

**BACKFLOW PREVENTION
AND
CROSS-CONNECTION CONTROL
ASSEMBLIES
INSTALLATION MANUAL**

**METER AND BACKFLOW ASSEMBLY ADDRESS
APPLICATION FOR INSTALLATION**

DEVELOPMENT SERVICES

Type of Process/Service: _____

Device Required: AG _____ DCVA _____ RPPA _____

Physical location of device: _____

Fire Protection Line: (Locations of Nearest Public Fire Hydrant & FDC) _____

Type of Business: _____

OWNER INFORMATION

Name: _____

Address: _____

Contact Person: _____

Phone: _____

PLUMBER/GENERAL CONTRACTOR INFORMATION

Installed by: _____

Telephone: _____

Address: _____

Plumber/General Contractor License No. _____

FINAL INSPECTION FOR BACKFLOW ASSEMBLY

CONTACT METER SERVICES DIVISION

PHONE: 704-638-5390

Installation Date: _____

Physical location of device: _____

Model: _____

Make: _____

Serial No: _____

Size: _____

Inspected By: _____

Approved for Service: _____

CONTACT INFORMATION:

Salisbury-Rowan Utilities

Meter Services Division

Attn: Mike Lee or Jamie Hoffner

500 North Church Street

Salisbury, NC 28144

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INTRODUCTION:

This manual has been designed to specify required test procedures, approved test kits, approved backflow prevention assemblies and their location and method of installation. It will also provide a better understanding of the responsibilities of the customer, technicians, and Salisbury-Rowan Utilities.

The ultimate goal is to provide protection for the water systems operated by Salisbury-Rowan Utilities and to provide the highest quality of drinking water possible to the free flowing tap. The participation of each customer in having a backflow prevention assembly properly installed and maintained is one more step in assuring that the public drinking water is safe.

INSTALLATION

1. Authorization:

Before installation of any backflow prevention assembly may proceed, proper authorities shall be contacted to obtain a permit for the installation of an approved backflow prevention assembly. The proper authorities shall provide information on the specifications for and type of assembly to install, the size, the location and rights-of-way. Local authorities include the Salisbury-Rowan Utilities (SRU) Engineering Manager and Meter Services Supervisor, City Fire Marshall, City of Salisbury Development Services, County Plumbing Inspector, County Fire Marshall, and N. C. Department of Transportation.

2. Location:

Installation of a backflow prevention assembly shall be at or near the outlet side of the meter service. The assembly may be located at the side of the home/building if the service line meets (SRU's) standards (See Detail # BF-14). A backflow prevention assembly shall be installed before the service line is connected to any other pipes, except as authorized by SRU. Connection to SRU's fitting shall not be under the concrete pad poured for the backflow prevention assembly. If an outside location is not possible, the Meter Services Supervisor or his/her designee may allow the assembly to be installed just inside the building. (Note: All installations or replacements of a backflow prevention assembly shall be by a licensed plumber or a licensed utility contractor.) Backflow prevention assemblies shall be installed in the upright position and horizontally in accordance with the manufacturers' instructions.

3. Clearance & Drain Size Requirements:

Reduced Pressure Principle Assemblies (RPPA) and Reduced Pressure Detector Assemblies (RPDA) shall be installed above ground in an approved enclosure. The relief port shall have a minimum horizontal clearance of twelve (12) inches or a maximum vertical clearance of thirty (30) inches to the concrete pad. All RPPA and RPDA assemblies shall be installed above ground to ensure that the relief outlet of the assembly does not become submerged (since this creates a cross-connection). If the assembly must be installed inside a building, the following clearance specifications must be met:

3/4" – 2" RPPA shall have a minimum horizontal clearance of four (4) inches between the wall and shut off valves, a minimum horizontal

clearance of thirty (30) inches from the wall on the side utilizing the test cocks and a minimum horizontal clearance of six (6) inches on the opposite side of the assembly. A minimum diameter floor drain shall be provided for the relief port in accordance with the Installation Reference Tables on page 11 or the manufacturers' specifications, whichever is more stringent. When pipe is run horizontally, it shall be installed with a slope/fall conforming to the North Carolina State Building and Plumbing Code 2002 Edition.

