APPENDIX G

BACKFLOW PREVENTION DESIGN GUIDANCE DOCUMENTS
ENGINEER’S REPORT
FOR APPROVAL OF A BACKFLOW PREVENTION DEVICE

Name of Facility/Project: ________________________________

Address: ___________________________________________ Town: ________________

1. **Facility/Project Classification** (Check All That Apply):
   - Residential Multi Family; No. of Units ______
   - Single Retail Store
   - Multiple Retail Stores/Plazas
   - Single Business
   - Multiple Business; Professional/Office Building
   - Food Service/Restaurant
   - Laundromats/Dry Cleaners
   - Hotel/Motel; No. of Rooms ______
   - Car Wash
   - Medical Center/Nursing Home/Hospital
   - Funeral Home
   - School – Public/Private
   - Country Club/Golf Course
   - Church
   - Nursery/Garden Store
   - Health Club/Community Center
   - Automotive Sales/Service Center
   - Grocery
   - Other ___________________________

2. How many stories (floors) will the facility have? ___________

3. What is the square footage of floor space at the facility? ___________

4. What is the maximum domestic flow rate (GPM)? _______ GPM
   What is the average daily consumption (Gallons)? _______ GPD
   What is the size of the domestic service? ___________

5. Will the facility/project receive domestic water supply from a secondary source, such as:
   - Well
   - Cistern
   - Other ___________________________

6. Please indicate method of Sewage Disposal.
   - Public Sewer
   - Private Septic
   - Other ___________________________

7. Will the facility require a booster pump on the domestic service? If YES, what will the pressure be in the Authority’s main at the point of connection during maximum flow? _______ PSI

8. Will the facility have a fire service? (If YES, answer questions A through F below; if NO, go to Question 9.)
   - A. Will the fire service have a fire pump? If YES, what will the pressure be in the Authority’s main at the point of connection during maximum flow? _______ PSI
B. Is the facility located within 1700 feet of an alternative source of water (retention pond, lake, river, canal, etc.) from which fire equipment could draw from (draft) in the event of a fire? If YES, please describe:

YES  NO

C. What is the size of the fire service?

____________________

D. What is the maximum flow rate of the fire service?

__________ GPM

E. Check all that apply to the facility's fire system.

- Wet System
- Fire Hydrants
- Other
- Dry System
- Pumper Connections

F. What is the AWWA Fire Protection System Classification (Circle One): 1 2 3 4 5 6

YES  NO

9. Will the facility have an underground lawn/landscape irrigation system?

10. Does the facility require a continuous water supply? (If YES, dual backflow preventers will be required.)

11. Is the Facility located within the 100-year flood plain? (A Reduced Pressure Zone (RPZ) backflow prevention device must be installed 12 inches above the 100-year flood plain.)

12. Will the area where the backflow preventer is located be adequately heated to prevent freezing?

13. Will the area where the backflow preventer is located be adequately lighted to allow for maintenance and testing of the device(s)?

14. Will the backflow preventer be located in a vault, basement, and/or located below grade where a drain is necessary to accommodate the relief port? (If YES, please answer Question A below.)

A. Will the RPZ drain to a crock or other holding container, which will require pumping to final discharge? If YES, please describe.

15. Is the drain for the RPZ relief port adequately sized to accommodate a full discharge (dump) from the relief port without flooding the surrounding area?

16. Please indicate where the RPZ relief port drain line discharges to.

- Sanitary Sewer Lateral
- Storm Sewer Lateral
- Outside Grade
- Private Septic System
- Other
17. What is the water pressure at the facility (upstream and downstream) of the proposed backflow prevention device(s), both domestic and fire, during maximum flow conditions?

