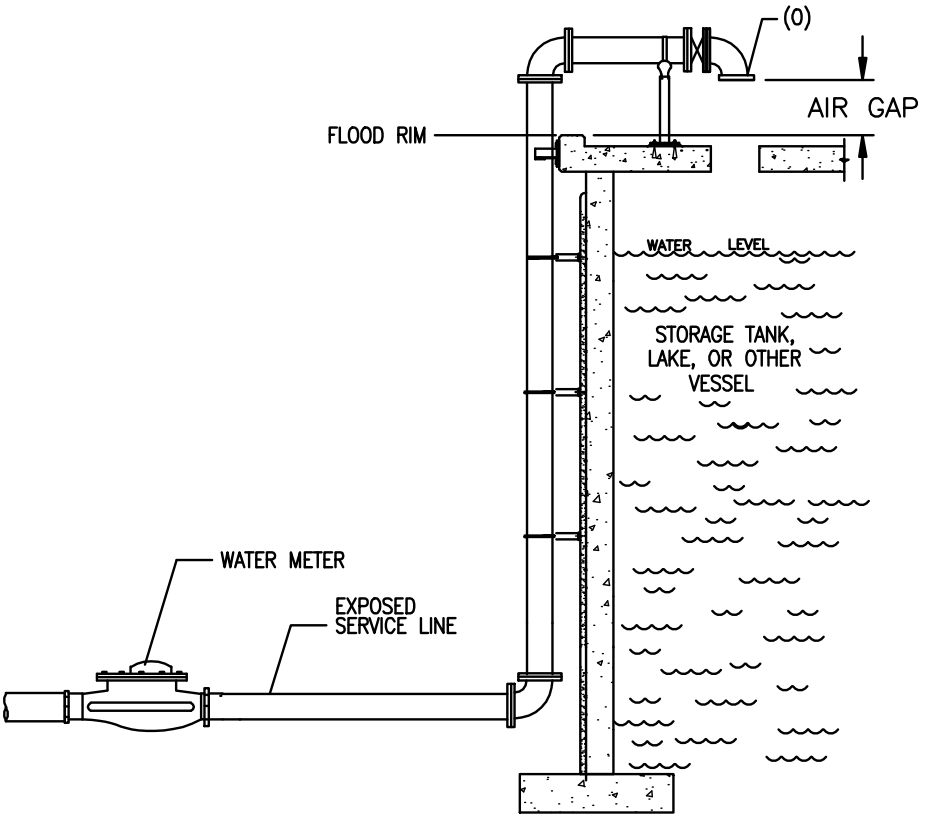


The prevention of backflow in a potable water supply system is necessary to prevent contamination or pollution of the water supply. Prevention is accomplished by the use of air–gap separations or by mechanical backflow prevention assemblies. Air–gap separations and backflow prevention assemblies shall be installed according to current Tucson Water Standard Details to assure protection of the public water supply system.

An air gap is not generally utilized for water service line protection since all supply pressure is lost. A water service line to a lake, tank or other vessel is generally where an air gap is used. However, for service protection, another deterrent is that all piping to the air gap must remain exposed.

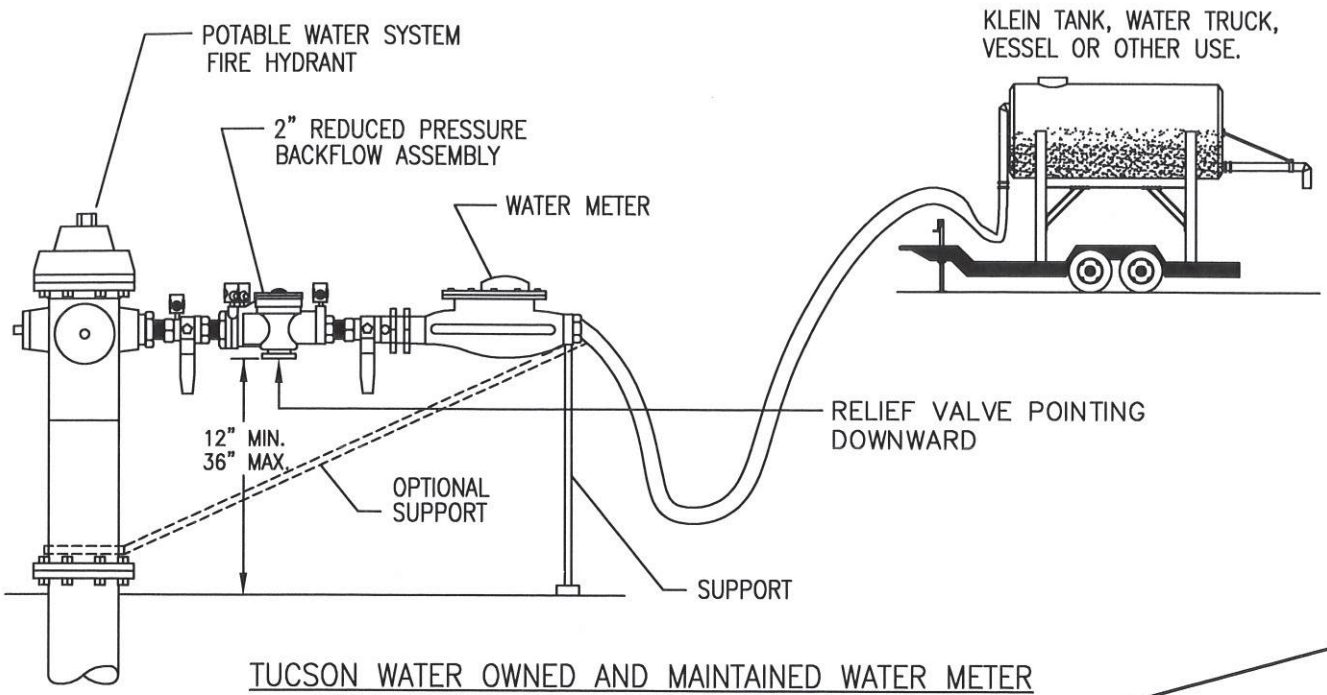
The minimum required air–gap separation shall be measured vertically from the lowest end of the potable water outlet to the flood rim of the receptacle into which the potable water discharges. This air–gap distance shall be a minimum of twice the effective opening (0) of the potable water outlet. If the water outlet is located at a distance less than three times the effective opening (0) away from a wall or similar vertical surface, the minimum air–gap shall be three times the effective opening (0) of the outlet. In no case may the minimum required air–gap be less than one inch.