3" – 10" RPPA shall have a minimum horizontal clearance of eight (8) inches between the walls and shut off valves, a minimum horizontal clearance of thirty (30) inches clearance on the side utilizing the test cocks and twelve (12) inches minimum horizontal clearance on the opposite side of the assembly. The floor drain shall be sized in accordance with the Installation Reference Tables on page 11 or the manufacturer's flow chart for relief valve, whichever is more stringent. RPPAs installed within a building shall have floor drains designed to handle a full port discharge from the assembly. When pipe is run horizontally, it shall be installed with a slope/fall conforming to the North Carolina State Building and Plumbing Code 2002 Edition.

Double Check Valve Assemblies (DCVA) must be installed in an ASSE 1060 approved insulated enclosure above ground. If an assembly is allowed below ground in a vault by the Meter Services Supervisor, the Double Check Valve Assembly must meet size and clearance specifications as follows:

3/4"—10" DCVA shall be installed in a vault that is a minimum of 4" above grade level. If installed in traffic area at grade level, an H-20 traffic rated vault and lid shall be installed. Such vault shall have positive drainage by gravity to the surface of the ground or a catch basin connected to a storm drainage system. The drainage pipe shall be provided with a vermin screen. The drain shall be sized according to the Installation Reference Tables on page 11 or the manufacturer's flow chart for relief valve, whichever is more stringent. If positive drainage cannot be provided, the assembly shall be installed above ground in an ASSE 1060 approved enclosure. The 3/4"—2" (DCVA) shall have a horizontal clearance of four (4) inches from the end walls to ball valves, eighteen (18) inches minimum horizontal clearance on the test side of the assembly and four (4) inches minimum horizontal clearance on the opposite side. A minimum of six (6) inches of washed stone placed in the bottom of the vault. The 3" – 10" (DCVA) shall have a horizontal clearance of eight (8) inches from the end

walls to the ball valves, thirty (30) inches horizontal clearance on the test side of the assembly and twelve (12) inches horizontal clearance on the opposite side. All Double Check Valve Assemblies shall have a minimum twelve (12) inches and a maximum thirty (30) inches vertical clearance from floor level to the underside of the DCVA body. Inside installation shall adhere to the same clearance specifications as for Reduce Pressure Principle Assemblies.

4. Enclosure Requirements:

Outside installation shall have an ASSE 1060 approved insulated enclosure to protect the assembly from vandalism and freezing (per North Carolina State Building and Plumbing Code 2002 Edition – 608.14.1). The protective structure shall be secured, by screw or bolt only, and provide easy access to the assembly for testing or removal. The structure shall have adequate drainage provided by hinged door or drain ports and shall not be obstructed by mulch, dirt, rocks or other materials. (See Drain Port Sizing page 11) (Note: Wrapping the assembly with insulation shall be prohibited). If the structure is non-removable and must be entered in order to test or repair the assembly, the same minimum and maximum clearances for inside installation shall apply.

NOTE: SRU shall not be held liable for damages caused as a direct or indirect result of pressure fluctuations/surges in the public system, or damages caused by leaks or discharges, improper installation, location, piping and/or design of backflow prevention assemblies.

All fire line and combination fire and domestic backflow prevention assemblies installed above ground shall have tamper switches and heaters within the protective housing per NFPA 13 Standard for the Installation of Sprinkler Systems, 2002 Edition, Chapter 8, specifically Section 8.15.3.1 – Protection of Piping Against Freezing. All fire line backflow prevention assemblies shall be RPPA or RPDA. No strainers shall be permitted on fire line backflow prevention assemblies.

It is recommended that all domestic line backflow prevention assemblies installed above ground be provided with heated protective enclosures.

5. Backflow Prevention Assembly Installation:

Residential lawn irrigation systems served by the public water supply shall have a RPPA backflow prevention assembly installed before the service line is connected to any other pipes, except as authorized by SRU.

