

# POLICY AND PROCEDURES FOR BACKFLOW PREVENTION AND CROSS-CONNECTION CONTROL

GWINNETT COUNTY  
DEPARTMENT OF WATER RESOURCES  
April 2023

Administrative Practices for Cross-Connection Control and Backflow Prevention  
established by the Gwinnett County Department of Water Resources



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## DEFINITIONS

**AIR GAP** - a physical separation between the free flowing discharge end of a potable water supply pipeline and an open or non-pressure receiving vessel. An "approved air gap" shall be at least double the diameter of the supply pipe measured vertically above the overflow rim of the vessel, in no case less than one inch (2.54-cm).

**AWWA** - American Water Works Association

**BACKFLOW** – the undesirable reversal of flow of water or mixtures of water and other liquids, gases, or other substances into the distribution pipes of the county's potable water system from any source or sources. See "BACKSIPHONAGE" and "BACKPRESSURE".

**BACKFLOW PREVENTER (BFP)** – an assembly, device or means designed to prevent backflow.

**BACKFLOW PREVENTER with INTERMEDIATE ATMOSPHERIC VENT (IAV)** – a backpressure and backsiphonage-type backflow-prevention device designed to operate under continuous pressure, including backpressure, where low degree contaminants are involved.

**BACKFLOW PREVENTION** – a program, an ordinance, a code, a policy; designed to discover, to eliminate, to prevent all unauthorized and uncontrolled backflow and cross-connections.

**BACKPRESSURE** – any elevation of pressure in the downstream piping system (by pump, elevation of piping, or steam and/or air pressure) above the county's potable water system pressure at the point of consideration, which would cause, or tend to cause, a reversal of the normal direction of flow.

**BACKSIPHONAGE** – the flow of water or other liquids, mixtures, or substances into the county's potable water distribution system, as a potable water supply system from any source other than the county's source caused by the sudden reduction of pressure in the county's potable water system.

**CERTIFIED BACKFLOW PREVENTION ASSEMBLY TESTER** - a person who holds a currently valid certificate from a certified program regulated by the State of Georgia, Environmental Protection Division (EPD) to test backflow prevention devices connected to the county's potable water system.

**C.O.** – Certificate of Occupancy

**CONTAMINATION** - an impairment of the quality of the water, which creates a potential hazard to the public health through poisoning or through the spread of disease by sewage, bacteria, chemicals, industrial fluids, waste, etc.

**CROSS CONNECTION** - any unprotected connection or structural arrangement between the county's potable water system or a customer's potable water system and any other source or system through which it is possible to introduce into any part of the county's potable water system any used water, bacteria, chemicals, industrial fluid, gas, or substance other than the intended potable water with which the system is supplied. Bypass arrangements, jumper connections, removable sections, swivel or change-over devices, and other temporary or permanent devices through which or because of which backflow can or may be caused are considered to be cross connections. A "direct cross connection" shall mean a cross connection which is subject to both backsiphonage and backpressure. An "indirect cross connection" shall mean a cross connection which is subject to backsiphonage only.

**CROSS CONNECTION CONTROL BY CONTAINMENT** - the installation of an approved backflow prevention device at the water service connection to any customer's premises/parcel where it is physically and economically infeasible to find and permanently eliminate or control actual or potential cross-connections within the customer's water system.

**CROSS CONNECTION CONTROL BY ISOLATION** – the installation of an approved backflow prevention device on the service line leading to and supplying all or a portion of a customer's water system where there are actual or potential cross-connections within the customer's premises which cannot be effectively eliminated or controlled at the point of cross-connection.

**CUSTOMER** - any owner of premises/parcel receiving county potable water system service or any end-user thereof, including any and all persons, natural or artificial, including any individual firm, association or trust and any municipal or private corporation organized or existing under the laws of this or any other state or country.

**DOUBLE CHECK VALVE ASSEMBLY (DCV)** - an assembly composed of two independently acting, approved check valves, including tightly closing resilient seated shutoff valves attached at each end of the assembly and fitted with properly located resilient seated test cocks. This assembly shall only be used to protect against a non-health hazard (i.e. pollutant).

**DOUBLE DETECTOR CHECK (DDC)** – a backpressure-type backflow-prevention device designed to serve also as a detector check on fire protection systems where pollutants are involved. It includes a line-size approved double check valve backflow preventer with a metered bypass, into which has also been incorporated an approved double check valve backflow preventer.

**DUAL CHECK (DuC)** – a backpressure-type backflow-prevention device designed especially for containing water systems to residences, mobile homes, etc., as the “second line of defense,” and for isolating residential lawn sprinkler systems, etc., where pollutants only are involved.

**PLUMBING HAZARD** - an internal or plumbing type cross connection in a customer's potable water system that may be either a pollutant or a contaminant type hazard. This includes but is not limited to cross connections to toilets, sinks, lavatories, wash trays and lawn sprinkling systems. Plumbing type cross connections can be located in many types of structures including homes, apartment houses, hotels, and non-residential establishments. Such a connection, if permitted to exist, must be properly protected by an appropriate type of backflow prevention assembly.

**REDUCED PRESSURE DETECTOR CHECK (RPDC)** – a backpressure and backsiphonage-type backflow-prevention device designed to serve also as a detector check on fire protection systems where contaminants are involved. It includes a line-sized reduced pressure zone backflow preventer with a metered bypass, into which has also been incorporated an approved reduced pressure zone backflow preventer.

**REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTION ASSEMBLY** - an assembly containing two independently acting approved check valves together with a hydraulically operating, mechanically independent pressure differential relief valve located between the check valves and at the same time below the first check valve. The unit shall include properly located resilient seated test cocks and tightly closing resilient seated shutoff valves at each end of the assembly. This assembly is designed to protect against a non-health (i.e. pollutant) or a health hazard (i.e. contaminant). This device shall be permitted to be installed where subject to continuous pressure conditions.

**THERMAL EXPANSION** - When water is heated and stored in a consumer's water system, or a branch of the system, that has been closed by the installation of a backflow prevention device, or any other checking device; an auxiliary relief valve, or expansion chamber, shall be installed to limit thermal expansion of the water being heated to not more than 80 psi static (no-flow) pressure at any fixture on the system.

**WATER SERVICE CONNECTION** - the terminal end of a service connection from the public potable water system, (i.e., where the county may lose jurisdiction and sanitary control of the water at its point of delivery to the customer's water system). If a water meter is installed at the end of the service connection, then the water service connection shall mean the downstream end of the water meter. The county's responsibility stops at the terminal end of the water service connections from fire hydrants and all other temporary or emergency water service connections from the county's potable water system.

**ZONE OF INFLUENCE** – (1) The area that receives pressure exerted onto the underlying or adjacent soil column and provides foundational support to an improvement or structure. Excavation of soils from this zone of influence increases the potential for the loss of support and subsequent damage to those supported structures and improvements. Such zones of influence are created by point loads, linear loading, or area loading and must be defined accordingly by the design engineer when adjacent to public easements or infrastructure. (2) The zone of influence is the area above and beside a main where surface loads will have an impact on the main. Generally, this will be 3-ft either side of the sewer or water utility on a 45-degree angle from the bottom projection of the pipe extending upwards to the ground surface.

# 1.0 INTRODUCTION

- 1.1.1 The practices and policies outlined in this document are established so that Gwinnett County Department of Water Resources (GCDWR) may administer and enforce the requirements listed in the Gwinnett County Government Ord. No. CCC-2010, Div. 2, §§ 106-65 – 106-76, adopted Sept. 21, 2010.
- 1.1.2 This is a Reference Document to the GCDWR Water Distribution and Wastewater Collection Infrastructure Standards, latest edition. All policies and guidance set forth in the Water Distribution and Wastewater Collection Infrastructure Standards must be followed if not specified herein.
- 1.1.3 The overall intent is to describe how GCDWR will establish and maintain the necessary requirements outlined by the ordinance; this document will accompany the ordinance to provide clarity. This document will be updated as often as the need arises to establish or refine the policies and practices.
- 1.1.4 The purpose of this program is to protect the health, safety, environment, and general welfare of the public that are served by the Gwinnett County potable water system by requiring a containment backflow prevention assembly at the service connection and establishing and maintaining a program that requires installation and annual maintenance of backflow prevention assemblies.

## 2.0 GENERAL INFORMATION

- 2.1.1 GCDWR is required to maintain the potable water system in compliance with all Federal and State standards for providing safe drinking water. The County ordinance, along with the Federal Safe Drinking Water Act of 1974 and State of Georgia Safe Drinking Water Act of 1976, prohibits GCDWR from installing or maintaining a service connection to a customer's water system where a potential health, system, plumbing, or pollution hazard does or may exist without it being protected against backflow by the installation of an approved backflow prevention assembly. To ensure the proper measures are in place, GCDWR will determine the degree of hazard to the public potable water system posed by a particular service connection using the latest edition of the American Water Works Association (AWWA) M14 Backflow Prevention and Cross-Connection Control Recommended Practices manual, and the Georgia State Minimum Standard Plumbing Code.
- 2.1.2 The Customer has the responsibility to prevent pollution and/or contamination from occurring in their own system, as well as the potable water system. The Customer's responsibility begins where the public water system ends at the service connection (the downstream end of the County metering device), and includes all plumbing, pipe, and fixtures that make up the Customer's system.
- A. Meters larger than 2-inches shall be located in a vault along with the backflow prevention device. GCDWR's responsibility includes the County metering device and any permanent by-pass piping/device around the meter.
- 2.1.3 The Customer, at their own expense, shall install, maintain, operate, and test approved backflow prevention assemblies as directed by GCDWR. The Customer shall maintain accurate records of tests and repairs made to backflow prevention assemblies. All assemblies shall be tested by a GCDWR approved, State certified backflow prevention assembly tester. Certified testers must provide test reports to GCDWR using the backflow prevention test report submittal portal on the GCDWR website. Installations and repairs on vaulted backflow prevention assemblies (i.e. 3-inch and larger) shall be made by a County approved contractor. Smaller devices (i.e. 2-inch and smaller) may be installed or repaired by the customer.
- 2.1.4 Only assemblies approved by and appearing on the most current edition of the University of Southern California (USC) Foundation for Cross-Connection Control and Hydraulic Research's List of Approved Backflow Prevention Assemblies may be installed. (Gwinnett County Cross Connection Control Ordinance, 2010, Sec. 106-72 - Department Approval Required.)
- 2.1.5 All backflow prevention devices/assemblies shall meet the applicable standards as listed in Section 608 of the Georgia State Minimum Standard

Plumbing Code. Refer to Table 608.1 from the Georgia State Minimum Standards for specific applications.

## 3.0 BACKFLOW PREVENTION ASSEMBLY SELECTION

- 3.1.1 The selection of a backflow preventer is most dependent upon the degree of hazard perceived by the particular connection to the county's system.
- 3.1.2 Each connection to the public potable water system will be reviewed and the degree of hazard determined as follows:
  - A. A HIGH HAZARD is a cross connection where the possibility exists that a contaminate may be introduced into the public water system that will cause death and/or spread illness or disease, or a substance that has a high probability of causing such ill effects.
  - B. A LOW HAZARD is a cross connection where the possibility exists that a pollutant may be introduced into the public water system that, while it may be aesthetically objectionable, poses no public health hazard.
- 3.1.3 Table 1.0 below provides a list of the most common devices, the degree of hazard for the type of device, and examples of business types and situations where the type of device could be used. Ultimately the hazard level will be assessed by GCDWR, using Section 608 of the Georgia State Minimum Standard Plumbing Code.

