10) days. The “failed” inspection tag shall remain affixed to the BPA until the BPA is repaired, has passed the testing procedures, and has been affixed with a numbered inspection tag. Pursuant to section 116875 of the California Health and Safety Code, any failed BPA that is not “lead free” and that is not specifically exempted by section 116875, must be replaced with an approved “lead free” BPA rather than being repaired.

4.72.080 Authorized testers.

No Person shall test and/or make reports on BPAs unless that Person possesses a current authorization issued by the Division as follows:

(a) The Division shall authorize any applicant who demonstrates competence to test and make reports on BPAs in compliance with the requirements of the CCCPH and this Chapter, and who submits an initial tester application, pays the annual authorization fee enacted pursuant to San Mateo County Ordinance Code section 5.64.070, and provides copies of all test gauge calibration certificates for any BPA test gauges that the BPA tester uses in performing BPA testing in San Mateo County. Such calibration certificates must be from calibration made within the calendar year (365 days) preceding the authorization. Applicants shall demonstrate such competence by complying with all of the following:

(1) Presenting a current valid certificate as a BPA tester issued by the California — Nevada Section of the American Water Works Association or equivalent certification as recognized by the SWRCB as detailed in section 3.4.1 of the CCCPH.

(2) Undertaking and passing an examination administered by the Division. Any such authorized tester may be required to undergo additional training, reexamination, other demonstration of competency or any combination thereof, as may be deemed

necessary by the Division.

(b) Tester authorization may be renewed annually by payment of the annual authorization fee. Payment must be made before expiration of the previous year's authorization. Proof of current certificate that complies with subdivision (a)(1) of this Section must be submitted to the Division with the fee. If there is any lapse in authorization or any suspension or revocation of tester authorization pursuant to Section 4.72.090 of this Chapter, the Division may require the tester to undergo re-examination, additional training, other demonstration of competency, or any combination thereof prior to re-authorization. Additionally, at the time of annual renewal, authorized testers must provide copies of all test gauge calibration certificates for any BPA test gauges that the BPA tester uses in performing BPA testing in San Mateo County. Such calibration certificates must be from calibration made within the calendar year (365 days) preceding the re-authorization.

Authorized testers are solely responsible for complying with applicable municipal requirements for additional permits or licenses (e.g., local business license, plumbing permit, etc.) to test, repair, report on, or install BPAs within that local jurisdiction.

4.72.090 Suspension or revocation of tester authorization.

(a) Reasons. Tester Authorization by the Division may be suspended or revoked upon any of the following grounds:

(1) The Division determines that a tester is no longer in possession of a current and valid certificate as a backflow prevention tester that complies with section 4.72.080 of this Chapter.

(2) The Division determines that the tester has practiced fraud or deception or has displayed gross negligence or misconduct in the performance of their duties, including by, for example, making a material misrepresentation on the initial or renewal application for tester certification to the Division or committing an act that may pose a threat to public health and safety in the performance of a test required by this Chapter.

(b) Procedures. Written notice of the suspension or revocation shall be served on the authorized tester by certified mail with a description of the violation and supporting facts. The notice shall contain an advisement of the right to request an appeal hearing before the Director or the Director's designee.

(c) Time Period of Suspension of Tester Authorization. The Division has discretion to suspend a tester authorization for any period of time between five (5) calendar days and the end of the annual authorization term, depending on the nature and severity of the violation.

(d) Effective Date of Suspension or Revocation. Suspension or revocation issued pursuant to subsection (a) will be effective ten (10) calendar days from the date the written notice was sent by certified mail as described in subsection (b) unless a timely appeal is filed in accordance with subsection (e).

(e) Appeal.

(1) The Division's decision to suspend or revoke tester authorization is appealable to the Director or the Director's designee.

(2) An appeal must be in writing, be addressed to the Director, and be hand-delivered or mailed to the offices of the Division.

(3) An appeal must be received by the Director on or before the effective date of suspension or revocation provided by subsection (d).

(4) The filing of a timely appeal will stay a suspension or revocation pending a decision on the appeal by the Director.

(5) An appeal hearing shall be scheduled within thirty (30) days of receipt of the appeal by the Director unless an extension is authorized by the appellant.