6. Existing Installations:

Existing backflow prevention assemblies that are subject to flooding conditions must have adequate drainage. All existing RPPA and RPDA assemblies shall meet the drainage requirements of a newly installed RPPA or RPDA Assembly. However, a permanent sump pump with a hard piped electrical service may be allowed, subject to the decision of Meter Services Supervisor, on an existing DC or DCDA assembly if the installation preceded SRU's Backflow Prevention and Cross-Connection Control Ordinance and Installation specifications and a gravity drain is not possible. Adequate space shall be provided as required for double-check valve assembly for testing purposes. (See detail drawings.) If double-check valve assembly must be removed from below ground level, current standards shall apply for above ground locations including replacing a double-check valve assembly with a RPPA based on the degree of hazard.

7. Inspections:

Any backflow prevention assembly that is installed, removed, modified, or relocated shall be inspected by SRU prior to being placed in service. It is the responsibility of the installer of a backflow prevention assembly to secure the inspection or re-inspection by the SRU. The water line from the water meter to the backflow prevention assembly shall be left exposed for inspection. No tees, taps, fire hydrants, or any connections shall be installed between the meter and the backflow prevention assembly. (Note: SRU shall determine the amount of inspection/re-inspection fees, and how much advance notification we will need to schedule inspections.) SRU shall not install a water meter and initiate/restore service until an approved backflow prevention device is installed, inspected and approved by the Meter Services Supervisor or his/her designee.

DRAIN PORT MINIMUM REQUIREMENTS

RP SIZE (DIA.)	RECTANGULAR OPENING (IN.)	CIRCULAR
3/4" – 1"	2-1/2" H x 5" W	(1)-4"
2"	3" H x 6-1/2" W	(2)-4"
3"	4" H x 7" W	(3)-4"
4" – 6"	5" H x 10" W	(4)-4"
8" – 10"	5" H x 20" W	N/A

INSTALLATION REFERENCE TABLES

MIN. DRAIN SIZES FOR VAULT INSTALLATIONS (DCVA ONLY)

<u>Size of Assembly</u>	<u>Drain Size</u>
3/4" - 2"	2"
2 1/2" – 10"	4"

MINIMUM DRAIN SIZES REQUIRED FOR RP INDOOR INSTALLATION

<u>Size of Assembly</u>	<u>Drain Size</u>
3/4" – 1"	4"
1 1/2" – 2"	5"
2 1/2" – 3"	6"
4" – 6"	8"
8" – 10"	2' 8"

APPROVED ASSEMBLIES AND MATERIAL SPECIFICATIONS

1. All backflow prevention assemblies shall meet the requirements of SRU and have National approvals from the University of Southern California Foundation for Cross-Connection Control and Hydraulic Research (USCFCCHR), The American Society of Sanitary Engineering (ASSE) and must conform to AWWA C506, and adhere to ANSI and ASTM standards. All assemblies installed on fire lines shall have approval by Factory Mutual (FM) and Underwriters Laboratory (UL) Systems.
2. See current USC listing.
3. All internal parts shall be replaceable in line.
4. All assemblies shall have four (4) resilient seated test cocks, having 1/4 turn ball valves with slotted or lever type operators. These test cocks shall be located in the following order:
 - a. 1st test cock: Before the first shut-off valve
 - b. 2nd test cock: Between the first shut-off valve and the 1st check valve
 - c. 3rd test cock: Between the first and second check valve
 - d. 4th test cock: Between the second check valve and the second shut-off valve
5. All 3/4" – 2" backflow assemblies shall have bronze or stainless steel bodies and bonnets and shall be equipped with full port shut-off valves, of line size, having 1/4 turn lever type bronze or steel ball valves.
6. All 3" – 10" backflow assemblies shall have contained check valve modules. The bodies and bonnets shall be made of one of the following: fusion bonded epoxy-coated cast iron, ductile iron or steel, or made of bronze or stainless steel.
7. All 3" – 10" backflow assemblies shall be equipped with manufacturer approved resilient seated gate, wedge or ball valves with non-rising stems. The valves shall have a manual hand wheel for operation.
8. Only backflow prevention devices with USCFCCHR approved gate valves located on the inlet and outlet side and of a particular manufacture and model shall be considered as a complete approved assembly by SRU. Dual Check Valves serving single family residential units are exempt from these requirements.