**TABLE 1.0 TYPES AND APPLICATIONS OF BACKFLOW PREVENTERS**

Device Type	Minimum Degree of Hazard	Description	Application Examples
Double Check Valve Assembly (DCV)	Low Hazard	Two independent check valves supplied with shut-off valves and ball type test cocks.	<ul style="list-style-type: none"> <li>• Fire systems with sprinklers</li> <li>• Automotive repair (engine repair, oil change, body repair)</li> <li>• Landscape irrigation</li> <li>• Premises with combined fire protection</li> <li>• Residential with fire protection</li> </ul>
Double Detector Check Valve Assembly (DDCV)	Low Hazard	Double check valve assembly with a water meter and double check in by-pass line.	<ul style="list-style-type: none"> <li>• Fire systems with sprinklers</li> <li>• Private hydrants</li> <li>• Premises with combined fire protection</li> <li>• Residential with fire protection</li> </ul>
Dual Check Valve Backflow Preventer (DuC)	Low Hazard	Two independent check valves. Check valves are removable for testing.	<ul style="list-style-type: none"> <li>• Residential supply lines</li> </ul>
Reduced Pressure Zone Backflow Preventer (RPZ)	High Hazard	Two independent check valves with intermediate relief valve supplied with shut-off valves and ball type test cocks.	<ul style="list-style-type: none"> <li>• Automotive repair</li> <li>• Brewery/distillery</li> <li>• Car wash</li> <li>• Chemical production plant</li> <li>• Fire systems with sprinklers</li> <li>• Food processing and bottling plants</li> <li>• Hospitals, medical centers, dental offices, etc.</li> <li>• Laboratories</li> <li>• Metal plating facilities</li> <li>• Mortuaries</li> <li>• Restricted access facilities</li> <li>• Sewage treatment facilities, pump stations, or waste dump stations</li> <li>• Veterinary Clinics</li> </ul>

\*The types of devices and application examples listed are not comprehensive. Other devices and applications may be utilized where appropriate and approved.

\*GCDWR reserves the right to increase the degree of hazard based on expected usage of the property.

## **3.2 RESIDENTIAL DEVELOPMENT**

3.2.1 All residential developments shall be done in accordance with Local, County, State, and Federal regulations including Section 608 of the Georgia State Minimum Standard Plumbing Code (as amended). All single-family residential developments shall have a Dual Check Valve installed directly at, or as close as possible to the point of connection between the County's system and the Customer's system such that no other cross connections exist between the assembly and the County's system.

## **3.3 NON-RESIDENTIAL DEVELOPMENT**

3.3.1 A backflow prevention assembly commensurate with the degree of hazard posed by the business shall be installed directly at or as close as possible to the point of connection between the County's system and the Customer's system such that no other cross connections exist between the assembly and the County's system. Should the parcel's use operations or water use change, the owner/operator shall be responsible for notifying GCDWR so that criteria for device selection can be reassessed to ensure that proper protection is in place and the new hazard determination is properly documented.

## **3.4 FIRE SYSTEMS**

3.4.1 In general, all fire systems can be considered to pose a hazard to the potable water system due to stagnation of the water in the line. Some fire protection systems may also provide connections for the use of chemical additives for fire suppression or to prevent freezing. Some of these systems may also be configured to allow a pumping connection with the fire department in order to supplement the sprinkler systems during a fire. GCDWR will determine the degree of hazard on a case-by-case basis and the appropriate assembly will be selected based on the criteria set forth in this manual.

## **3.5 WATER METER SELECTION GUIDANCE**

3.5.1 Compound and fire service meters shall be adequately sized based on flow requirements. Refer to the latest edition of the AWWA M6 Water Meters – Selection, Installation, Testing, and Maintenance manual for guidance on water meter selection and installation.

## 4.0 INSTALLATION REQUIREMENTS

- 4.1.1 To install containment backflow prevention assemblies (i.e. 3-inch and larger), the installer must be on the approved contractor list. Smaller devices (i.e. 2-inches and smaller) may be installed by the homeowner or full-time maintenance personnel for the location. All installations are required to meet the prescribed details that have been established by GCDWR. The details with installation specific requirements are included in Appendix B of this document.
- 4.1.2 A variance is required if the proposed design does not meet the standards and details contained herein. Please submit a variance request using the current form and processes provided by GCDWR.
- 4.1.3 Vaults shall be installed and centered within a minimum 15-ft by 30-ft easement adjacent to the property line or right-of-way. Vault and easement location must:
  - A. Be accessible to GCDWR staff and maintenance equipment with a minimum vertical clearance of 15 feet.
  - B. Avoid buildings and permanent structures and their zone of influence.
- 4.1.4 All newly installed assemblies must be approved by GCDWR and must be tested before approval.

## APPENDIX A: TABLES

The tables below are for reference by GCDWR reviewers.

**TABLE A.1 BUSINESS TYPES AND HAZARD LEVELS**

Business Type or Feature	Minimum Degree of Hazard	Potential Hazards Posed
Automotive repair (engine repair, oil change, body repair)	High/Low hazard	Chemical hazards
Car washes	High hazard	Reuse systems, connections to chemical storage containers, unprotected hose connections
Chemical production plant	High hazard	Connections to chemical storage
Fire systems with sprinklers or private hydrants	High/Low hazard	Stagnant water, connections to chemical storage
Food processing and bottling plants	High hazard	Connections to chemical storage
Hospitals, medical centers, dental offices, etc.	High hazard	Unprotected hose connections, biological, pharmacological, and chemical hazards
Laboratories	High hazard	Unprotected hose connections, biological, pharmacological, and chemical hazards
Landscape irrigation systems	High/Low hazard	Subject to open atmosphere, potential chemical connections, unprotected hose connections
Metal plating facilities	High hazard	Chemical hazards
Mortuaries	High hazard	Biological, pharmacological, and chemical hazards
Premises with combined fire protection	High/Low hazard	Stagnant water, connections to chemical storage
Residential with fire protection	High/Low hazard	Stagnant water, connections to chemical storage
Restricted access facilities	High hazard	Not determinable
Sewage treatment facilities, pump stations, or waste dump stations	High hazard	High contaminate risk
Veterinary Clinics	High hazard	Unprotected hose connections, biological, pharmacological, and chemical hazards

\*GCDWR reserves the right to increase the degree of hazard based on expected usage of the property.

**TABLE A.2 DEVICE TYPES AND APPLICATIONS**

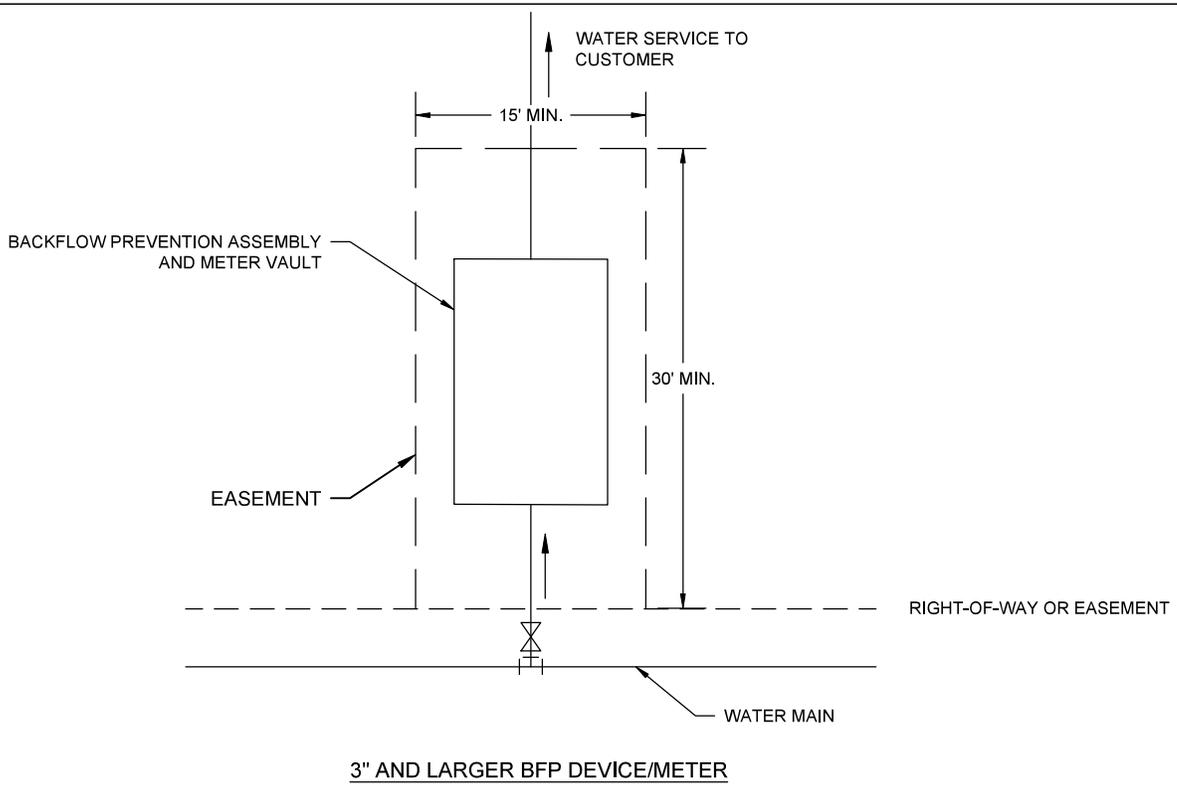
Type & Purpose	Description	Installed At	Examples of Installation
<p>1</p> <p><b>Reduced Pressure Principle Backflow Preventor</b> For <i>high hazard</i> cross connections</p>	<p>Two independent check valves with intermediate relief valve. Supplied with shut-off valves and ball type test cocks.</p>	<p>All cross connections subject to back pressure or back siphonage where there is a high potential health hazard from contamination. Continuous pressure.</p>	<p>Main Supply Lines Commercial Boilers Cooling Towers Hospital Equipment Processing Tanks Laboratory Equipment Waste Digesters Car Wash Sewage Treatment</p>
<p><b>Double Check Valve Assembly</b> For <i>low hazard</i> cross connections</p>	<p>Two independent check valves. Supplied with shut-off valves and ball type test cocks.</p>	<p>All cross connections subject to back pressure where there is a low potential health hazard or nuisance. Continuous pressure.</p>	<p>Main Supply Lines Food Cookers Tanks &amp; Vats Lawn Sprinklers Fire Sprinkler Lines Commercial Pools</p>
<p>2</p> <p><b>Double Detector Check Valve Assembly</b> For <i>low hazard</i> applications</p>	<p>Double check valve assembly with a water meter and double check in by-pass line.</p>	<p>Fire protection system supply main. Detects leaks and unauthorized use of water.</p>	<p>Fire Sprinkler lines</p>
<p><b>Dual Check Valve Backflow Preventer</b> For <i>low hazard</i> applications</p>	<p>Two independent check valves. Check valves are removable for testing.</p>	<p>Cross connections where there is a low potential health hazard and moderate flow requirements.</p>	<p>Residential Supply Lines (at the meter)</p>
<p>3</p> <p><b>Backflow Preventor with Intermediate Atmospheric Vent</b> For <i>moderate hazard</i> cross connections in small pipe sizes</p>	<p>Two independent check valves with intermediate vacuum breaker and relief valve.</p>	<p>Cross connections subject to back pressure or back siphonage where there is a moderate health hazard. Continuous pressure.</p> <p>Pump outlet to prevent backflow of carbon dioxide gas and carbonated water into the water supply system to beverage machines.</p>	<p>Boilers (small) Cooling Towers (small) Dairy Equipment Residential</p> <p>Post-mix Carbonated Beverage Equipment</p>
<p><b>Laboratory Faucet and Double Check Valve with Intermediate Vacuum Breaker</b> In small pipe sizes for <i>moderate to low hazard</i>.</p>	<p>Two independent check valves with intermediate vacuum breaker and relief vent.</p>	<p>Cross connections subject to back pressure or back siphonage where there is a moderate to low health hazard.</p>	<p>Laboratory Faucets and Pipelines Barber Shop and Beauty Parlor Sinks</p>
<p><b>Atmospheric Vacuum Breakers</b> For <i>moderate to high hazard</i> cross connections</p>	<p>Single float and disc with large atmospheric port.</p>	<p>Cross connections not subject to back pressure or continuous pressure. Install at least 6" above fixture rim. Protection against back siphonage only.</p>	<p>Process Tanks Dishwashers Soap Dispensers Washing Machines Lawn Sprinklers</p>
<p>4</p> <p><b>Pressure Type Vacuum Breakers</b> For <i>moderate to high hazard</i> cross connections</p>	<p>Spring loaded single float and disc with independent 1st check. Supplied with shut-off valves and ball type test cocks.</p>	<p>This valve is designed for installation in a continuous pressure potable water supply system 12" above the overflow level of the system being supplied. Protection against back siphonage only.</p>	<p>Laboratory Equipment Cooling Towers Community Laundry Machines Swimming Pools Chemical Plating Tank Large Toilet &amp; Urinal Facilities Degreaser &amp; Photo Tanks Livestock Water Systems Lawn Sprinklers</p>
<p><b>Hose Connection Vacuum Breakers</b> For residential and industrial hose supply outlets</p>	<p>Single check with atmospheric vacuum breaker vent.</p>	<p>Install directly on hose bibs, service sinks and wall hydrants. Not for continuous pressure.</p>	<p>Hose Bibbs Service Sinks Hydrants</p>