There shall not be any provisions for extending the fixture below the flood level rim. If the end of the potable water pipe or fixture outlet is threaded or allows for any type of extension by any means, a properly installed and approved backflow preventer shall be installed.

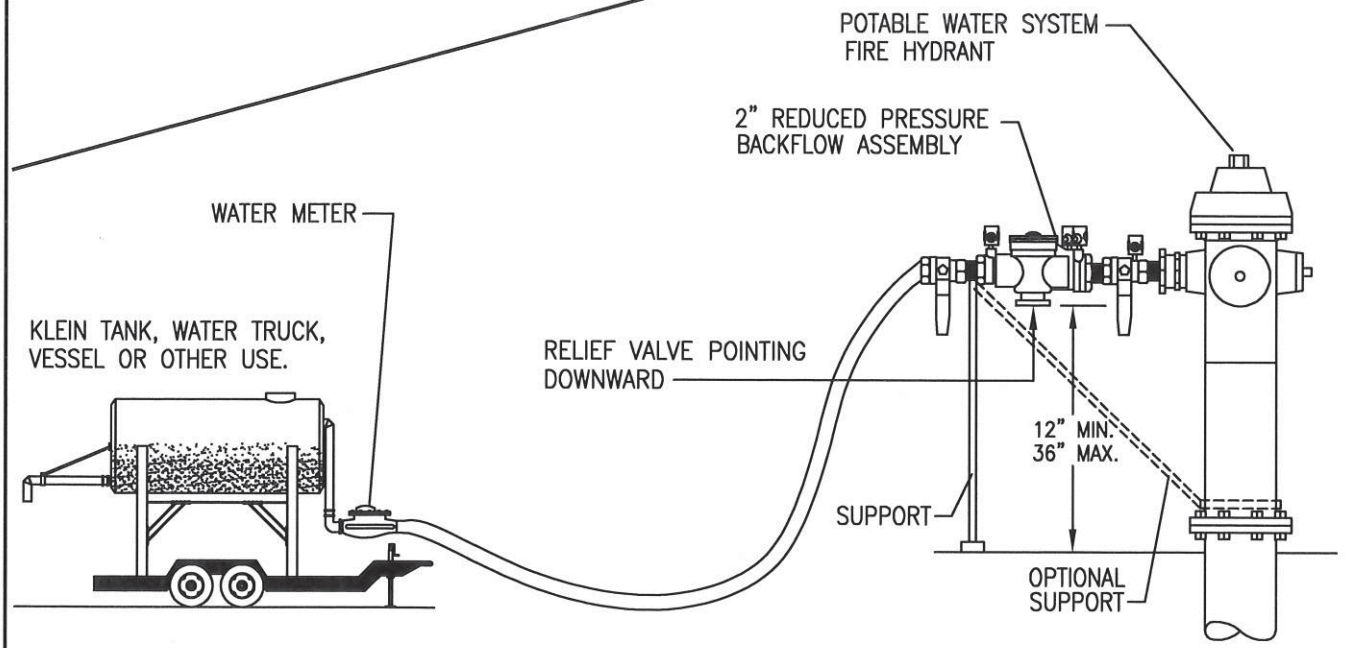
Note: the air gap may be screened or shielded with a perforated material for protection.

For additional information contact the Backflow Prevention Section at (520) 791–2650.

ISSUED:		STANDARD DETAIL		DETAIL NO.
6/97	TUCSON WATER	BACKFLOW PREVENTION AIR GAP SEPARATION INSTALLATION	TUCSON WATER	SD-1800
REVISED:				
9/08				SHEET 1 OF 1