9. If a backflow assembly is not on the approved list, it may be submitted for review and approval by the Meter Services Supervisor. SRU shall have the right to remove any assembly from the approved list if it fails to operate in a satisfactory manner or no longer meets the specifications.
10. OS & Y valves are required on fire line backflow prevention assemblies and combination domestic and fire line systems.
11. If a customer does not wish for water service to be interrupted when a backflow prevention assembly is tested, repaired, or replaced, a parallel installation shall be made using an approved assembly of the same degree of hazard. The parallel line may be of the same or smaller size.

PERMITS

1. Any person who intends to install, remove, modify, or relocate a backflow prevention assembly shall first obtain a permit from the Meter Services Supervisor, or his/her designee. Said backflow prevention assembly must be tested by a certified tester when first placed in service. A list of certified backflow prevention assembly testers may be obtained at Developmental Services – (704) 636-5208. To request information, contact the Meter Services Supervisor at (704) 638-5391. To obtain your permit and determine if a plumbing permit is also required, contact the Permit Services Coordinator at (704) 638-5208.

TEST REQUIREMENTS

1. Upon installation of any backflow prevention assembly, the customer shall have a certified backflow technician, approved by SRU, make all tests and repairs. A completed duplicate copy of all tests and repairs (on approved Backflow Preventer Test & Maintenance Report forms – See Appendix A) shall be sent to the Meter Services Supervisor within fifteen (15) days of completion. The customer shall maintain a file of these reports for no less than five (5) years.
2. Before beginning any tests or repairs on a fire protection system the customer shall notify all parties that could be effected by shutting off of the water service during any procedures (i.e. alarm company, insurance agents, local fire officials, building occupants).
3. If an assembly is in need of repair before the annual test period, the customer shall be responsible for having repairs made immediately by an approved backflow

technician. Any repaired assembly shall be tested upon completion of any repairs. All repair parts shall meet the assembly manufacturer's approval.

4. Backflow prevention assemblies shall be tested upon installation, at least annually, and after repairs, or relocation as specified in the International Plumbing Code 2000, Section 312.9 subsections 312.9.1 and 312.9.2.

APPROVED Schools and Required Certification Information:

1. Any person testing backflow prevention assemblies in the SRU service area shall be certified by an approved school providing certification in Backflow Prevention Testing and Cross-Connection Control. The following schools have been approved by SRU:

- a. City of Raleigh
Department of Public Utilities
P. O. Box 590
Raleigh, NC 27602
Ben Yarborough, Coordinator
(919) 831-6527
- b. University of Southern California
Foundation for Cross-Connection Control and
Hydraulic Research School of Engineering
BHE 314 University Park MC-0231
Los Angeles, California 90089-2031
Paul H. Schwartz, P.E., Coordinator
(213) 743-2032

- c. City of Durham
Department of Water Resources
101 City Hall Plaza
Durham, NC 27701
Cross-Connection Control Staff
(919) 560-4194
- d. Infotec, LLC
P. O. Box 1716
Carthage, NC 28327
Ronald West, Cross-Connection Training/Consultant
(910) 947-1115
- e. University of Florida
Center for Training Research and Education for
Environmental Occupations (TREEO)
3900 SW 63rd Boulevard
Gainesville, Fl 32608
(904) 392-9570
- f. Charlotte-Mecklenburg Utility Department
System Protection Division Backflow Prevention
5100 Brookshire Blvd
Charlotte, NC 28216
Mark A. Krouse, Coordinator
(704) 399-2426 Ext. 294

2. All testers shall have a thorough understanding of the SRU Backflow Prevention and Cross-Connection Control Ordinance, this installation manual, and adhere to test procedures for Double Check Valve and Reduced Pressure Principle Assemblies as listed in the current procedures from the University of Southern California Foundation for Cross-Connection and Hydraulic Research Manual of Cross-Connection Control.
3. A person who desires to be included on a list of approved certified testers for SRU must provide SRU with a letter of request with their full name, address, daytime phone number, the name of the school from which certification was obtained and the certificate number.
4. A person included on the list of approved certified testers for SRU shall complete a Certified Tester Agreement (See Appendix B), a current copy of which shall be kept on file by SRU.