## APPENDIX B: DETAIL DRAWINGS

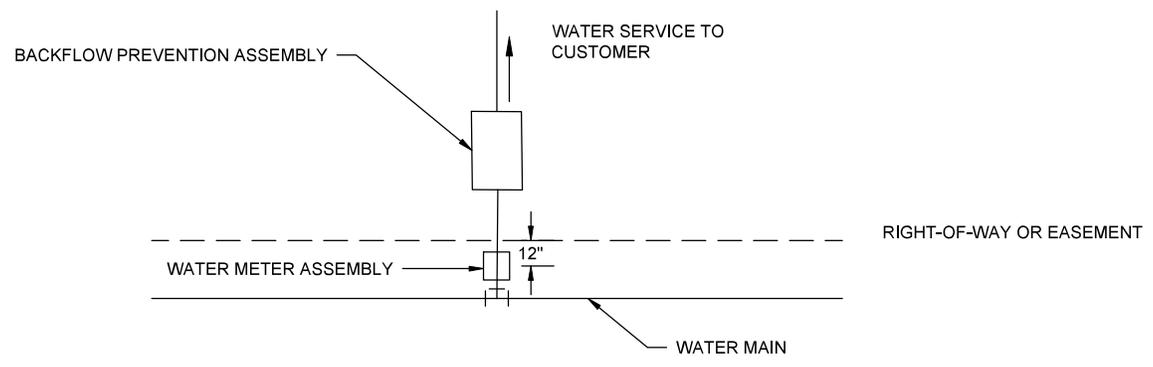
The following pages are the standard detail drawings for the different configurations of backflow prevention assemblies. Any installations not meeting these standard details will need to obtain approval from GCDWR.

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BACKFLOW PREVENTION DEVICE INSTALLATION																								BP-1																							
DOUBLE CHECK VALVE (DCV) ASSEMBLY 3/4" - 2"																								BP-2																							
REDUCED PRESSURE ZONE (RPZ) ASSEMBLY 3/4" - 2"																								BP-3																							
REDUCED PRESSURE ZONE (RPZ) ASSEMBLY 3" AND 4"																								BP-4																							
3" AND 4" COMPOUND METER																								BP-5																							
DOUBLE DETECTOR CHECK VALVE (DDCV) 6" - 10"																								BP-6																							
DOUBLE DETECTOR CHECK VALVE (DDCV) WITH COMPOUND METER																								BP-7																							
DOUBLE DETECTOR CHECK VALVE (DDCV) W/ ULTRASONIC METER																								BP-8																							
10" DOUBLE DETECTOR CHECK VALVE (DDCV) W/ 8" FIRE SERVICE METER																								BP-9																							
6" AND 8" FIRE SERVICE METER																								BP-10																							
6" AND 8" FIRE SERVICE METER WITH BY-PASS																								BP-11																							
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3" AND LARGER BFP DEVICE/METER



2" AND SMALLER BFP DEVICE/METER

**NOTES:**

1. VAULTS FOR 3" AND LARGER DEVICES SHALL BE INSTALLED ON PRIVATE PROPERTY. CUSTOMER MUST PROVIDE A MINIMUM 15' x 30' EASEMENT AND/OR RIGHT OF ENTRY CLAUSE.
2. ENCLOSURE FOR 2" AND SMALLER DEVICES SHALL BE INSTALLED AS CLOSE TO THE METER OUTLET AND RIGHT-OF-WAY OR EASEMENT LINE AS POSSIBLE.
3. ANY VARIATIONS FROM THIS DETAIL MUST BE APPROVED BY GCDWR IN ADVANCE OF INSTALLATION.

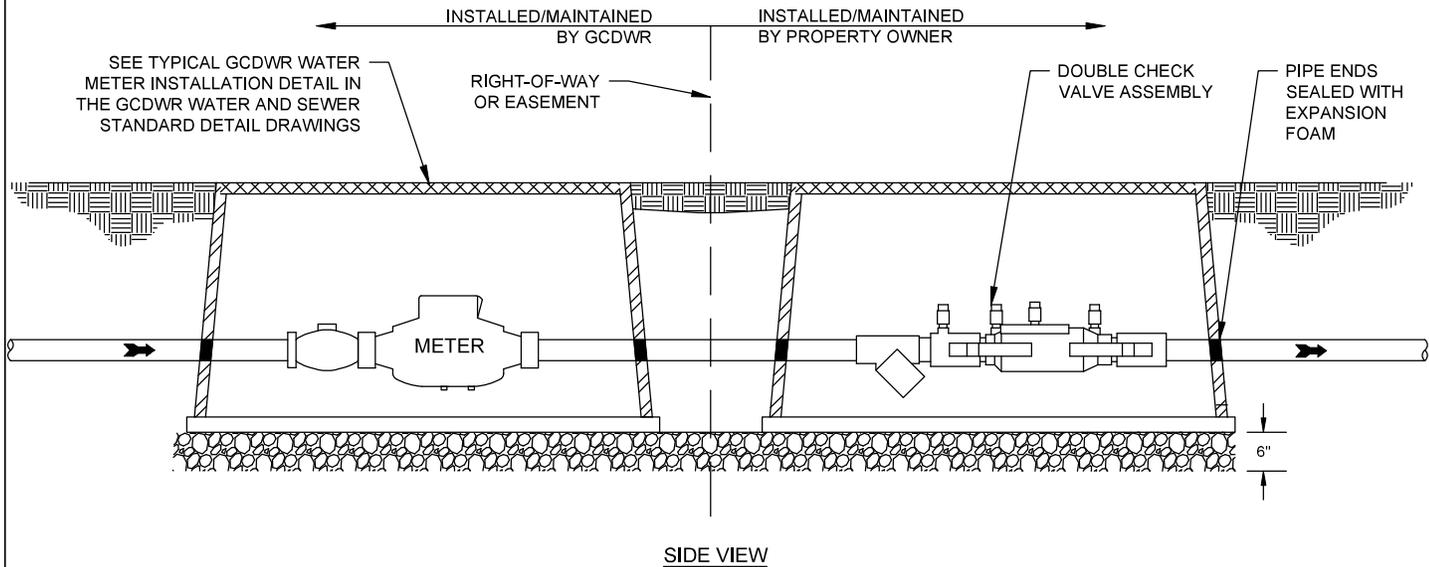
**GWINNETT COUNTY DEPARTMENT OF WATER RESOURCES**

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 CHECKED BY:  
 APPROVED BY:  
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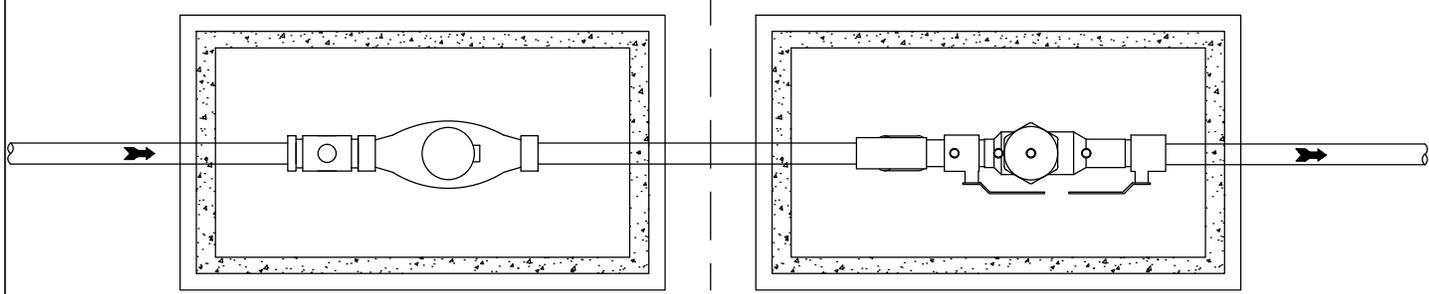
**BACKFLOW PREVENTION DEVICE  
 INSTALLATION**

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SIDE VIEW



PLAN VIEW

ASSEMBLY SIZE	A	B	C
3/4"-1"	12"	15"	18"
1-1/2"-2"	18"	17"	30"

**NOTES:**

1. WHERE POSSIBLE, AVOID INSTALLATION OF DOUBLE CHECK VALVE (DCV) AND METER BOXES IN AREAS PRONE TO FLOODING.
2. THE DCV SHALL BE INSTALLED AS CLOSE TO THE OUTLET SIDE OF THE METER AND THE RIGHT-OF-WAY OR EASEMENT LINE AS POSSIBLE.
3. THE DCV SHALL HAVE CURRENT APPROVAL FROM THE UNIVERSITY OF SOUTHERN CALIFORNIA, FOUNDATION FOR CROSS-CONNECTION CONTROL AND HYDRAULIC RESEARCH.
4. REFER TO GCDWR TESTING POLICIES AND GUIDELINES FOR ANNUAL TESTING REQUIREMENTS.
5. BOXES INSTALLED IN CONCRETE OR ASPHALT AREAS SHALL HAVE A DROP-IN LID THAT SITS FLUSH WITH THE TOP OF THE BOX. BOXES INSTALLED IN GRASSY AREAS MAY HAVE DROP-IN LIDS OR LIDS THAT OVERLAP THE TOP OF THE BOX.
6. THE BOX PERIMETER SHALL BE SUPPORTED BY 6" COMPACTED #57 STONE.
7. PIPE PENETRATIONS IN THE BOX SHALL BE LARGER THAN THE PIPE AND SHALL BE SEALED WITH EXPANSION FOAM OR SILICONE CAULK.
8. FOR FINAL APPROVAL THE METER AND BFP ASSEMBLY SHALL:
  - A. BE CLEAN AND CENTERED IN THE BOX;
  - B. HAVE TEST COCKS POINTED UP (VERTICAL) IF POSSIBLE AND FITTED WITH CAPS;
  - C. HAVE NO GALVANIZED FITTINGS ATTACHED DIRECTLY INTO/ONTO THE BFP DEVICE;
  - D. HAVE MANUFACTURER'S NAME, MODEL, AND SERIAL NUMBER CAST INTO OR ATTACHED TO THE DEVICE.
  - E. BE TESTED AND PASSED FOLLOWING INSTALLATION AND TEST REPORT FORWARDED TO GCDWR PRIOR TO ISSUANCE OF A C.O.