(6) The decision of the Director or the Director's designee following the appeal hearing shall be a final administrative order, with no further administrative right of appeal.

(7) The appellant shall be notified in writing by certified mail of the decision of the Director or their designee following the appeal hearing unless such person was present at the hearing when the decision was rendered, in which case notice shall be deemed to have been given to that person.

(f) Reapplication. No reapplication will be accepted within six (6) months after a tester authorization is revoked.

(g) Evidence. The following rules shall apply to any hearing required by this Chapter. All parties involved shall have the right to offer testimonial, documentary, and tangible evidence bearing on the issues, to be represented by counsel, and to confront and cross-examine witnesses. Any relevant evidence may be admitted if it is the sort of evidence upon which reasonable persons are accustomed to rely in the conduct of serious affairs. Formal rules of discovery do not apply to proceedings governed by this Chapter. Unless otherwise specifically prohibited by law, the burden of proof is on the authorized tester in any hearing or other

matter under this Chapter.

4.72.100 Duty to maintain backflow prevention assemblies.

It shall be unlawful to use any BPA required by the CCCPH, California Health and Safety Code, California Plumbing Code, this Chapter, or any other applicable law unless such assembly is in good repair. Assemblies which are found to not be in good repair shall be repaired and re-tested by an authorized tester, as described in section 4.72.070 of this Chapter, immediately upon discovery, and no later than seven (7) calendar days following the discovery and notice to the owner. A report thereof shall be filed with the Division within ten (10) days after such test.

4.72.110 Local laws and codes.

Nothing in this Chapter shall exempt any Person from compliance with applicable requirements of any local laws and codes, including but not limited to local plumbing and business codes, or any other chapters of the San Mateo County Ordinance Code.

4.72.120 Authority to inspect.

All facilities shall be available for inspection by the Division to determine if protection of the public water supply is required. The frequency of inspection shall be determined by the degree of potential or actual hazard determined for each facility or facility type, and as specified in the CCCPH, or in the operating rules of any Public Water System. Costs incurred by the Division for these inspections shall be paid by the facility owner at the rates enacted pursuant to San Mateo County Ordinance Code section 5.64.070.

4.72.130 Enforcement.

The Division shall have the authority to enforce this Chapter as follows:

(a) The Division may require a water supplier to discontinue water service to any facility wherein violations of this Chapter exist.

(b) Any Person who violates any provision of this Chapter, or bypasses or renders inoperative any BPA installed under the provisions of this Chapter, may, in addition to other penalties provided by law and this Chapter, be subject to discontinuance of water service. Water service shall not again be reinstated until such violations have been corrected as determined by the Division. Costs incurred by the Division for inspections shall be paid by the facility owner at the rates enacted pursuant to San Mateo County Ordinance Code section 5.64.070.

(c) Pursuant to section 116820 of the California Health and Safety Code, any Person who violates any provision of Article 2 of Chapter 5 of Part 12 of Division 104 of the California Health and Safety Code (“Article 2”), violates any order of the Division pursuant to Article 2, or knowingly files a false

statement or report required by the Division pursuant to Article 2 is guilty of a misdemeanor punishable by a fine not exceeding five hundred dollars ($500.00) or by imprisonment not exceeding 30 days in the county jail or by both such fine and imprisonment. Each day of a violation of any provision of Article 2 or of any order of the Division beyond the time stated for compliance of the order shall be a separate offense.

(d) Administrative Fines.

(1) Violations. Upon a finding by the Division that a Person has violated any provision of this Chapter or directive of the Division made pursuant to this Chapter, knowingly filed a false statement or report required pursuant to this Chapter, or bypassed or rendered inoperative any BPA installed under the provisions of this Chapter, the Division may issue an administrative order requiring that the violation be corrected and may issue an administrative fine of up to five hundred dollars ($500.00).

(2) Separate Violations. Each day of a violation as described in subsection (a) shall constitute a separate violation.

(3) Fine Procedures. Notice of the fine shall be served by certified mail with description of the violation and supporting facts. The notice shall contain an advisement of the right to request a hearing before the Director or the Director's designee contesting the imposition of the fine.