TUCSON WATER OWNED AND MAINTAINED WATER METER
WITH TUCSON WATER OWNED AND MAINTAINED
RP BACKFLOW ASSEMBLY

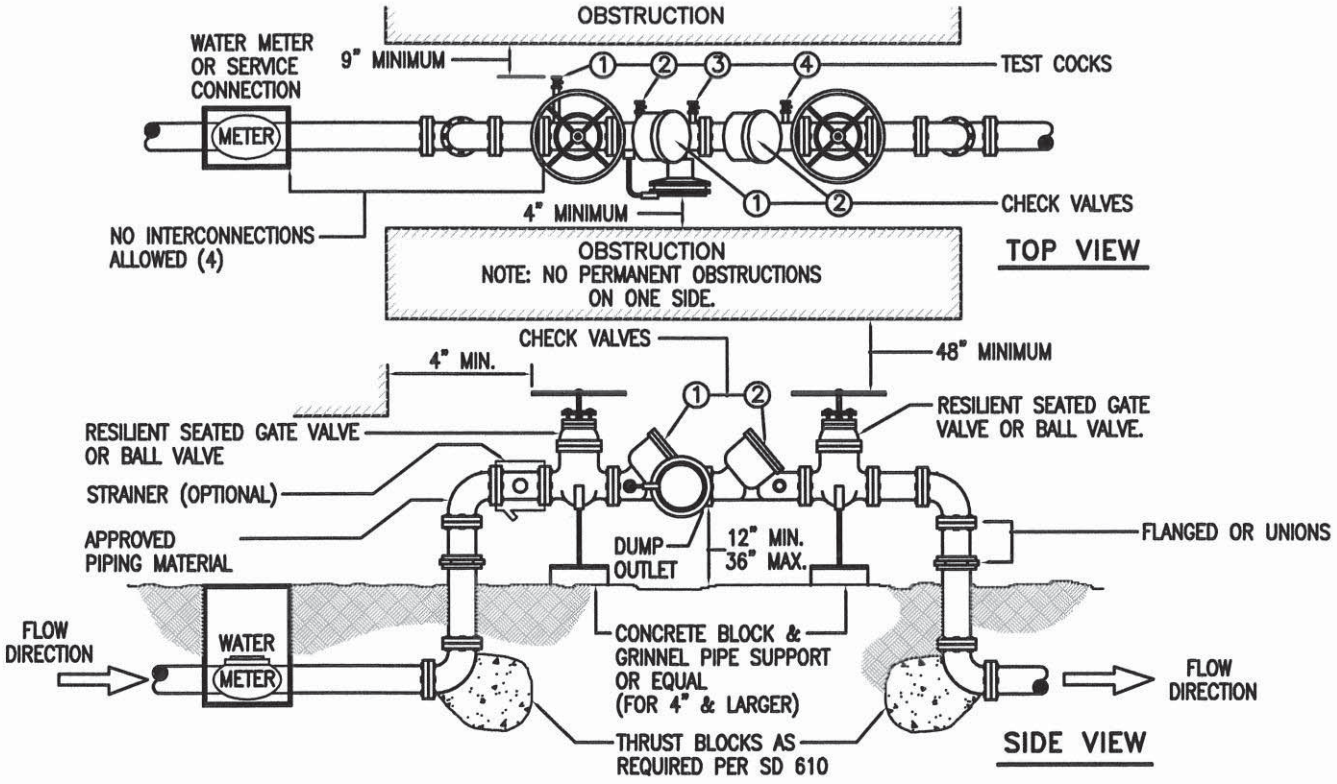


CONTRACTOR OWNED AND MAINTAINED WATER METER
WITH CONTRACTOR OWNED AND MAINTAINED
RP BACKFLOW ASSEMBLY

Notes:

1. All backflow assemblies shall be installed, maintained and tested in accordance with regulations.
2. Only one connection per hydrant is allowed unless otherwise authorized by Tucson Water.
3. For a list of approved backflow assemblies or further information contact the Backflow Section at (520)791-2650.

ISSUED:		STANDARD DETAIL		DETAIL NO.
8/00	TUCSON WATER	BACKFLOW PREVENTION POTABLE WATER FIRE HYDRANT OR STANDPIPE WATER SERVICE	TUCSON WATER	SD-1801
REVISED:				
10/13				SHEET 1 OF 1