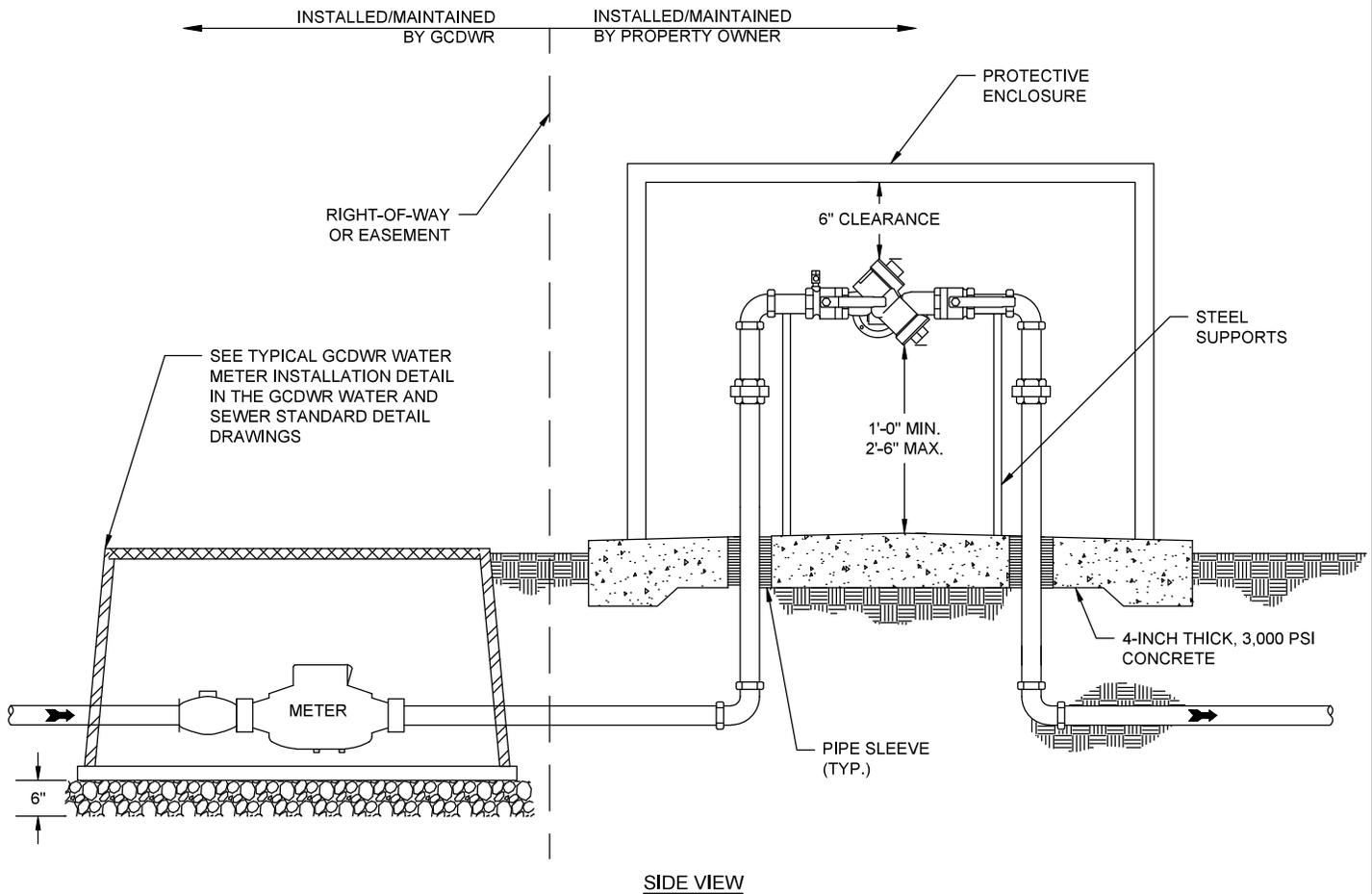
**GWINNETT COUNTY DEPARTMENT OF WATER RESOURCES**

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 SCALE: NONE

**DOUBLE CHECK VALVE (DCV) ASSEMBLY**  
**3/4" - 2"**

DRAWING NO.  
**BP-2**

DATE: \_\_\_\_\_ BY: \_\_\_\_\_  
 DATE: \_\_\_\_\_ BY: \_\_\_\_\_  
 REVISION: \_\_\_\_\_ REVISION: \_\_\_\_\_  
 DATE: \_\_\_\_\_ DATE: \_\_\_\_\_  
 BY: \_\_\_\_\_ BY: \_\_\_\_\_  
 REVISION: \_\_\_\_\_ REVISION: \_\_\_\_\_  
 ORIGINAL ISSUE:



**NOTES:**

1. THE REDUCED PRESSURE ZONE (RPZ) ASSEMBLY SHALL BE INSTALLED IN AN ABOVE GROUND, HEATED AND INSULATED ENCLOSURE CERTIFIED TO THE MOST RECENT ASSE STANDARD 1060 CLASS I.
2. THE RPZ SHALL BE INSTALLED AS CLOSE TO THE OUTLET SIDE OF THE METER AND THE RIGHT-OF-WAY OR EASEMENT LINE AS POSSIBLE.
3. THE RPZ SHALL HAVE CURRENT APPROVAL FROM THE UNIVERSITY OF SOUTHERN CALIFORNIA, FOUNDATION FOR CROSS-CONNECTION CONTROL AND HYDRAULIC RESEARCH.
4. REFER TO GCDWR TESTING POLICIES AND GUIDELINES FOR ANNUAL TESTING REQUIREMENTS.
5. THE RPZ ASSEMBLY SHALL BE SURROUNDED BY A 4" THICK, 3,000 PSI CONCRETE SLAB WITH PIPE SLEEVES AROUND THE PIPE. SLAB SHALL BE SIZED PER ENCLOSURE MANUFACTURER REQUIREMENTS.
6. THE ENCLOSURE SHALL BE DESIGNED TO DRAIN A LARGER QUANTITY OF WATER THAN THE RPZ CAN DISCHARGE.
7. STEEL SUPPORTS FOR THE ASSEMBLY SHALL BE SUCH THAT THE ASSEMBLY WEIGHT DOES NOT DESTABILIZE THE STRUCTURE NOR BLOCK THE RELIEF VALVE PORT.
8. FOR FINAL APPROVAL THE METER AND BFP ASSEMBLY SHALL:
  - A. BE CLEAN AND CENTERED IN THE BOX;
  - B. HAVE TEST COCKS POINTED UP (VERTICAL) IF POSSIBLE AND FITTED WITH CAPS;
  - C. HAVE NO GALVANIZED FITTINGS ATTACHED DIRECTLY INTO/ONTO THE BFP DEVICE;
  - D. HAVE MANUFACTURER'S NAME, MODEL, AND SERIAL NUMBER CAST INTO OR ATTACHED TO THE DEVICE.
  - E. BE TESTED AND PASSED FOLLOWING INSTALLATION AND TEST REPORT FORWARDED TO GCDWR PRIOR TO ISSUANCE OF A C.O.

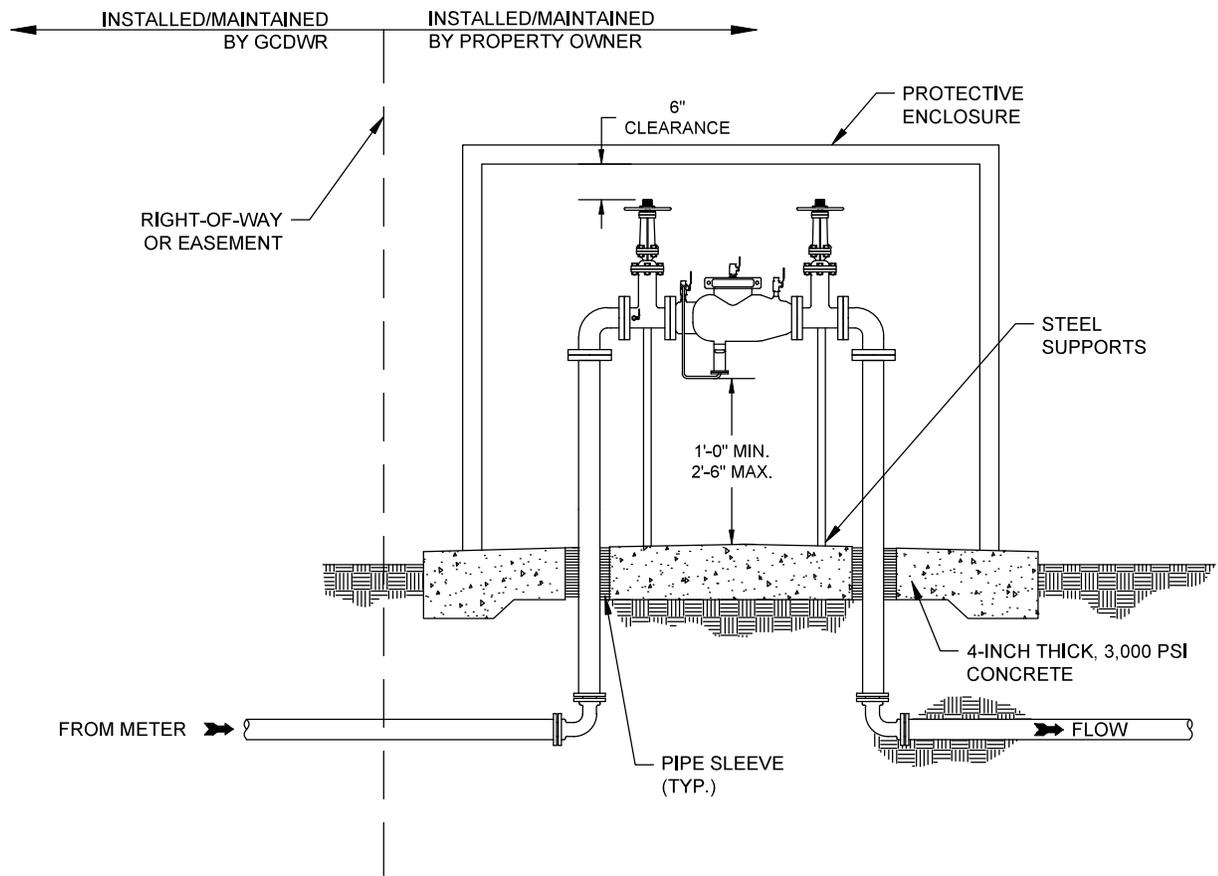
**GWINNETT COUNTY DEPARTMENT OF WATER RESOURCES**

DESIGN BY:  
 DRAWN BY: FNI  
 CHECKED BY:  
 APPROVED BY:  
 SCALE: NONE

**REDUCED PRESSURE ZONE (RPZ)  
 ASSEMBLY 3/4" - 2"**

DRAWING NO.  
**BP-3**

DATE: \_\_\_\_\_ BY: \_\_\_\_\_  
 DATE: \_\_\_\_\_ BY: \_\_\_\_\_  
 REVISION: \_\_\_\_\_ REVISION: \_\_\_\_\_  
 DATE: \_\_\_\_\_ DATE: \_\_\_\_\_  
 BY: \_\_\_\_\_ BY: \_\_\_\_\_  
 REVISION: \_\_\_\_\_ REVISION: \_\_\_\_\_  
 ORIGINAL ISSUE: \_\_\_\_\_



SIDE VIEW

NOTES:

1. THE REDUCED PRESSURE ZONE (RPZ) ASSEMBLY SHALL BE INSTALLED IN AN ABOVE GROUND, HEATED AND INSULATED ENCLOSURE CERTIFIED TO THE MOST RECENT ASSE STANDARD 1060 CLASS I.
2. THE RPZ SHALL BE INSTALLED AS CLOSE TO THE OUTLET SIDE OF THE METER AND THE RIGHT-OF-WAY OR EASEMENT LINE AS POSSIBLE.
3. THE RPZ SHALL HAVE CURRENT APPROVAL FROM THE UNIVERSITY OF SOUTHERN CALIFORNIA, FOUNDATION FOR CROSS-CONNECTION CONTROL AND HYDRAULIC RESEARCH (USC-FCCC).
4. REFER TO GCDWR TESTING POLICIES AND GUIDELINES FOR ANNUAL TESTING REQUIREMENTS.
5. THE RPZ ASSEMBLY SHALL BE SURROUNDED BY A 4" THICK, 3,000 PSI CONCRETE SLAB WITH PIPE SLEEVES AROUND THE PIPE. SLAB SHALL BE SIZED PER ENCLOSURE MANUFACTURER REQUIREMENTS.
6. THE ENCLOSURE SHALL BE DESIGNED TO DRAIN A LARGER QUANTITY OF WATER THAN THE RPZ CAN DISCHARGE.
7. STEEL SUPPORTS FOR THE ASSEMBLY SHALL BE SUCH THAT THE ASSEMBLY WEIGHT DOES NOT DESTABILIZE THE STRUCTURE NOR BLOCK THE RELIEF VALVE PORT.
8. FOR FINAL APPROVAL THE METER AND BFP ASSEMBLY SHALL:
  - A. BE CLEAN AND CENTERED IN THE BOX;
  - B. HAVE TEST COCKS POINTED UP (VERTICAL) IF POSSIBLE AND FITTED WITH CAPS;
  - C. HAVE NO GALVANIZED FITTINGS ATTACHED DIRECTLY INTO/ONTO THE BFP DEVICE;
  - D. HAVE MANUFACTURER'S NAME, MODEL, AND SERIAL NUMBER CAST INTO OR ATTACHED TO THE DEVICE.
  - E. BE TESTED AND PASSED FOLLOWING INSTALLATION AND TEST REPORT FORWARDED TO GCDWR PRIOR TO ISSUANCE OF A C.O.