(4) Appeals. Appeals must be requested in writing, and shall provide facts disputing the violation. Appeals must be addressed to the Director, and must be received within ten (10) calendar days of the date on which the notice described in subdivision (c) was mailed. The decision of the Director or their designee on the appeal shall be provided to the appellant by certified mail. The decision will constitute a final administrative order with no additional administrative right of appeal.

(5) Failure to Pay Fine. If said fine is not paid within thirty (30) calendar days from the date appearing on the notice of the fine or the notice of determination from the Director or their designee after the appeal hearing, whichever is later, the fine may be referred to a collection agency within or external to the County of San Mateo. In addition, any outstanding fines must be paid prior to the issuance or renewal of the Person's registration or authorization pursuant to this Chapter.

4.72.140 Recycled or graywater systems.

All components of recycled or graywater systems must be designed and installed

in accordance with California law and local Plumbing Codes.

4.72.150 Sections found invalid.

If any provision, clause, section, sentence, or paragraph of this Chapter or the application thereof to any Person or circumstances is held invalid, such validity shall not affect the other provisions of this Chapter which can be given effect without the invalid provision or application, and to this end the provisions of this Chapter are declared to be severable.

SECTION 3. SEVERABILITY. If any section, subsection, sentence, clause or phrase of this Ordinance is for any reason held to be invalid or unconstitutional by the decision of a court of competent jurisdiction, it shall not affect the remaining portions of this Ordinance.

SECTION 4. EFFECTIVE DATE. This Ordinance shall be effective 30 days from the date of adoption.

* * * * * *

ORDINANCE NUMBER: 4903

Regularly passed and adopted this 25th day of March, 2025

AYES and in favor of said ordinance:

Supervisors: *JACKIE SPEIER*

NOELIA CORZO

RAY MUELLER

LISA GAUTHIER

DAVID J. CANEPA

NOES and against said ordinance:

Supervisors: *NONE*

President, Board of Supervisors
County of San Mateo
State of California

Certificate of Delivery

I certify that a copy of the original ordinance filed in the Office of the Clerk of the Board of Supervisors of San Mateo County has been delivered to the President of the Board of Supervisors.

Deputy Clerk of the Board of Supervisors

Appendix D

Public Water System and Environmental Health Agreement

Environmental Health Services
San Mateo County Health
2000 Alameda de las Pulgas
Suite 100
San Mateo, CA 94403
smchealth.org

COUNTY OF SAN MATEO

SAN MATEO COUNTY ENVIRONMENTAL HEALTH SERVICES AGREEMENT FOR IMPLEMENTING CROSS-CONNECTION CONTROL PROGRAM WITH PUBLIC WATER SYSTEMS

The Public Water System (PWS) is the primary responsible entity for their Cross-Connection Control (CCC) Program, including compliance, reporting, and recordkeeping as mandated by the Cross-Connection Control Policy Handbook (CCCPH) and the California Health and Safety Code (CA H&SC), and enforced by the Division of Drinking Water (DDW) of the State Water Resources Control Board (SWRCB).

For those PWS that agree to partner with San Mateo County Environmental Health Services (EHS), EHS has a role in implementation of the PWS Cross-Connection Control Program by providing services as described in this document. EHS authority and scope are detailed in Sections 4.72.010 through 4.72.130 of Chapter 4.72 of Title 4 of the San Mateo County Ordinance Code.

The purpose of a CCC Program is to protect the public water supply from backflow, typically achieved by installation of backflow prevention assemblies (BPA) at the service connection (meter) of water users. If authorized by the PWS, BPA may be required within the water user's facility in lieu of meter protection, provided that the facility has been appropriately inspected to ensure that all possible sources of contamination have been eliminated, and therefore, achieves the equivalent of meter service protection. However, backflow protection at the service meter is preferable.

This document describes what elements of a CCC Program that the PWS and EHS will collaborate on. This document does not give the scope of all the PWS's responsibilities as they relate to the CCCPH.

The following is a list of the PWS's responsibilities to provide to EHS:

1. PWS will provide water user account and mailing information as requested by EHS to ensure notices to test BPA are being directed to the correct party and location, and in order for EHS to attempt to make contact with water user facilities as necessary. PWS will also provide EHS with water meter account information (number of meters, type of meters, meter numbers, locations) as requested.