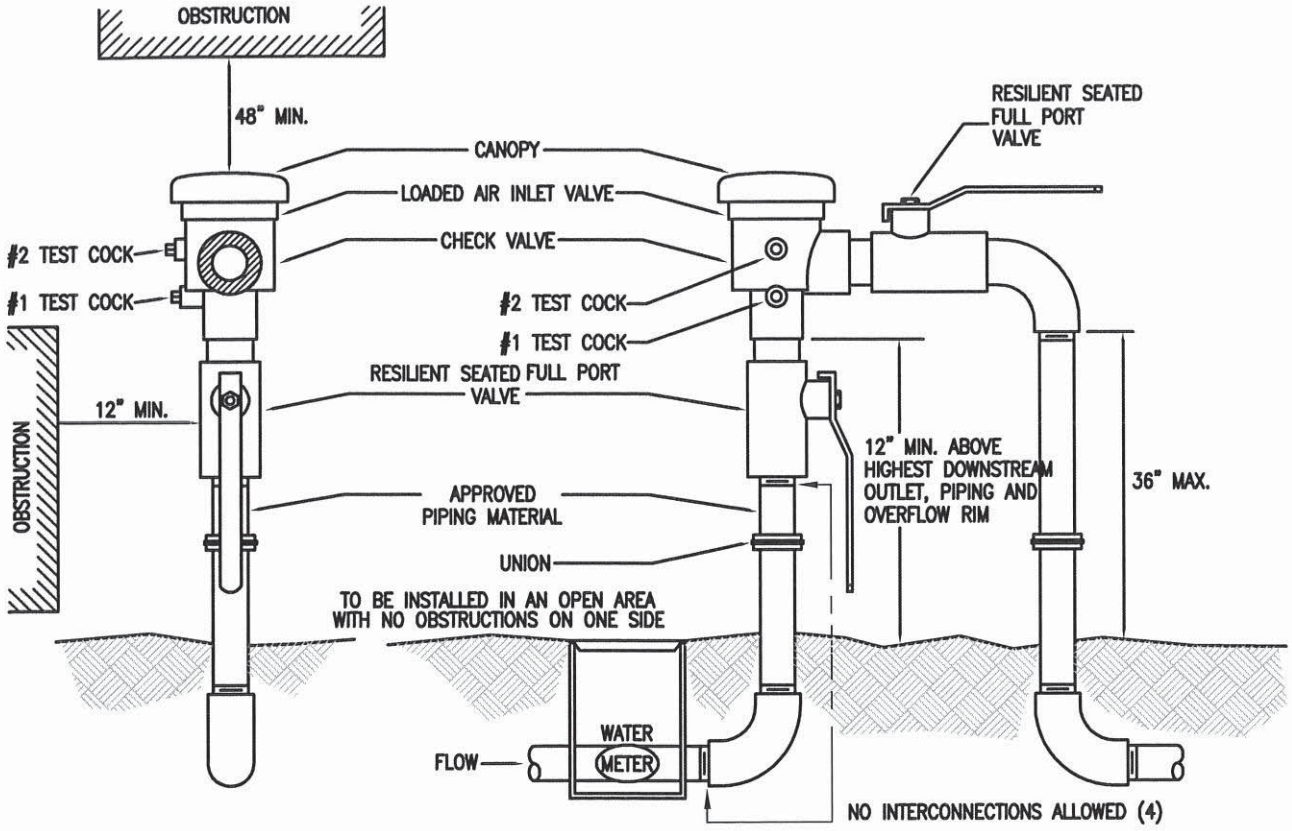


SD–1802 – REDUCED PRESSURE ASSEMBLY (RPA) INSTALLATION

These specifications are to be followed for all water service protection installations utilizing a RPA.

1. A permit is required before installing or replacing a backflow assembly. Permits shall be obtained at Tucson Water, 310 W. Alameda.
2. A list of approved backflow assemblies is maintained by Tucson Water.
3. For containment protection, the backflow assembly listed in this SD shall be installed outside, above ground, as close to the water meter or service connection as possible and on private property unless otherwise authorized. (right–of–ways are not private property)
4. There shall be no other piping connected to the piping between the water meter and the backflow assembly except for parallel installations.
5. Installations shall meet current plumbing codes and fire codes as applicable in addition to Tucson Water's Standard Details. (See #11 Approved piping materials)
6. Installations shall be left exposed until inspected and approved by Tucson Water.
7. Protective cages are optional, and shall meet clearance, access and drainage requirements.
8. Backflow assemblies shall be protected from freezing. Care shall be taken to ensure that the protection does not hinder the operation of the assembly. Insulation shall not interfere with the operation of the test cocks, any dump port, shut off valves or identification name plate.
9. Before installing a backflow assembly on any fire system, consult with the fire authority for additional requirements.
10. The installation of a backflow assembly may create a closed system. Consult local plumbing codes for pressure relief valve and thermal expansion requirements.
11. Approved piping materials shall be: Copper type L or K, Galvanized SCH 40, or Ductile Iron.
12. For additional information contact the Backflow Prevention Section at (520) 791–2650.

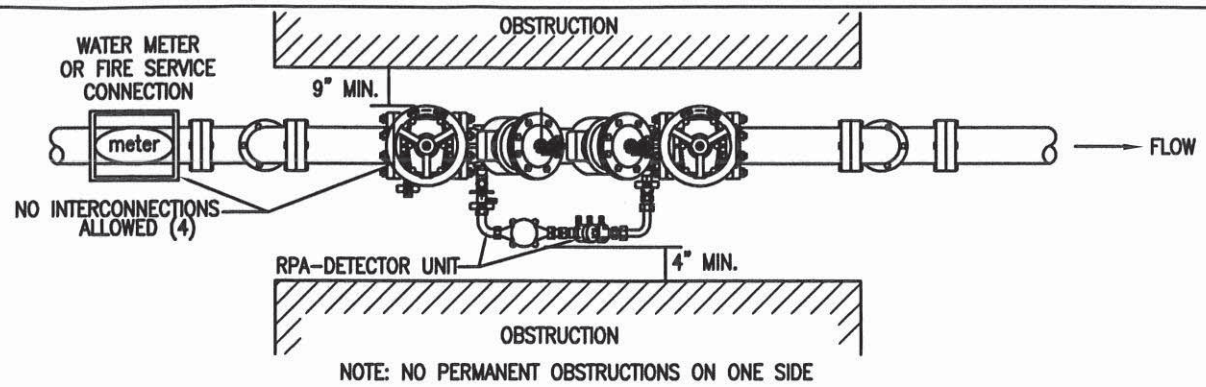
ISSUED:		STANDARD DETAIL		DETAIL NO.
12/97	TUCSON WATER	BACKFLOW PREVENTION REDUCED PRESSURE ASSEMBLY (RPA) INSTALLATION	TUCSON WATER	SD-1802
REVISED: 10/13				SHEET 1 OF 1