**Domestic RPZ**  
- N/A (Check if Domestic Service has been determined to be non-hazardous.)
- ______ PSI Upstream
- ______ PSI Downstream

Make & Model No. of Proposed RPZ

Size of Backflow Preventer

Maximum Domestic Demand = ______ GPM

**Fire Service RPDA**  
- N/A (Check if there is no Fire Service or if the Fire Service has been determined to be non-hazardous.)
- ______ PSI Upstream
- ______ PSI Downstream

Make & Model No. of Proposed RPDA or DCDA

Size of Backflow Preventers

Maximum Fire Flow Demand = ______ GPM

18. Date of Report Completion: ____________________________

| Use this box for Engineer's Stamp and Signature |
BACKFLOW PREVENTION DEVICE APPROVAL
MAP / DRAWING REVIEW CHECK LIST
(To Be Returned with Backflow Submission)

Project: ________________________________

Date: ________________________________

DOH 347 Application

☐ Item 1 ☐ Item 5 ☐ Item 9 ☐ Item 13
☐ Item 2 ☐ Item 6 ☐ Item 10
☐ Item 3 ☐ Item 7 ☐ Item 11
☐ Item 4 ☐ Item 8 ☐ Item 12

Site Plan (NA for items not applicable to this installation)

___ Property address
___ General Location Map
___ Location and size of domestic service
___ Location and size of fire service
___ Location of Siamese connections
___ Location of Water Meter and Backflow Preventer
___ North Arrow
___ PE Stamp

Plan View

___ Location and size of domestic service
___ Location and size of fire service
___ Water Meter and Backflow Preventer layout
___ Detector Check Valve size and location
___ Booster Pump System
___ Floor Drain(s) size and location
___ Dimensions from walls, boilers, etc. to Meter and Backflow Preventer
___ Drain Line from RPZ, size and location
___ PE Stamp

Elevation View

___ Location and size of domestic service
___ Location and size of fire service
___ Water Meter and Backflow Preventer layout
___ Detector Check Valve size and location
___ Booster Pump System
___ Floor Drain(s) size and location
___ Dimensions from Floor, Ceiling, Walls, Outside Grade to Water Meter and Backflow Preventer
___ Drain line from RPZ, size and location
___ PE Stamp
<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Name of Facility</td>
</tr>
<tr>
<td>2.</td>
<td>City, Village, Town</td>
</tr>
<tr>
<td>3.</td>
<td>County</td>
</tr>
<tr>
<td>4.</td>
<td>Location of Facility (Street)</td>
</tr>
<tr>
<td>5.</td>
<td>Approximate Location of Device(s)</td>
</tr>
<tr>
<td>6.</td>
<td>Mfg. Model No.</td>
</tr>
<tr>
<td>7.</td>
<td>Name of Owner</td>
</tr>
<tr>
<td>8.</td>
<td>Nature of Works</td>
</tr>
<tr>
<td>9.</td>
<td>Name of Design Engineer or Architect</td>
</tr>
<tr>
<td>10.</td>
<td>NYS License Number</td>
</tr>
<tr>
<td>11.</td>
<td>PSI at Point of Connection</td>
</tr>
<tr>
<td>12.</td>
<td>Est. Installation Cost</td>
</tr>
<tr>
<td>13.</td>
<td>Degree of Hazard:</td>
</tr>
<tr>
<td>14.</td>
<td>Public Water Supply Name</td>
</tr>
<tr>
<td></td>
<td>Monroe County Water Authority</td>
</tr>
</tbody>
</table>

**NOTE:** All applications must be accompanied by plans, specifications, and an engineer’s report describing the project in detail. The project must first be submitted to the water supplier, who will forward it to the local public health engineer. This form must be prepared in quadruplicate with four copies of all plans, specifications, and descriptive literature.

DOH347 (5/91)
Backflow Design
General Guidelines for the Preparation of Drawings
Overall Site Plan
and Plan View and Elevation View of
Proposed Backflow Preventer

Site Plan:
A Site Plan of the facility containing a general location map, buildings, the public water main(s), location and size of all water services including fire services, location and size of any meter pits, yard hydrants, pumper (siamese) sprinkler connection(s) and the location of the proposed backflow preventer and water meter.

Plan & Elevation View:
Prepare detailed schematics/drawings of the proposed installation of the meter, backflow preventer, detector check valve (required on non-hazardous fire lines 4-inch and greater), indicating dimensions from walls, the floor, the ceiling and other facilities such as furnaces, hot water tanks, boilers, etc. In addition, include the location of any domestic and/or fire booster pumps, floor drains, sump pumps, RPZ drain lines, lighting, heating, access for maintenance and testing, and the square footage of the floor level where the device will be installed.