2. PWS will make contact with certain delinquent water users as requested by EHS through a method of their choosing, or by hand delivery of notices-to-test including facility-specific blank test report forms. If deemed necessary, EHS may recommend the PWS discontinue water service to any water user facility for the protection of the public water supply.

3. PWS will provide guidance to water user facilities and follow up with specific cross-connection control related projects including, but not limited to, BPA removal requests, projects requiring a BPA be moved to properly protect the system, replacements with specific types of BPA, or replacement of BPAs above grade.

4. PWS will notify EHS when inspections by the Division of Drinking Water (DDW) are scheduled. EHS will attend inspections (unless otherwise requested) and will be available to DDW staff to provide information on the EHS portion of the PWS cross-connection control program.

5. PWS will notify EHS when there is change in PWS contact/personnel or cross-connection control program coordinator.

6. The PWS shall provide a copy of their operating rules/ordinance to EHS for reference (CCCPH Section 3.1.3(a)(1)).

7. The PWS Cross-Connection Control Program Coordinator will need to work with and be in close contact with EHS Cross-Connection Control Specialists/staff (CCCPH Section 3.1.3(a)(2)).

8. Due to the PWS controlling the current list of their metered accounts, the PWS will have primary responsibility for record-keeping of hazard assessments, as well as performing hazard assessments. However, EHS will assist with a subset of hazard assessments, and provide copies of previously performed surveys/hazard assessments for use by the PWS.

9. The PWS, along with EHS, shall be responsible for ensuring the water system is protected with installation of BPA, and high hazard facilities are protected through appropriate premises containment/meter protection.

10. The PWS, along with EHS and the local building department, will ensure all BPA meet the installation criteria listed in the CCCPH Article 3.

11. The PWS will notify EHS of known or suspected backflow incidents (CCCPH Section 3.5.2).

The following is a list of the EHS responsibilities to provide to the PWS:

1. EHS will, at all times, maintain staff with appropriate certification in cross-connection control as required by the CCCPH.

2. EHS will enforce applicable statutes, regulations and local ordinances as related to cross-connection control for which EHS has authority.

3. EHS will perform a subset of hazard assessments, based on existing BPA and facility inventory, to be provided to the PWS for recordkeeping.

4. EHS will initiate progressive enforcement action for non-compliance by water users with required corrective actions, requirements to install or properly maintain BPA, or any other violation of applicable cross-connection control statute, regulation, or local ordinance.

5. EHS will provide the PWS with an annual (at a minimum) report of surveys, letters, and annual BPA testing compliance statistics for the Electronic Annual Reporting to the DDW.

6. EHS will meet with water purveyors in preparation for and during inspections by DDW staff. EHS will be available to DDW staff to provide information on EHS portion of the Cross-Connection Program, as well as EHS backflow inventory and testing records for the PWS.

7. EHS, upon notification by the PWS, will respond in tandem with PWS field staff to any suspected backflow incidents, and will continue to consult with PWS and DDW staff on backflow incidents and appropriate follow-up.

8. EHS will maintain a backflow prevention assembly tester authorization program as detailed in County Backflow Prevention Ordinance, including maintaining information on individual tester primary certification and tester field test kit or gauge calibration, as well as potential investigation and enforcement action against testers who violate County Ordinance.

9. EHS will maintain records of all known BPA (and air gaps serving as premises containment) within the PWS service area, as well as test records of those assemblies (or record of air gap visual inspection) as required by statute, regulation, and local ordinance.

10. EHS will enforce annual testing of assemblies as required by statute, regulation, and local ordinance, including the following tasks:

    a. EHS will notify water users when their BPA testing is due via United States Postal Service and provide a copy of the blank test forms.

    b. EHS will maintain a current list of San Mateo County-authorized backflow prevention assembly testers for use by water users and their contractors.

    c. EHS will evaluate testing results for inadequacies and needed follow-up.

    d. EHS will maintain individual BPA records as testing reports are received, including any updates or corrections to BPA-specific data as needed.

e. EHS will provide a monthly report of delinquent BPA for use/follow up by the PWS.

f. EHS will implement progressive enforcement of water users for non-compliance of backflow testing as detailed in the County Backflow Ordinance.