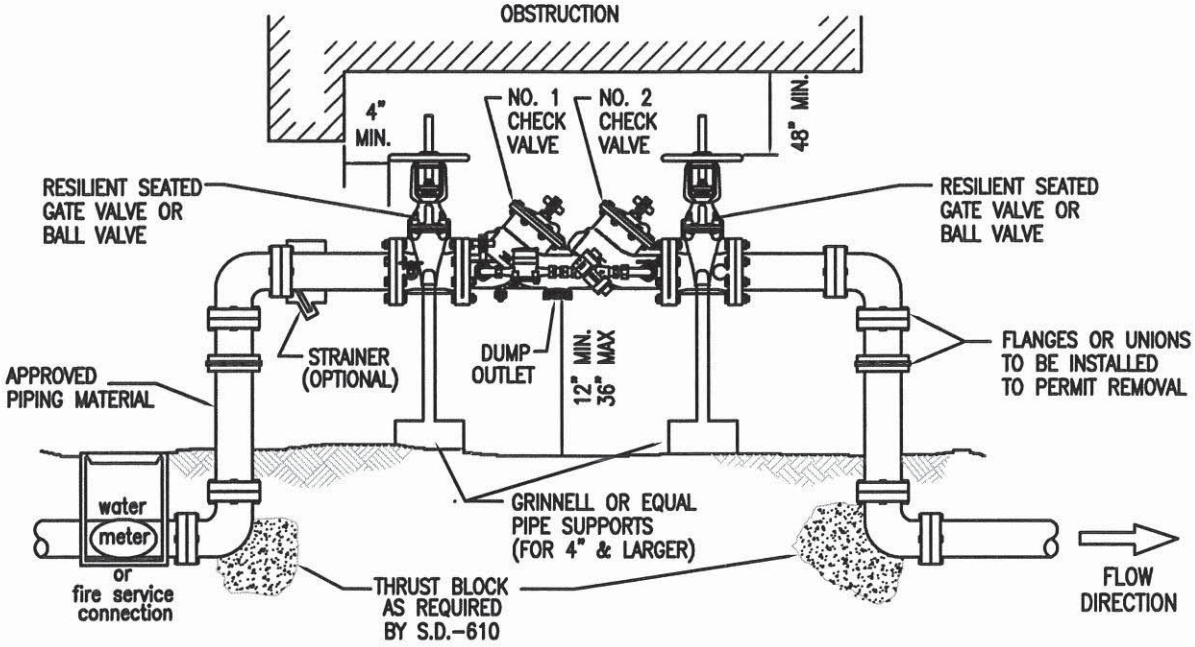
SD-1803 – PRESSURE VACUUM BREAKER ASSEMBLY (PVB) INSTALLATION
These specifications are to be followed for all water service protection installations utilizing PVB.

1. A permit is required before installing or replacing a backflow assembly. Permits shall be obtained at Tucson Water, 310 W. Alameda.
2. A list of approved backflow assemblies is maintained by Tucson Water.
3. For containment protection, the backflow assembly listed in this SD shall be installed outside, above ground, as close to the water meter or service connection as possible and on private property unless otherwise authorized. (right–of–ways are not private property)
4. There shall be no other piping connected to the piping between the water meter and the backflow assembly except for parallel installations.
5. Installations shall meet current plumbing codes and fire codes as applicable in addition to Tucson Water's Standard Details. (See #11 Approved piping materials)
6. Installations shall be left exposed until inspected and approved by Tucson Water.
7. Protective cages are optional, and shall meet clearance, access and drainage requirements.
8. Backflow assemblies shall be protected from freezing. Care shall be taken to ensure that the protection does not hinder the operation of the assembly. Insulation shall not interfere with the operation of the test cocks, any dump port, shut off valves or identification name plate.
9. Before installing a backflow assembly on any fire system, consult with the fire authority for additional requirements.
10. The installation of a backflow assembly may create a closed system. Consult local plumbing codes for pressure relief valve and thermal expansion requirements.
11. Approved piping materials shall be: Copper type L or K, Galvanized SCH 40, or Ductile Iron.
12. For additional information contact the Backflow Prevention Section at (520) 791–2650.

ISSUED:		STANDARD DETAIL		DETAIL NO.
6/97	TUCSON WATER	BACKFLOW PREVENTION PRESSURE VACUUM BREAKER ASSEMBLY (PVB) INSTALLATION	TUCSON WATER	SD-1803
REVISED:				
10/13				SHEET 1 OF 1