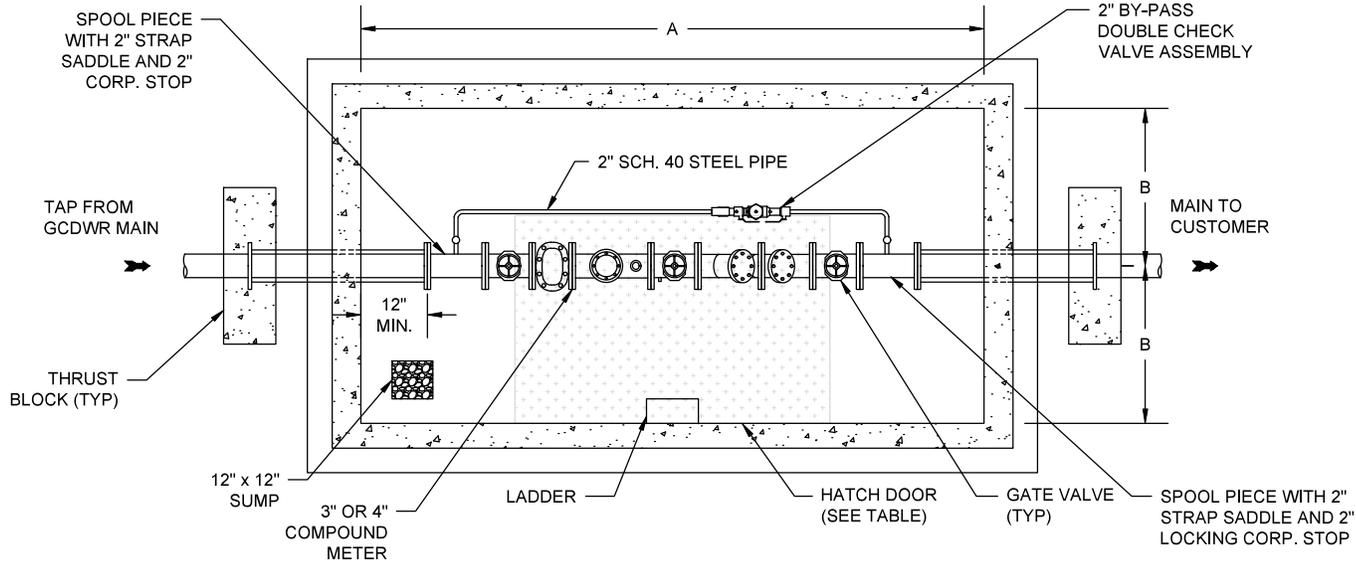
**GWINNETT COUNTY DEPARTMENT OF WATER RESOURCES**

DESIGN BY:
DRAWN BY: FNI
CHECKED BY:
APPROVED BY:
SCALE: NONE

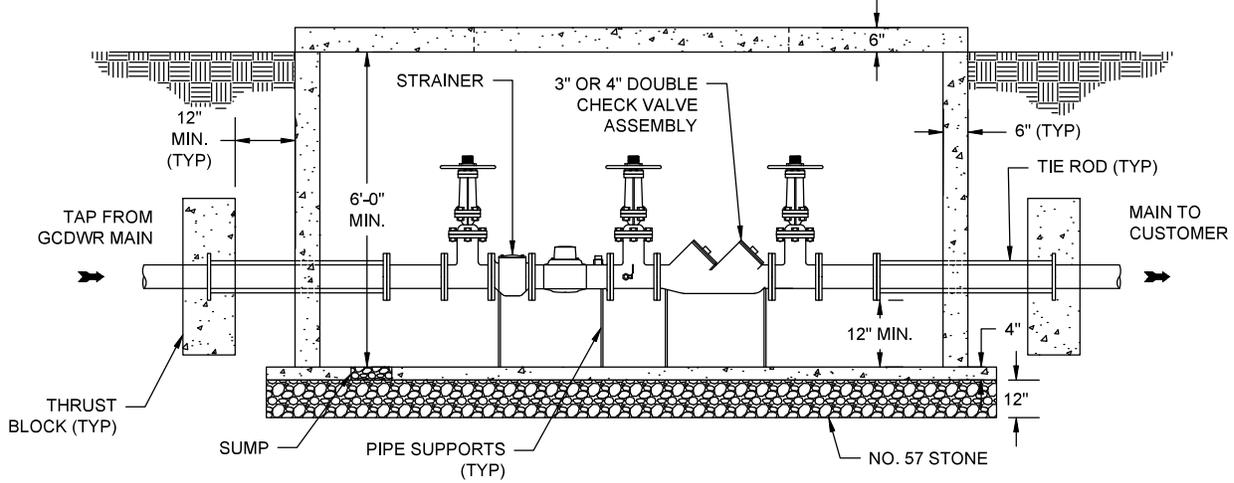
**REDUCED PRESSURE ZONE (RPZ)  
ASSEMBLY 3" AND 4"**

DRAWING NO.
<b>BP-4</b>

REVISION: DATE: BY: DATE: REVISION: DATE: BY: DATE: REVISION: DATE: BY: DATE: ORIGINAL ISSUE:



PLAN VIEW



SIDE VIEW

VALVE SIZE	A	B	HATCH DOOR SIZE
3"	8'-6"	2'-3"	3' x 3'
4"	12'-0"	3'-0"	4' x 6' DOUBLE LEAF

- NOTES:**
1. ALL PIPE AND FITTINGS SHALL BE FLANGED DUCTILE IRON PIPE EXCEPT WHERE NOTED.
  2. VAULT TOP SHALL BE 6" THICK REINFORCED CONCRETE. VAULT BOTTOM IS 4" CONCRETE SLAB SLOPED TO DRAIN SUMP HOLE. SLAB TO BE POURED ON 12" COMPACTED NO. 57 STONE. HATCH OPENING SHALL BE TO ONE SIDE OF THE VAULT AT THE CENTER OF THE WALL.
  3. SEE APPROVED VENDORS LIST FOR PREFERRED VENDORS OF HATCH, VALVES, AND OTHER EQUIPMENT OR MATERIALS.
  4. VAULT INLET/OUTLET OPENINGS SHALL BE SEALED WITH NON-SHRINK CEMENT OR BRICK AND MORTAR. PIPE MUST NOT SUPPORT VAULT.
  5. VAULT SHALL BE PRECAST FOR NON-LOAD BEARING APPLICATION. WHEN VAULT WILL BE SUBJECTED TO LIVE LOAD, CUSTOMER'S ENGINEER SHALL SUBMIT DETAILED VAULT DESIGN FOR GCDWR APPROVAL.
  6. ACCESS LADDER SHALL BE DOWELED INTO WALL AND CENTERED BELOW HATCH OPENING, SPACED 12" APART.
  7. CHECK VALVE AND METER ASSEMBLIES SHALL BE SUPPORTED IN TWO (2) PLACES ON STEEL STANDS OR SUPPORTS - NO WOOD IS ALLOWED.
  8. SEE DETAILS IN THE GCDWR WATER AND SEWER STANDARD DETAIL DRAWINGS FOR TYPICAL THRUST BLOCK AND TIE ROD DETAILS.
  9. GATE VALVES SHALL BE OUTSIDE STEM AND YOKE RESILIENT SEATED.
  10. SEE DETAIL BP-1 FOR VAULT ORIENTATION IN EASEMENT.
  11. REFER TO GCDWR TESTING POLICIES AND GUIDELINES FOR ANNUAL TESTING REQUIREMENTS.

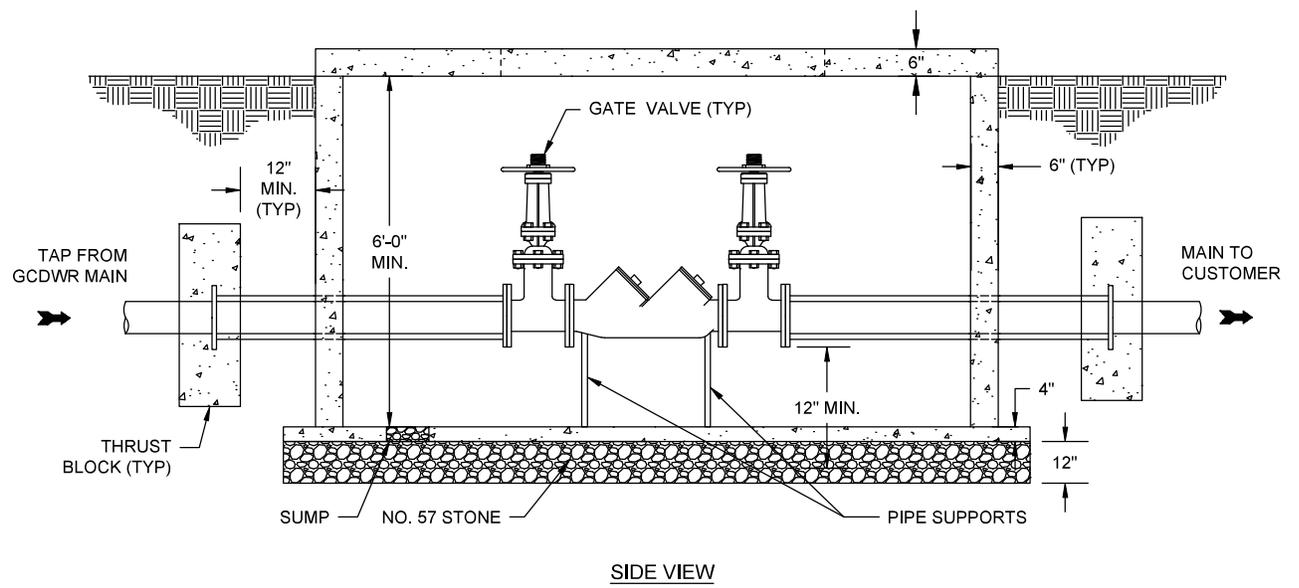
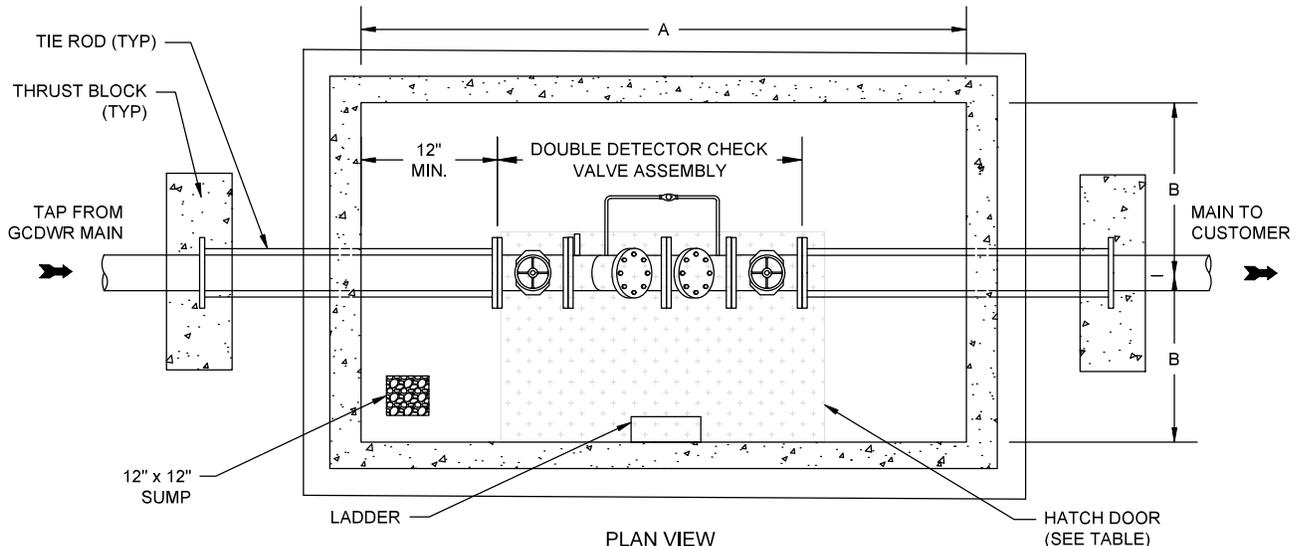
**GWINNETT COUNTY DEPARTMENT OF WATER RESOURCES**