5. All tests shall be done using test kits approved by SRU.
6. Full consent from the customer must be granted to the tester before any test procedures take place. The tester shall make certain the customer can provide safety for life and property during the entire testing or repair procedure. Until these safety precautions have been met no tests shall be completed.
7. The tester shall report any improperly installed assembly or installed non-approved manufacturer's parts to SRU. Falsification of records by the tester will result in their immediate removal from the approved tester list and the tester shall be subject to penalties set forth in the ordinance.
8. Tester must obtain a valid City of Salisbury Business License for testing in Salisbury, which can be purchased at 132 North Main Street, Salisbury, NC 28144, on website, or call 704-638-5311.

REQUIREMENTS FOR TEST KITS

1. All test kits used for testing backflow prevention assemblies shall meet the following requirements for approval by Salisbury-Rowan Utilities:
 - a. Shall meet the requirements of the University of Southern California Foundation for Cross-Connection and Hydraulic Research standards for differential pressure gauges.
 - b. A calibration certificate (less than one year old) for each kit and annual re-calibration shall be submitted to SRU.
 - c. The test person shall supply SRU with the following information for each kit to be registered:

Manufacture of kit
Type of kit (Duplex/Differential)
Serial Number
Owner's Name, Address, and Phone
Date of Calibration

APPROVED TEST KITS

ITT BARTON	100 BFT
CONBRACO	40-200-TK
FEBCO	RPTK (RPPA ONLY)
MIDWEST	MODEL 830 RP & 845
WATTS	MODEL TK-DP

APPROVED DOUBLE CHECK VALVE ASSEMBLIES

AMES	2000	1/2 - 10 Inch (SS & DCA)
CONBRACO	40-100	1/2 - 10 Inch
FEBCO	850	1/2 – 8 Inch
	870	2-1/2 – 8 Inch
FLOMATIC	DCV	3/4 - 6 Inch
WATTS	007QT	1/2 - 2 Inch
	775QT	1/2 - 2 Inch
WILKINS	350	2-1/2 - 10 Inch
	450	2-1/2 - 10 Inch (VUVD)
	950	2-1/2 – 10 Inch

APPROVED REDUCED PRESSURE PRINCIPLE ASSEMBLIES

AMES	4000	1/2 - 10 Inch (SS and DCA)
FEBCO	825	3/4 - 2 Inch
	860	1/2 - 8 Inch
	880	2-1/2 - 10 Inch (N & Z Shape)
FLOMATIC	RP	1/2 - 6 Inch
WATTS	009QT	1/2 - 2 Inch
	995QT	1/2 - 1 Inch
	909QT	3/4 - 2 Inch
WILKINS	375	4 Inch
	975	1/2 - 10 Inch

APPROVED REDUCED PRESSURE DETECTOR ASSEMBLIES FIRELINE

AMES	5000	2-1/2 - 10 Inch
CONBRACO	40-700	3 Inch
FEBCO	826RPDA	2-1/2 – 10 Inch
WATTS	909RPDA	2-1/2 – 10 Inch
WILKINS	975RPDA	2-1/2 – 10 Inch