NOTE: NO PERMANENT OBSTRUCTIONS ON ONE SIDE

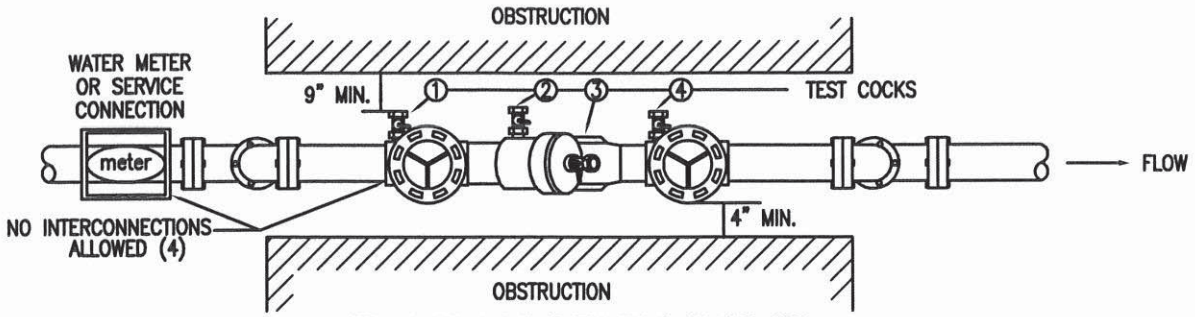


REDUCED PRESSURE DETECTOR ASSEMBLY (RPDA) INSTALLATION

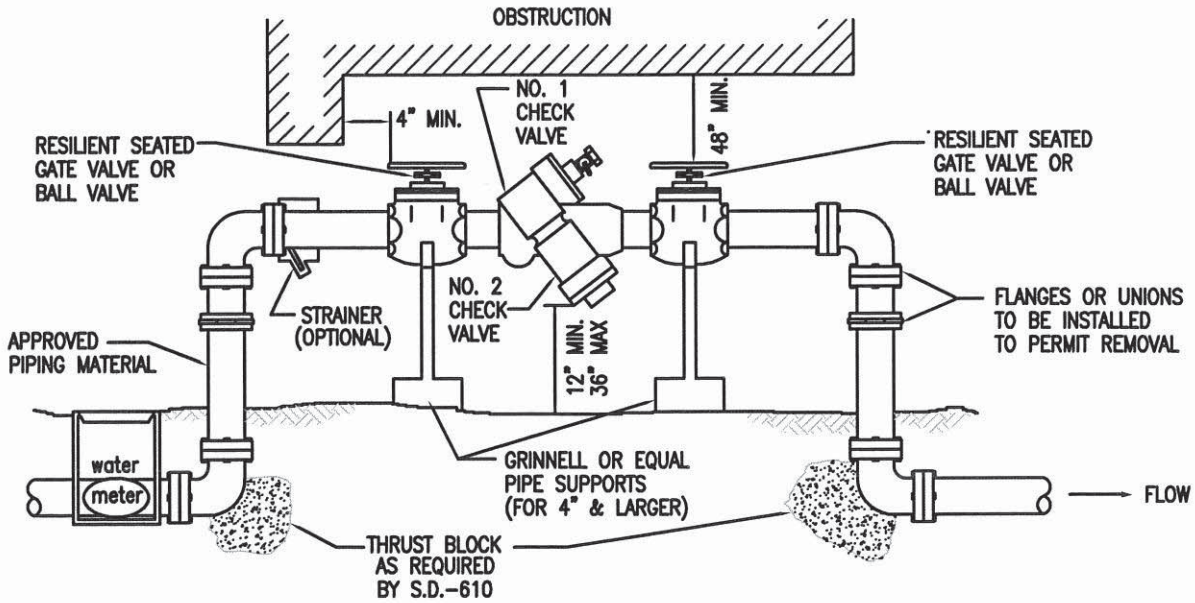
These specifications are to be followed for all water service backflow protection installations utilizing a RPDA.

1. A permit is required before installing or replacing a backflow assembly. Permits shall be obtained at Tucson Water, 310 W. Alameda.
2. A list of approved backflow assemblies is maintained by Tucson Water.
3. For containment protection, the backflow assembly listed in this SD shall be installed outside, above ground, as close to the water meter or service connection as possible and on private property unless otherwise authorized. (right-of-ways are not private property)
4. There shall be no other piping connected to the piping between the water meter and the backflow assembly except for parallel installations.
5. Installations shall meet current plumbing codes and fire codes as applicable in addition to Tucson Water's Standard Details. (See #11 Approved piping materials)
6. Installations shall be left exposed until inspected and approved by Tucson Water.
7. Protective cages are optional, and shall meet clearance, access and drainage requirements.
8. Backflow assemblies shall be protected from freezing. Care shall be taken to ensure that the protection does not hinder the operation of the assembly. Insulation shall not interfere with the operation of the test cocks, any dump port, shut off valves or identification name plate.
9. Before installing a backflow assembly on any fire system, consult with the fire authority for additional requirements.
10. The installation of a backflow assembly may create a closed system. Consult local plumbing codes for pressure relief valve and thermal expansion requirements.
11. Approved piping materials shall be: Copper type L or K, Galvanized SCH 40, or Ductile Iron.
12. For additional information contact the Backflow Prevention Section at (520) 791-2650.

ISSUED:		STANDARD DETAIL		DETAIL NO.
9/04	TUCSON WATER	BACKFLOW PREVENTION REDUCED PRESSURE DETECTOR ASSEMBLY (RPDA) INSTALLATION	TUCSON WATER	SD-1804
REVISED:				
10/13				SHEET 1 OF 1