DESIGN BY:  
 DRAWN BY: FNI  
 CHECKED BY:  
 APPROVED BY:  
 SCALE: NONE

**3" AND 4" COMPOUND METER**

DRAWING NO.  
**BP-5**

REVISION: DATE: BY: REVISION: DATE: BY: REVISION: DATE: BY: ORIGINAL ISSUE:



VALVE SIZE	A	B	HATCH DOOR SIZE
6	8'-6"	2'-3"	3' x 3'
8	8'-6"	2'-3"	3' x 3'
10	12'-0"	2'-3"	4' x 6' DOUBLE LEAF

- NOTES:**
- ALL PIPE AND FITTINGS SHALL BE FLANGED DUCTILE IRON PIPE.
  - VAULT TOP SHALL BE 6" THICK REINFORCED CONCRETE. VAULT BOTTOM IS 4" CONCRETE SLAB SLOPED TO DRAIN SUMP HOLE. SLAB TO BE POURED ON 12" COMPACTED NO. 57 STONE. HATCH OPENING SHALL BE TO ONE SIDE OF THE VAULT AT THE CENTER OF THE WALL.
  - SEE APPROVED VENDORS LIST FOR PREFERRED VENDORS OF HATCH, VALVES, AND OTHER EQUIPMENT OR MATERIALS.
  - VAULT INLET/OUTLET OPENINGS SHALL BE SEALED WITH NON-SHRINK CEMENT OR BRICK AND MORTAR. PIPE MUST NOT SUPPORT VAULT.
  - VAULT SHALL BE PRECAST FOR NON-LOAD BEARING APPLICATION. WHEN VAULT WILL BE SUBJECTED TO LIVE LOAD, CUSTOMER'S ENGINEER SHALL SUBMIT DETAILED VAULT DESIGN FOR GCDWR APPROVAL.
  - ACCESS LADDER SHALL BE DOWELED INTO WALL AND CENTERED BELOW HATCH OPENING, SPACED 12" APART.
  - DOUBLE DETECTOR CHECK VALVE ASSEMBLY SHALL BE SUPPORTED IN TWO (2) PLACES ON STEEL STANDS OR SUPPORTS - NO WOOD IS ALLOWED.
  - SEE DETAILS IN THE GCDWR WATER AND SEWER STANDARD DETAIL DRAWINGS FOR TYPICAL THRUST BLOCK AND TIE ROD DETAILS.
  - GATE VALVES SHALL BE OS&Y RESILIENT SEATED.
  - SEE DETAIL BP-1 FOR VAULT ORIENTATION IN EASEMENT.
  - REFER TO GCDWR TESTING POLICIES AND GUIDELINES FOR ANNUAL TESTING REQUIREMENTS.

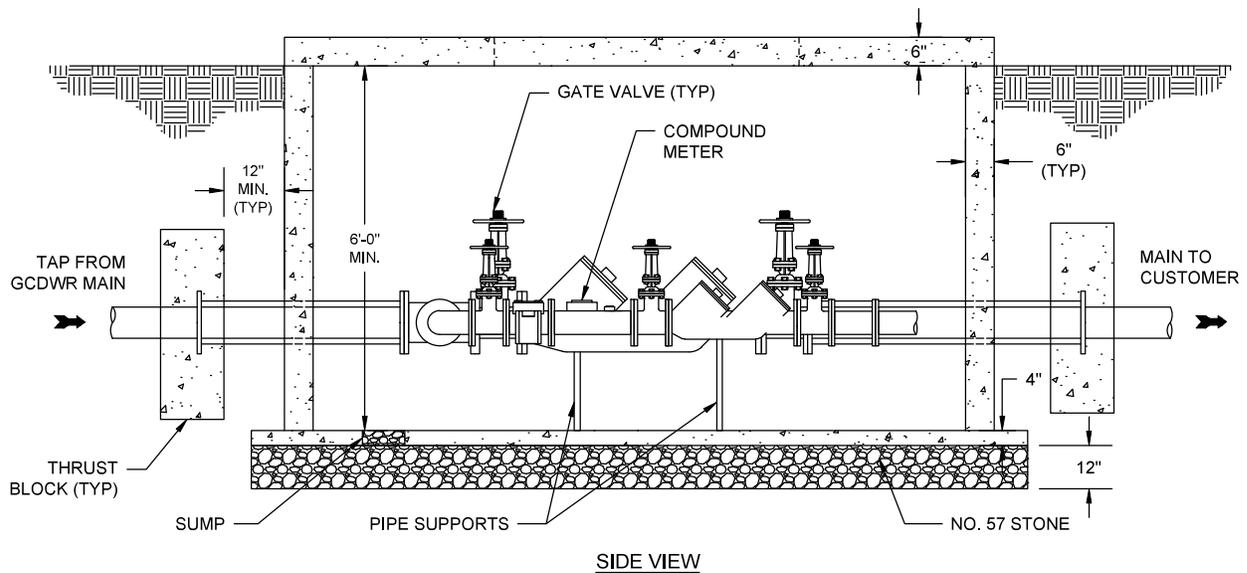
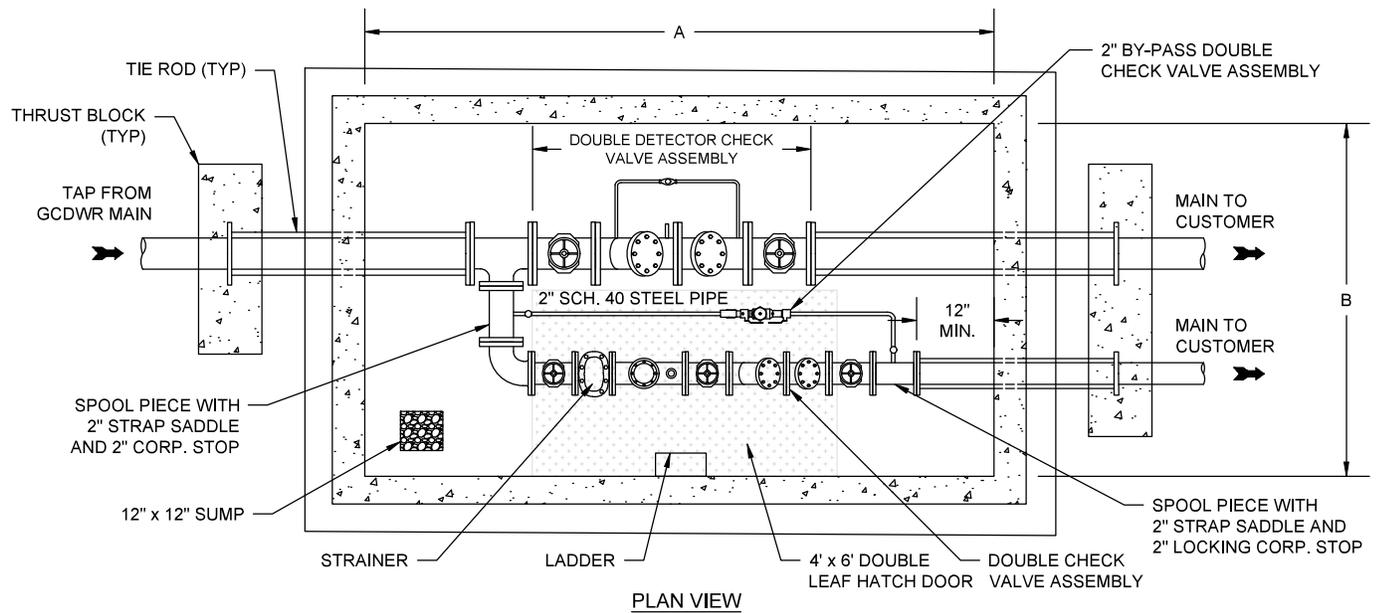
**GWINNETT COUNTY DEPARTMENT OF WATER RESOURCES**

DESIGN BY:  
 DRAWN BY: FNI  
 CHECKED BY:  
 APPROVED BY:  
 SCALE: NONE

**DOUBLE DETECTOR CHECK VALVE (DDCV)  
 6" - 10"**

DRAWING NO.  
**BP-6**

REVISION: DATE: BY: REVISION: DATE: BY: REVISION: DATE: BY: REVISION: DATE: BY: ORIGINAL ISSUE:



**NOTES:**

VALVE SIZE	METER SIZE	A	B
6"	3"	12'-0"	6'-0"
6"	4"	12'-0"	6'-0"
8"	3"	12'-0"	6'-0"
8"	4"	12'-0"	6'-0"
8"	6"	14'-0"	8'-0"

- ALL PIPE AND FITTINGS SHALL BE FLANGED DUCTILE IRON PIPE EXCEPT WHERE NOTED.
- VAULT TOP SHALL BE 6" THICK REINFORCED CONCRETE. VAULT BOTTOM IS 4" CONCRETE SLAB SLOPED TO DRAIN SUMP HOLE. SLAB TO BE POURED ON 12" COMPACTED NO. 57 STONE. HATCH OPENING SHALL BE TO ONE SIDE OF THE VAULT AT THE CENTER OF THE WALL.
- SEE APPROVED VENDORS LIST FOR PREFERRED VENDORS OF HATCH, VALVES, AND OTHER EQUIPMENT OR MATERIALS.
- VAULT INLET/OUTLET OPENINGS SHALL BE SEALED WITH NON-SHRINK CEMENT OR BRICK AND MORTAR. PIPE MUST NOT SUPPORT VAULT.
- VAULT SHALL BE PRECAST FOR NON-LOAD BEARING APPLICATION. WHEN VAULT WILL BE SUBJECTED TO LIVE LOAD, CUSTOMER'S ENGINEER SHALL SUBMIT DETAILED VAULT DESIGN FOR GCDWR APPROVAL.
- ACCESS LADDER SHALL BE DOWELED INTO WALL AND CENTERED BELOW HATCH OPENING, SPACED 12" APART.
- CHECK VALVE AND METER ASSEMBLIES SHALL BE SUPPORTED IN TWO (2) PLACES ON STEEL STANDS OR SUPPORTS - NO WOOD IS ALLOWED.
- SEE DETAILS IN THE GCDWR WATER AND SEWER STANDARD DETAIL DRAWINGS FOR TYPICAL THRUST BLOCK AND TIE ROD DETAILS.
- GATE VALVES SHALL BE OS&Y RESILIENT SEATED.
- SEE DETAIL BP-1 FOR VAULT ORIENTATION IN EASEMENT.
- REFER TO GCDWR TESTING POLICIES AND GUIDELINES FOR ANNUAL TESTING REQUIREMENTS.