11. EHS will respond to phone calls and e-mails from BPA owners and backflow testers regarding test notices, annual testing requirements, mailing address updates, etc.

12. EHS will work with PWS to discuss CCC program questions, backflow issues, and provide recommendations.

Appendix E

BPA Tester Application

SAN MATEO COUNTY HEALTH
ENVIRONMENTAL HEALTH SERVICES

Environmental Health Services
Cross Connection Program
2000 Alameda de las Pulgas, Suite #100
San Mateo, CA 94403
Phone:(650) 372-6200 | Fax: (650) 627-8244
smchealth.org/crossconnection

CERTIFIED BACKFLOW TESTER APPLICATION

Before filling out this form, download it and save to your computer. Fill out the saved version.

Please fill out the application below and submit your valid CA-NV AWWA, ABPA, ASSE or Backflow Prevention General Tester certification card and certificate.

Although there is no exam fee, testers will have to pay the current annual tester fee. Current fees, including the price of backflow tags, can be found at smchealth.org/ehfees. Failed assembly tags are free. Environmental Health Services accepts Visa, Mastercard, and checks.

Study material is available for the exam. To schedule an exam or if you have any questions, please call (650) 372-6200, or email backflow@smcgov.org.

TESTER INFORMATION:

Tester Name: _____ Date: _____

Business Name: _____

Mailing Address: _____

Mailing City: _____ State: _____ Zip: _____

Phone Number: _____ List on public webpage? _____

Cell Number (division use only): _____

Email: _____ List on public webpage? _____

Certified Tester Signature: _____

DIVISION USE ONLY:

SMCEHS Certification Number: _____ Exam Date: _____

Associate License Tester Number: _____ Expiration Date: _____

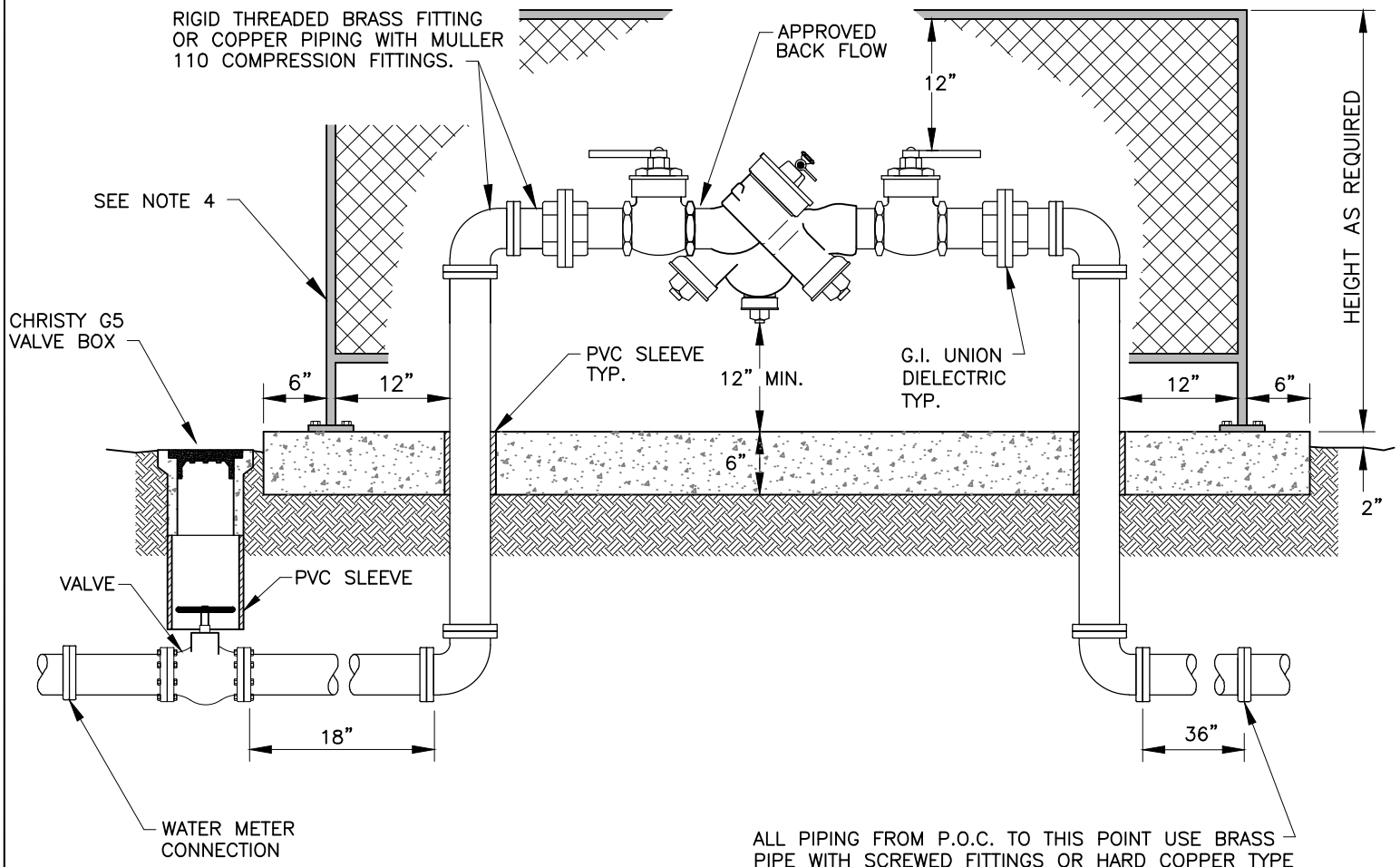
Date Issued: _____ REHS Initials: _____

Association: _____ Account ID: _____

Facility ID: _____

Appendix F

Design Drawing W-03 – Backflow Preventer



NOTES:

1. INSTALLATION SHALL COMPLY WITH TITLE 17 REQUIREMENTS, COUNTY HEALTH REGULATIONS AND WATER DEPARTMENT STANDARDS.
2. DEVICE MUST BE FROM THE CURRENT USC APPROVED LIST AND PAINTED WITH TWO COATS OF RUSTOLEUM, COLOR APPROVED BY CITY ENGINEER.
3. INSTALL DUMP PORT AT A MINIMUM OF 12" ABOVE GRADE.
4. ENCLOSURE TO PROVIDE MINIMUM 12" CLEARANCE AROUND UNIT.
5. TAP AND METER INSTALLATION CONDUCTED BY CITY PERSONNEL.
6. PROVIDE 6" CLEARANCE TO EDGE OF CONCRETE FROM FENCING.
7. WRAP ALL METAL PIPE BELOW GRADE WITH .010" x 2" P.E. TAPE. USE HALF LAP.
8. GATE VALVE LIDS MUST NOT BE LOCATED UNDER SLAB.
9. DEVICE TO BE TESTED BY AN APPROVED TESTER AND TAGGED PRIOR TO APPROVAL FOR USE.
10. PROTECTION AGAINST INCLIMATE WEATHER OPTIONAL BY OWNER.
11. GATE VALVE TO BE MILWAUKEE 105 SERIES/ MALLABLE IRON HAND WHEEL.
12. BACKFLOW PREVENTER SHALL BE LOCATED OUTSIDE THE PUBLIC RIGHT-OF-WAY IN THE PUBLIC UTILITY EASEMENT AND WITHIN 3-FEET OF THE WATER METER, UNLESS OTHERWISE APPROVED BY THE CITY ENGINEER. PUBLIC UTILITY EASEMENTS SHALL BE DEDICATED AS NEEDED TO ACCESS AND FOR THE BACKFLOW PREVENTION DEVICE AND ASSOCIATED ASSEMBLIES.
13. BACKFLOW PREVENTION DEVICE, METER AND BYPASS ASSEMBLY SHALL BE SHOWN TO SCALE ON PLANS. FOR BACK-FLOW PREVENTION DEVICES 3-INCH IN SIZE OR LARGER, SCALED PROFILE VIEWS SHALL ALSO BE PROVIDED OF THE FLOW PREVENTION DEVICE, METER, AND BYPASS ASSEMBLY.

City of San Bruno *Standard Detail*	BACKFLOW PREVENTER	DATE: OCT. 2024 DRAWN BY: JMH
	CITY ENGINEER: APPROVED BY: HAE WON RITCHIE R.C.E. C69532	DETAIL NO: W-03


WEST YOST
Water. Engineered.