APPENDIX A

Backflow Preventer Test & Maintenance Report



Backflow Preventer Test and Maintenance Report

Customer:				Date:	
Address of Property:					
Mailing Address:					
Meter Model & Number:			Service Number:		
Type of Service:	DOM. <input type="checkbox"/>	IRRIG. <input type="checkbox"/>	F.L. <input type="checkbox"/>	COMBINATION (DOM & F.L.) <input type="checkbox"/>	
Type of Assembly:	RP <input type="checkbox"/>	DC <input type="checkbox"/>	PVB <input type="checkbox"/>	Serial Number:	
Manufacturer:		Model:		Assembly Size:	
Location of Assembly:					
Containment (at meter): <input type="checkbox"/> or Isolation (at branch): <input type="checkbox"/>			Line Pressure: _____ psi (#1 or #2 Testcock)		

CHECK VALVE #1	RELIEF VALVE	CHECK VALVE #2	PRESSURE VACUUM BREAKER
<input type="checkbox"/> LEAKED <input type="checkbox"/> CLOSED TIGHT DIFF. PRESSURE ACROSS CHECK VALVE _____ PSID	OPENED AT _____ PSID <input type="checkbox"/> DID NOT OPEN BUFFER _____ PSI	<input type="checkbox"/> LEAKED <input type="checkbox"/> CLOSED TIGHT DIFF. PRESSURE ACROSS CHECK VALVE _____ PSID	AIR INLET OPENED AT _____ PSID <input type="checkbox"/> DIDN'T OPEN CHECK VALVE: <input type="checkbox"/> LEAKED HELD AT _____ PSID
<input type="checkbox"/> CLEANED ONLY REPLACED: <input type="checkbox"/> RUBBER KIT <input type="checkbox"/> CV ASSEMBLY OR <input type="checkbox"/> DISC <input type="checkbox"/> O-RINGS <input type="checkbox"/> SEAT <input type="checkbox"/> SPRING <input type="checkbox"/> STEM/GUIDE <input type="checkbox"/> RETAINER <input type="checkbox"/> LOCK NUTS <input type="checkbox"/> OTHER	<input type="checkbox"/> CLEANED ONLY REPLACED: <input type="checkbox"/> RUBBER KIT <input type="checkbox"/> RV ASSEMBLY OR <input type="checkbox"/> DISC <input type="checkbox"/> O-RINGS <input type="checkbox"/> SEAT <input type="checkbox"/> SPRING <input type="checkbox"/> GUIDE <input type="checkbox"/> DIAPHRAM <input type="checkbox"/> OTHER	<input type="checkbox"/> CLEANED ONLY REPLACED: <input type="checkbox"/> RUBBER KIT <input type="checkbox"/> CV ASSEMBLY OR <input type="checkbox"/> DISC <input type="checkbox"/> O-RINGS <input type="checkbox"/> SEAT <input type="checkbox"/> SPRING <input type="checkbox"/> STEM/GUIDE <input type="checkbox"/> RETAINER <input type="checkbox"/> LOCK NUTS <input type="checkbox"/> OTHER	<input type="checkbox"/> CLEANED ONLY REPLACED: <input type="checkbox"/> RUBBER KIT <input type="checkbox"/> CV ASSEMBLY OR <input type="checkbox"/> DISC, AIR <input type="checkbox"/> DISC, CV <input type="checkbox"/> SPRING, AIR <input type="checkbox"/> SPRING, CV <input type="checkbox"/> RETAINER <input type="checkbox"/> GUIDE <input type="checkbox"/> O-RING <input type="checkbox"/> OTHER
<input type="checkbox"/> CLOSED TIGHT DIFF. PRESSURE ACROSS CHECK VALVE _____ PSID	OPENED AT _____ PSID BUFFER _____ PSI	<input type="checkbox"/> CLOSED TIGHT DIFF. PRESSURE ACROSS CHECK VALVE _____ PSID	AIR INLET _____ PSID CHECK VALVE _____ PSID
SHUT-OFF #1 LEAKED <input type="checkbox"/> HELD TIGHT <input type="checkbox"/>		SHUT-OFF #2 LEAKED <input type="checkbox"/> HELD TIGHT <input type="checkbox"/>	
NOTE: ALL REPAIRS MUST BE COMPLETED AND THE COMPLETED REPORT SUBMITTED WITHIN (15) WORKING DAYS.			
ASSEMBLY: PASSED <input type="checkbox"/> OR FAILED <input type="checkbox"/>			
REMARKS:			
KIT: DIFF. <input type="checkbox"/>		DUPL. <input type="checkbox"/>	
MODEL:		ELEC. <input type="checkbox"/>	
		MANUFACTURER:	
MODEL:		SERIAL NO:	
I HEREBY CERTIFY THAT THIS IS ACCURATE AND REFLECTS THE PROPER OPERATION AND MAINTENANCE OF THE ASSEMBLY.			
TIME OF TEST:	DATE:	TESTER:	CERT. NO.:

REVISED 10/28/2009

MAIL TO:
 SALISBURY-ROWAN UTILITIES
 500 NORTH CHURCH STREET, SALISBURY, NC 28144
 e-mail to: jhoff@salisburync.gov

Appendix B

SALISBURY-ROWAN UTILITIES **BACKFLOW PREVENTION** **CERTIFIED TESTER AGREEMENT** **EXHIBIT A**

The following are the responsibilities of a Salisbury-Rowan Utilities (SRU) certified tester:

1. Knowledge and understanding of the City of Salisbury Backflow Prevention and Cross-Connection Control Ordinance Article VI of Chapter 25 of the City Code.
2. Knowledge and understanding of SRU's Installation Manual related to backflow prevention and cross-connection control.
3. Knowledge and understanding of federal and state policies and regulations related to backflow prevention and cross-connection control.
4. Perform the appropriate and SRU approved test procedures within the SRU water system as outlined in the Salisbury-Rowan Utilities Backflow Prevention and Cross-Connection Control Assemblies and Devices Installation Manual requirements for certified testers.
5. Utilize only SRU approved test kits to perform testing of backflow prevention assemblies.
6. Knowledge and full understanding of basic hydraulics and terms relating to backflow prevention and cross-connection control.
7. Knowledge and full understanding of the operating principles, characteristics, and components of backflow prevention assemblies.
8. Knowledge of the necessary precautions to be taken in performing field testing to protect from hazards related to:
 - a. Confined Space
 - b. Vehicular Traffic
 - c. Insects and Animals
 - d. Electricity
 - e. Tools Utilized
9. Never place any person or property in any danger such as fire or water contamination during the testing of the backflow prevention assembly.
10. Accurate and complete test records are completed on SRU approved forms to be submitted to SRU.
11. Maintain a current testing and repair certificate.
12. SRU-approved kits are maintained properly and are calibrated annually as outlined in the Salisbury-Rowan Utilities Backflow Prevention and Cross-Connection Control Assemblies and Devices Installation Manual requirements for certified testers.

COUNTY OF ROWAN

CERTIFIED TESTER AGREEMENT

The City of Salisbury (Salisbury-Rowan Utilities) and the undersigned ("Tester") agree as follows:

1. The Tester has completed a training program for the installation, operation, maintenance, and testing of backflow prevention assemblies. In order to be designated as a certified tester under the Ordinance, the Tester enters into this Agreement.
2. The Tester shall discharge those duties and responsibilities of a certified tester as set forth in the Ordinance and the Attached Exhibit A.
3. The Tester shall not represent himself/herself to be an employee, official or other representative of Salisbury-Rowan Utilities ("SRU") or the City.
4. If the Meter Services Supervisor has reason to believe that the Tester has violated any provision of the Ordinance or this Agreement, the Tester shall provide to the Meter Services Supervisor such information as may be required to determine if such a violation occurred. If it is determined that the Tester violated any provision of this Agreement or the Ordinance, the Tester's certification shall be subject to suspension or revocation by the Meter Services supervisor. The Meter Services Supervisor may designate a person to act on his/her behalf under this Agreement.

This the ____ day of, _____ 20__.

CITY OF SALISBURY

Mike Lee, Meter Services Supervisor
SALISBURY-ROWAN UTILITIES

By: _____
CERTIFIED TESTER

Printed Name: _____

Address: _____

City: _____ State: _____ Zip: _____

SRU Certification Number: _____