NOTE: NO PERMANENT OBSTRUCTIONS ON ONE SIDE

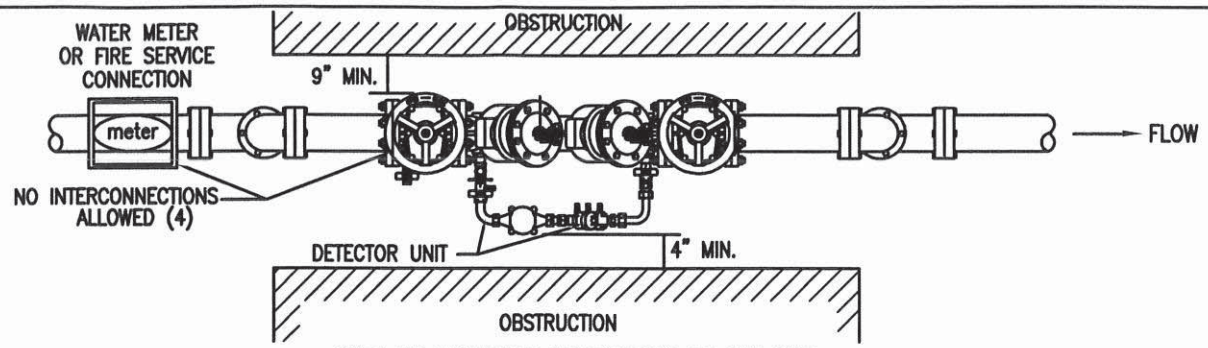


DOUBLE CHECK VALVE ASSEMBLY (DCVA) INSTALLATION

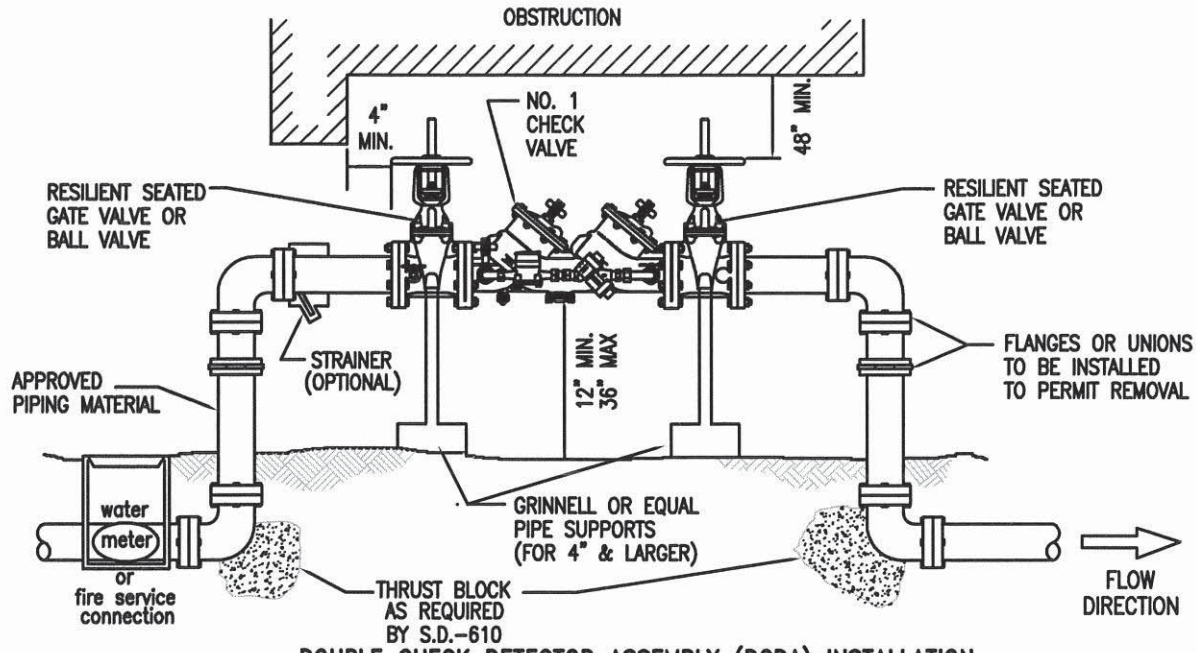
These specifications are to be followed for all water service protection installations utilizing a DCVA.

1. A permit is required before installing or replacing a backflow assembly. Permits shall be obtained at Tucson Water, 310 W. Alameda.
2. A list of approved backflow assemblies is maintained by Tucson Water.
3. For containment protection, the backflow assembly listed in this SD shall be installed outside, above ground, as close to the water meter or service connection as possible and on private property unless otherwise authorized. (right-of-ways are not private property)
4. There shall be no other piping connected to the piping between the water meter and the backflow assembly except for parallel installations.
5. Installations shall meet current plumbing codes and fire codes as applicable in addition to Tucson Water's Standard Details. (See #11 Approved piping materials)
6. Installations shall be left exposed until inspected and approved by Tucson Water.
7. Protective cages are optional, and shall meet clearance, access and drainage requirements.
8. Backflow assemblies shall be protected from freezing. Care shall be taken to ensure that the protection does not hinder the operation of the assembly. Insulation shall not interfere with the operation of the test cocks, any dump port, shut off valves or identification name plate.
9. Before installing a backflow assembly on any fire system, consult with the fire authority for additional requirements.
10. The installation of a backflow assembly may create a closed system. Consult local plumbing codes for pressure relief valve and thermal expansion requirements.
11. Approved piping materials shall be: Copper type L or K, Galvanized SCH 40, or Ductile Iron.
12. For additional information contact the Backflow Prevention Section at (520) 791-2650.

ISSUED:		STANDARD DETAIL		DETAIL NO.
6/97	TUCSON WATER	BACKFLOW PREVENTION DOUBLE CHECK VALVE ASSEMBLY (DCVA) INSTALLATION	TUCSON WATER	SD-1805
REVISED: 10/13				SHEET 1 OF 1