**GWINNETT COUNTY DEPARTMENT OF WATER RESOURCES**

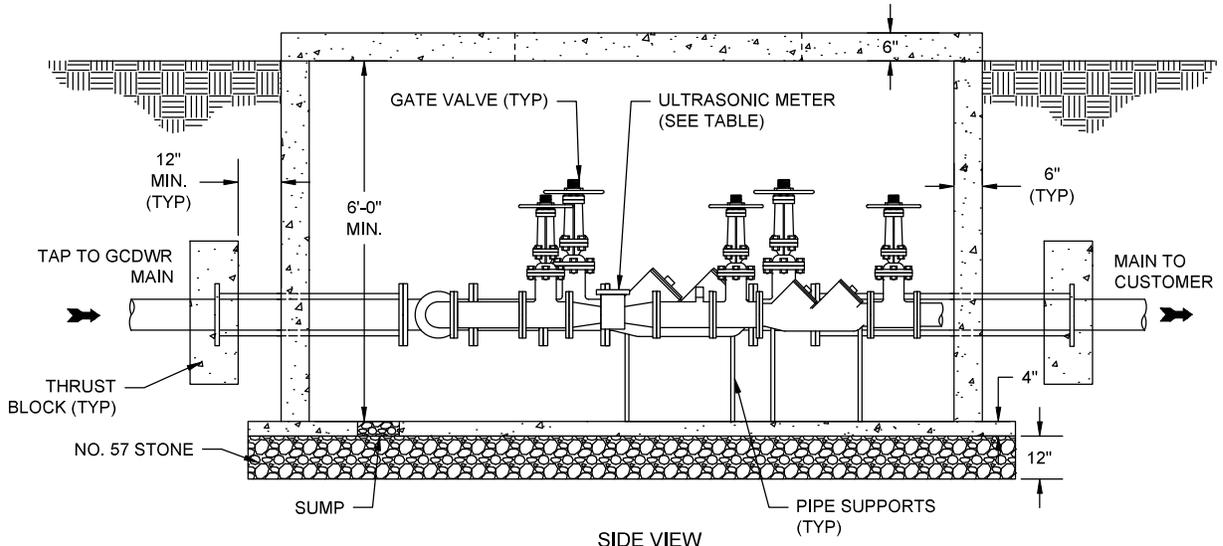
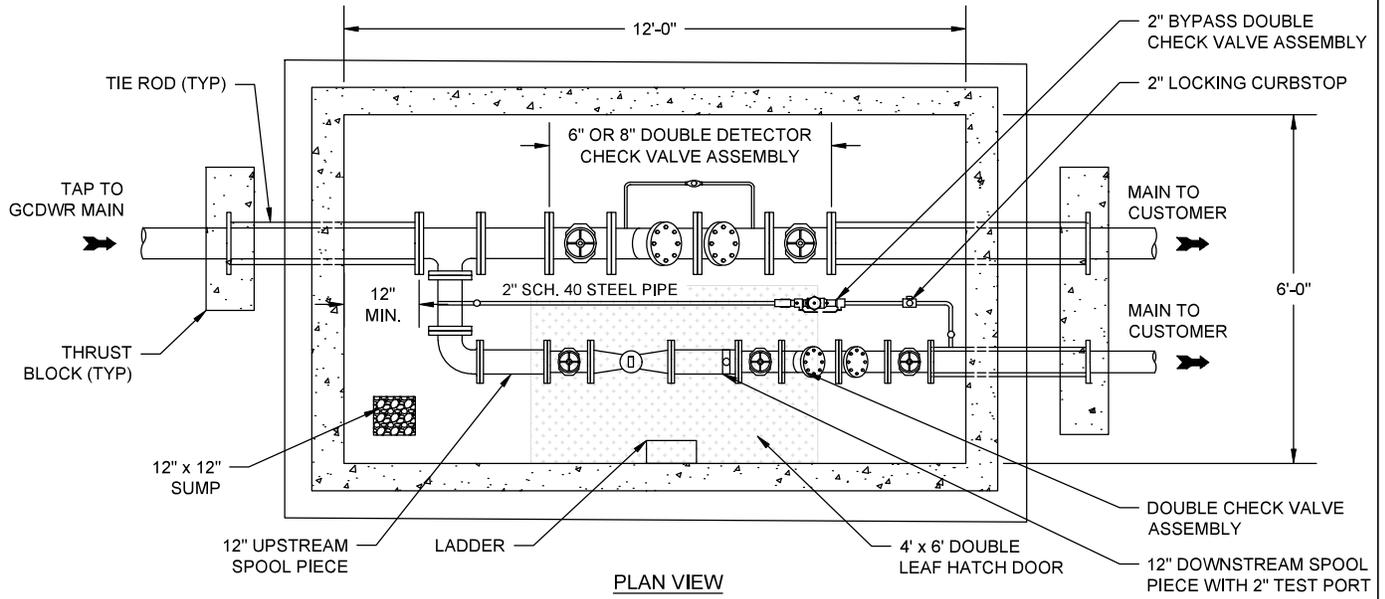
DESIGN BY:  
 DRAWN BY: FNI  
 CHECKED BY:  
 APPROVED BY:  
 SCALE: NONE

**DOUBLE DETECTOR CHECK VALVE (DDCV)  
 WITH COMPOUND METER**

DRAWING NO.

**BP-7**

REVISION: DATE: BY: DATE: REVISION: DATE: BY: DATE: REVISION: DATE: BY: DATE: ORIGINAL ISSUE:



ULTRASONIC METER SIZE	METER LENGTH
3"	12"
4"	14"

- NOTES:**
1. ALL PIPE AND FITTINGS SHALL BE FLANGED DUCTILE IRON PIPE EXCEPT WHERE NOTED.
  2. VAULT TOP SHALL BE 6" THICK REINFORCED CONCRETE. VAULT BOTTOM IS 4" CONCRETE SLAB SLOPED TO DRAIN SUMP HOLE. SLAB TO BE POURED ON 12" COMPACTED NO. 57 STONE. HATCH OPENING SHALL BE TO ONE SIDE OF THE VAULT AT THE CENTER OF THE WALL.
  3. SEE APPROVED VENDORS LIST FOR PREFERRED VENDORS OF HATCH, VALVES, AND OTHER EQUIPMENT OR MATERIALS.
  4. VAULT INLET/OUTLET OPENINGS SHALL BE SEALED WITH NON-SHRINK CEMENT OR BRICK AND MORTAR. PIPE MUST NOT SUPPORT VAULT.
  5. VAULT SHALL BE PRECAST FOR NON-LOAD BEARING APPLICATION. WHEN VAULT WILL BE SUBJECTED TO LIVE LOAD, CUSTOMER'S ENGINEER SHALL SUBMIT DETAILED VAULT DESIGN FOR GCDWR APPROVAL.
  6. ACCESS LADDER SHALL BE DOWELED INTO WALL AND CENTERED BELOW HATCH OPENING, SPACED 12" APART.
  7. DOUBLE CHECK VALVE AND METER ASSEMBLY SHALL BE SUPPORTED IN TWO (2) PLACES ON STEEL STANDS OR SUPPORTS - NO WOOD IS ALLOWED.
  8. SEE DETAILS IN THE GCDWR WATER AND SEWER STANDARD DETAIL DRAWINGS FOR TYPICAL THRUST BLOCK AND TIE ROD DETAILS.
  9. GATE VALVES SHALL BE OS&Y RESILIENT SEATED.
  10. GCDWR SHALL FURNISH ULTRASONIC METER. ALL OTHER MATERIALS SHALL BE FURNISHED BY CUSTOMER.
  11. SEE DETAIL BP-1 FOR VAULT ORIENTATION IN EASEMENT.
  12. REFER TO GCDWR TESTING POLICIES AND GUIDELINES FOR ANNUAL TESTING REQUIREMENTS.

**GWINNETT COUNTY DEPARTMENT OF WATER RESOURCES**

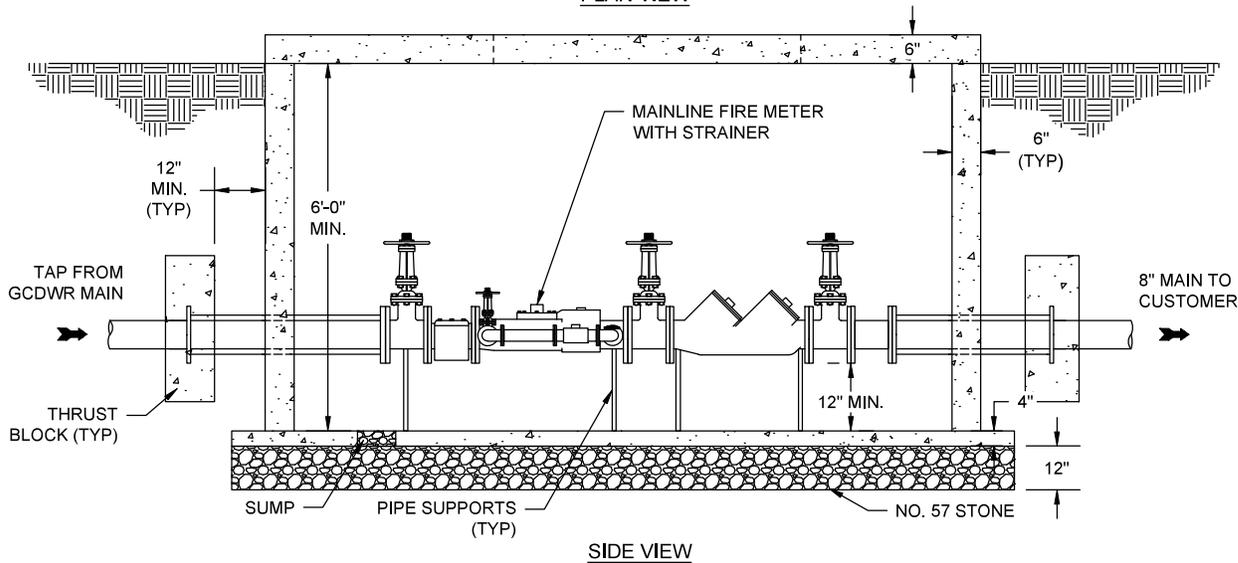
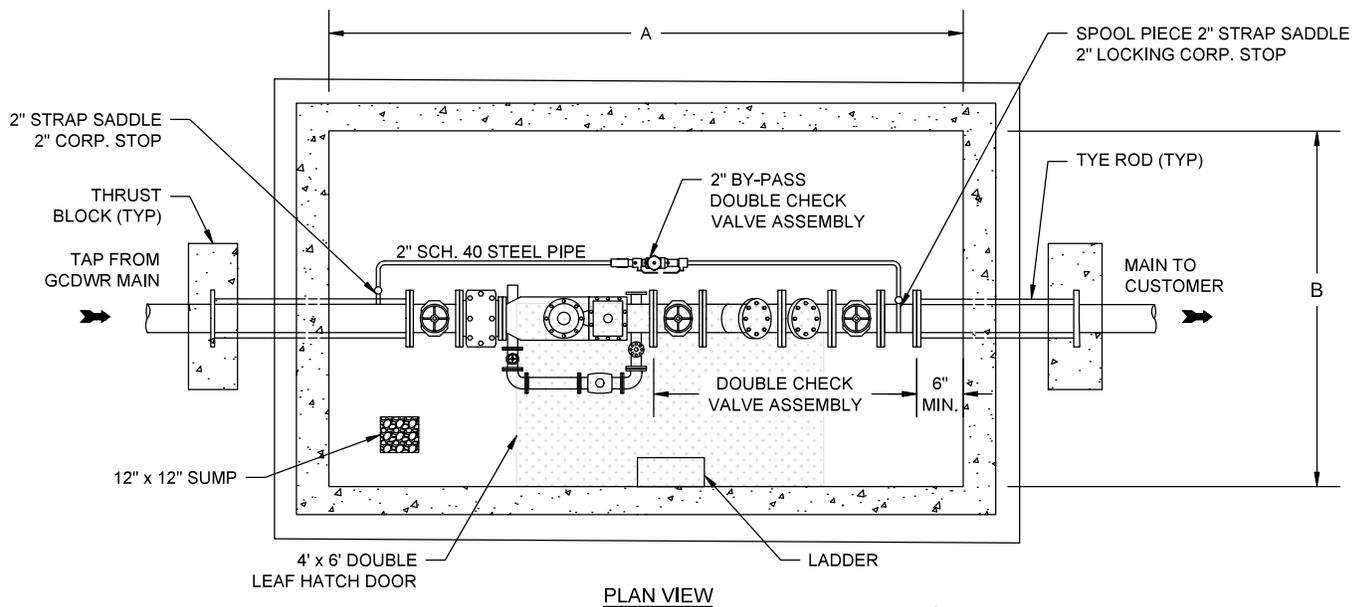
DESIGN BY:  
 DRAWN BY: FNI  
 CHECKED BY:  
 APPROVED BY:  
 SCALE: NONE