NOTE: NO PERMANENT OBSTRUCTIONS ON ONE SIDE

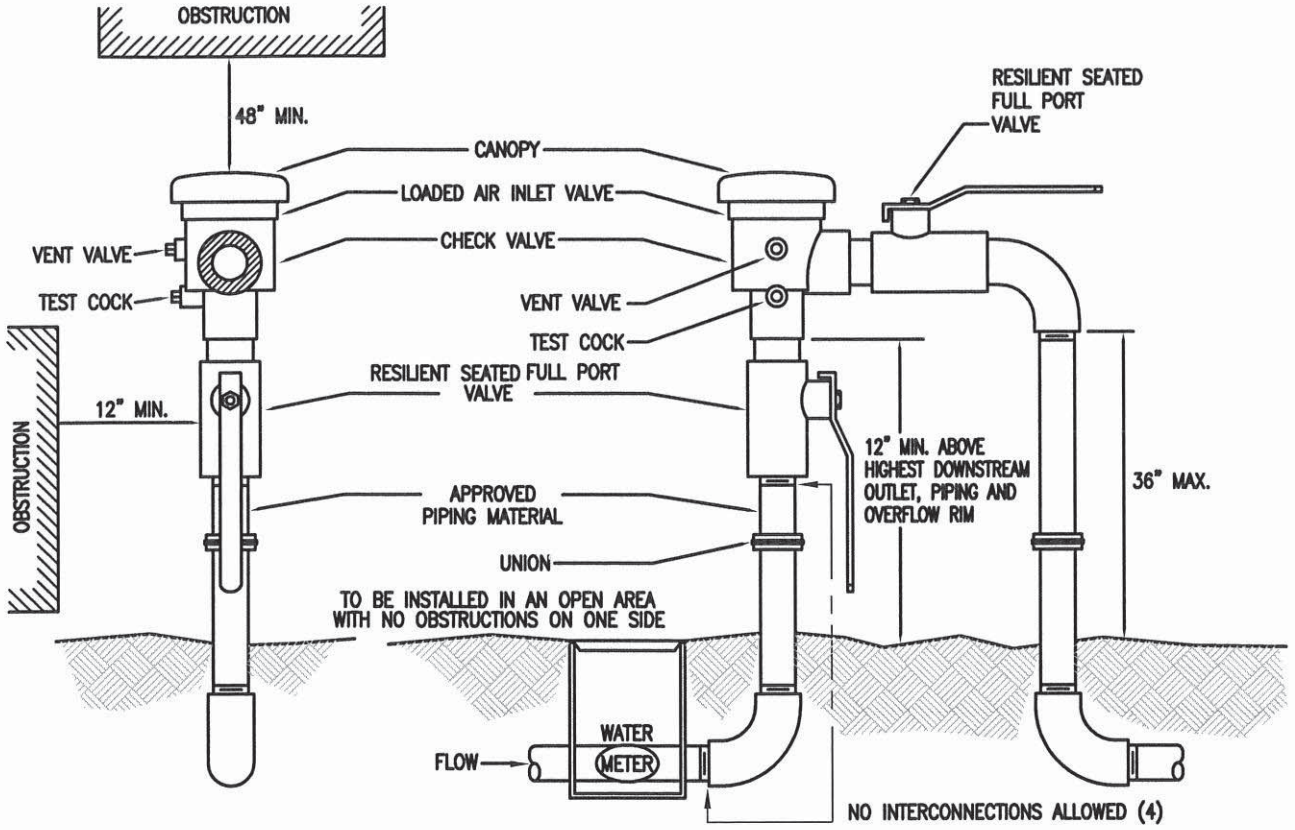


DOUBLE CHECK DETECTOR ASSEMBLY (DCDA) INSTALLATION

These specifications are to be followed for all water service backflow protection installations utilizing a DCDA.

1. A permit is required before installing or replacing a backflow assembly. Permits shall be obtained at Tucson Water, 310 W. Alameda.
2. A list of approved backflow assemblies is maintained by Tucson Water.
3. For containment protection, the backflow assembly listed in this SD shall be installed outside, above ground, as close to the water meter or service connection as possible and on private property unless otherwise authorized. (right-of-ways are not private property)
4. There shall be no other piping connected to the piping between the water meter and the backflow assembly except for parallel installations.
5. Installations shall meet current plumbing codes and fire codes as applicable in addition to Tucson Water's Standard Details. (See #11 Approved piping materials)
6. Installations shall be left exposed until inspected and approved by Tucson Water.
7. Protective cages are optional, and shall meet clearance, access and drainage requirements.
8. Backflow assemblies shall be protected from freezing. Care shall be taken to ensure that the protection does not hinder the operation of the assembly. Insulation shall not interfere with the operation of the test cocks, any dump port, shut off valves or identification name plate.
9. Before installing a backflow assembly on any fire system, consult with the fire authority for additional requirements.
10. The installation of a backflow assembly may create a closed system. Consult local plumbing codes for pressure relief valve and thermal expansion requirements.
11. Approved piping materials shall be: Copper type L or K, Galvanized SCH 40, or Ductile Iron.
12. For additional information contact the Backflow Prevention Section at (520) 791-2650.

ISSUED:		STANDARD DETAIL		DETAIL NO.
8/02	TUCSON WATER	BACKFLOW PREVENTION DOUBLE CHECK DETECTOR ASSEMBLY (DCDA) INSTALLATION	TUCSON WATER	SD-1806
REVISED: 10/13				SHEET 1 OF 1



SD 1807 – SPILL RESISTANT PRESSURE VACUUM BREAKER ASSEMBLY (SVB) INSTALLATION

These specifications are to be followed for all water service protection installations utilizing a SVB.

1. A permit is required before installing or replacing a backflow assembly. Permits shall be obtained at Tucson Water, 310 W. Alameda.
2. A list of approved backflow assemblies is maintained by Tucson Water.
3. For containment protection, the backflow assembly listed in this SD shall be installed outside, above ground, as close to the water meter or service connection as possible and on private property unless otherwise authorized. (right–of–ways are not private property)
4. There shall be no other piping connected to the piping between the water meter and the backflow assembly except for parallel installations.
5. Installations shall meet current plumbing codes and fire codes as applicable in addition to Tucson Water's Standard Details. (See #11 Approved piping materials)
6. Installations shall be left exposed until inspected and approved by Tucson Water.
7. Protective cages are optional, and shall meet clearance, access and drainage requirements.
8. Backflow assemblies shall be protected from freezing. Care shall be taken to ensure that the protection does not hinder the operation of the assembly. Insulation shall not interfere with the operation of the test cocks, any dump port, shut off valves or identification name plate.
9. Before installing a backflow assembly on any fire system, consult with the fire authority for additional requirements.
10. The installation of a backflow assembly may create a closed system. Consult local plumbing codes for pressure relief valve and thermal expansion requirements.
11. Approved piping materials shall be: Copper type L or K, Galvanized SCH 40, or Ductile Iron.
12. For additional information contact the Backflow Prevention Section at (520) 791–2650.

ISSUED:		STANDARD DETAIL		DETAIL NO.
9/04	TUCSON WATER	BACKFLOW PREVENTION SPILL RESISTANT PRESSURE VACUUM BREAKER ASSEMBLY (SVB) INSTALLATION	TUCSON WATER	SD-1807
REVISED: 10/13				SHEET 1 OF 1