**DOUBLE DETECTOR CHECK VALVE (DDCV)  
 W/ ULTRASONIC METER**

DRAWING NO.  
**BP-8**



REVISION: DATE: BY: REVISION: DATE: BY: REVISION: DATE: BY: REVISION: DATE: BY: ORIGINAL ISSUE:



**NOTES:**

FIRE METER SIZE	A	B
6"	12'-0"	6'-0"
8"	14'-0"	8'-0"

- ALL PIPE AND FITTINGS SHALL BE FLANGED DUCTILE IRON PIPE EXCEPT WHERE NOTED.
- Vault TOP SHALL BE 6" THICK REINFORCED CONCRETE. Vault BOTTOM IS 4" CONCRETE SLAB SLOPED TO DRAIN SUMP HOLE. SLAB TO BE POURED ON 12" COMPACTED NO. 57 STONE. HATCH OPENING SHALL BE TO ONE SIDE OF THE Vault AT THE CENTER OF THE WALL.
- SEE APPROVED VENDORS LIST FOR PREFERRED VENDORS OF HATCH, VALVES, AND OTHER EQUIPMENT OR MATERIALS.
- Vault INLET/OUTLET OPENINGS SHALL BE SEALED WITH NON-SHRINK CEMENT OR BRICK AND MORTAR. PIPE MUST NOT SUPPORT Vault.
- Vault SHALL BE PRECAST FOR NON-LOAD BEARING APPLICATION. WHEN Vault WILL BE SUBJECTED TO LIVE LOAD, CUSTOMER'S ENGINEER SHALL SUBMIT DETAILED Vault DESIGN FOR GCDWR APPROVAL.
- ACCESS LADDER SHALL BE DOWELED INTO WALL AND CENTERED BELOW HATCH OPENING, SPACED 12" APART.
- DOUBLE CHECK VALVE AND METER ASSEMBLY SHALL BE SUPPORTED IN TWO (2) PLACES ON STEEL STANDS OR SUPPORTS - NO WOOD IS ALLOWED.
- SEE DETAILS IN THE GCDWR WATER AND SEWER STANDARD DETAIL DRAWINGS FOR TYPICAL THRUST BLOCK AND TIE ROD DETAILS.
- GATE VALVES SHALL BE OS&Y RESILIENT SEATED.
- GCDWR SHALL FURNISH FIRE METER WITH STRAINER. ALL OTHER MATERIALS SHALL BE FURNISHED BY CUSTOMER.
- SEE DETAIL BP-1 FOR Vault ORIENTATION IN EASEMENT.
- REFER TO GCDWR TESTING POLICIES AND GUIDELINES FOR ANNUAL TESTING REQUIREMENTS.

**GWINNETT COUNTY DEPARTMENT OF WATER RESOURCES**

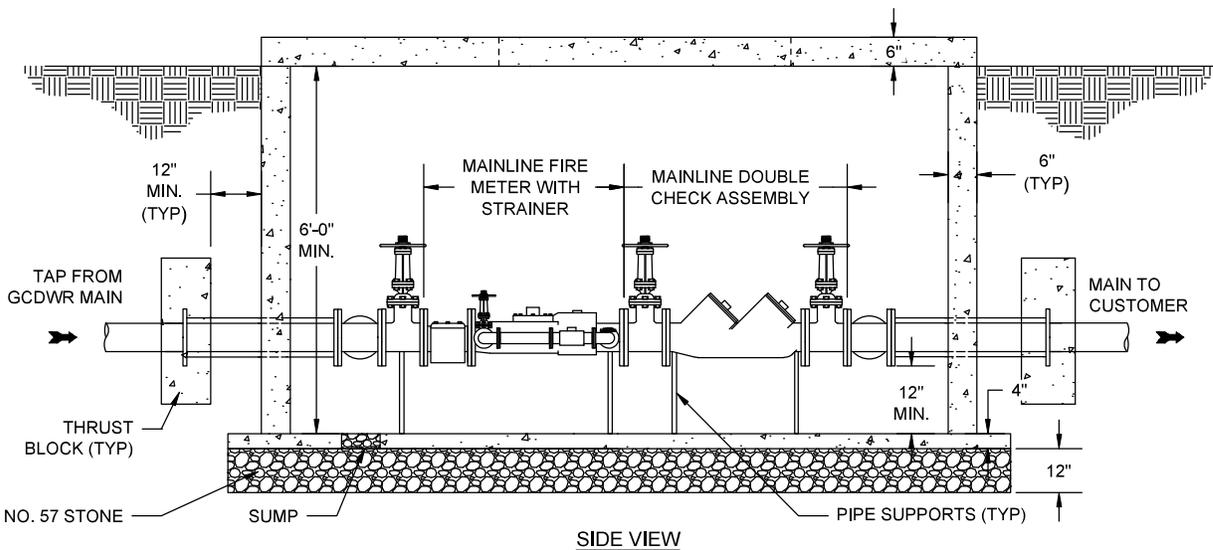
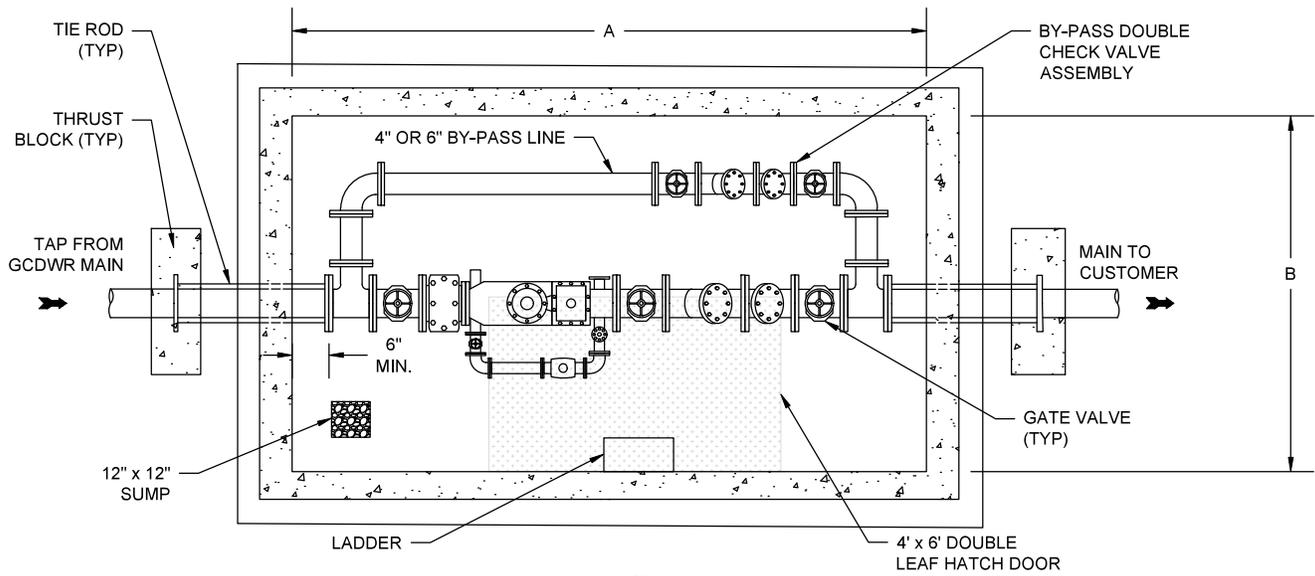
DESIGN BY:  
 DRAWN BY: FNI  
 CHECKED BY:  
 APPROVED BY:  
 SCALE: NONE

**6" AND 8" FIRE SERVICE METER**

DRAWING NO.

**BP-10**

REVISION: DATE: BY: DATE: BY: REVISION: DATE: BY: DATE: BY: REVISION: DATE: BY: DATE: BY: ORIGINAL ISSUE:



FIRE METER SIZE	A	B
6"	12'-0"	6'-0"
8"	14'-0"	8'-0"

**NOTES:**

1. ALL PIPE AND FITTINGS SHALL BE FLANGED DUCTILE IRON PIPE EXCEPT WHERE NOTED.
2. VAULT TOP SHALL BE 6" THICK REINFORCED CONCRETE. VAULT BOTTOM IS 4" CONCRETE SLAB SLOPED TO DRAIN SUMP HOLE. SLAB TO BE POURED ON 12" COMPACTED NO. 57 STONE. HATCH OPENING SHALL BE TO ONE SIDE OF THE VAULT AT THE CENTER OF THE WALL.
3. SEE APPROVED VENDORS LIST FOR PREFERRED VENDORS OF HATCH, VALVES, AND OTHER EQUIPMENT OR MATERIALS.
4. VAULT INLET/OUTLET OPENINGS SHALL BE SEALED WITH NON-SHRINK CEMENT OR BRICK AND MORTAR. PIPE MUST NOT SUPPORT VAULT.
5. VAULT SHALL BE PRECAST FOR NON-LOAD BEARING APPLICATION. WHEN VAULT WILL BE SUBJECTED TO LIVE LOAD, CUSTOMER'S ENGINEER SHALL SUBMIT DETAILED VAULT DESIGN FOR GCDWR APPROVAL.
6. ACCESS LADDER SHALL BE DOWELED INTO WALL AND CENTERED BELOW HATCH OPENING, SPACED 12" APART.
7. DOUBLE CHECK VALVE AND METER ASSEMBLY SHALL BE SUPPORTED IN TWO (2) PLACES ON STEEL STANDS OR SUPPORTS - NO WOOD IS ALLOWED.
8. SEE DETAILS IN THE GCDWR WATER AND SEWER STANDARD DETAIL DRAWINGS FOR TYPICAL THRUST BLOCK AND TIE ROD DETAILS.
9. GATE VALVES SHALL BE OS&Y RESILIENT SEATED.
10. GCDWR SHALL FURNISH FIRE METER WITH STRAINER. ALL OTHER MATERIALS SHALL BE FURNISHED BY CUSTOMER.
11. SEE DETAIL BP-1 FOR VAULT ORIENTATION IN EASEMENT.
12. REFER TO GCDWR TESTING POLICIES AND GUIDELINES FOR ANNUAL TESTING REQUIREMENTS.

**GWINNETT COUNTY DEPARTMENT OF WATER RESOURCES**

DESIGN BY:  
 DRAWN BY: FNI  
 CHECKED BY:  
 APPROVED BY:  
 SCALE: NONE

**6" AND 8" FIRE SERVICE METER WITH BY-PASS**

DRAWING NO.

**BP-11**