General Drawing Considerations:

1. All equipment (meter, backflow preventers, detector check valves, etc.) associated with the installation of the water service, are to be clearly labeled as to their size, manufacturer and model number.

2. Drawings may be either to scale or not to scale. However, if the drawing is not to scale, all appropriate dimensions must be clearly labeled and shown.

3. The preparing Engineer’s stamp and signature must appear in the box on the “Engineer’s Report” and on each and every drawing(s) prepared for the backflow submittal.

4. Metered services needing a 1 ½ -inch meter or larger require a bypass around the meter.

   4A. Vertical by-pass should be off-set toward the wall (or away from the meter) to provide a better clear space above the meter, (see meter detail for minimum clearance of vertical by-pass).

   4B. Horizontal by-pass must be installed around the meter towards the wall (back side of the meter) so as not to obstruct access to the meter. The by-pass must be a minimum of 2 feet behind the meter.

5. The valves upstream and downstream of the meter and on the by-pass must either be gate or ball valves.
6. The Reduced Pressure Zone (RPZ) backflow device must be of a type and model approved by the New York State Department of Health. The RPZ device must be ordered with valves attached to the RPZ by the manufacturer both upstream and downstream of the device.

7. Meters 3-inch and larger must be tested annually. An opening in the outside wall (door, access panel, etc.) within 25 feet of the meter, large enough to accommodate a 2 ½ -inch fire hose, must be provided.

8. A turbine type meter requires a minimum of three (3) pipe diameters of straight pipe away from any obstructions, (valves, bends, etc.) both upstream and downstream of the meter.

9. A 3 foot wide minimum aisle must be provided between the meter and backflow preventer from any walls or other obstructions (furnace, hot water heater, etc.) to allow for testing, repair and/or replacement.
## Part A

Please use a separate form for each device.

<table>
<thead>
<tr>
<th>Public Water Supply</th>
<th>Account No.</th>
<th>County</th>
<th>Block</th>
<th>Lot</th>
</tr>
</thead>
<tbody>
<tr>
<td>Facility Name</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Location of Device</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Address</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Device Information

<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>Type</th>
<th>Model</th>
<th>Size (In inches)</th>
<th>Serial Number</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
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<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Check Valve No. 1</th>
<th>Check Valve No. 2</th>
<th>Differential Pressure Relief Valve</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leaked</td>
<td>Leaked</td>
<td>Opened at _____ psid</td>
</tr>
<tr>
<td>Closed tight</td>
<td>Closed tight</td>
<td></td>
</tr>
</tbody>
</table>

**Test before repair**

**Pressure drop across first check valve _____ psid**

**Describe repairs and materials used**

**Final test**

**Pressure drop across first check valve _____ psid**

<table>
<thead>
<tr>
<th>Water Meter Number</th>
<th>Meter Reading</th>
<th>Type of Service: (check one)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Domestic □ Fire □ Other □</td>
</tr>
</tbody>
</table>

**Remarks**

(Describe deficiencies: bypasses, outlets before the device, connections between the device and point of entry, missing or inadequate airgap, etc.)

**Certification:** This device □ meets, □ does NOT meet, the requirements of an acceptable containment device at the time of testing.

I hereby certify the foregoing data to be correct.

**Print Name**

**Certified Tester No.**

**Signature**

**Expiration Date**

**Property owner's (or owner's agent) certification that test was performed:**

**Print Name**

**Title**

**Signature**

**Telephone**

## Part B

Certification that installation is in accordance with the approved plans. (To be completed by the design engineer or architect or water supplier.)

I hereby certify that this installation has been made in accordance with the approved plans.

<table>
<thead>
<tr>
<th>Name</th>
<th>Title</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>[mm] [dd] [yy]</td>
</tr>
</tbody>
</table>

**License Number**

**Phone ( )**

**Representing**

**Address**

<table>
<thead>
<tr>
<th>City</th>
<th>State</th>
<th>Zip</th>
</tr>
</thead>
</table>

**Signature**

NOTE: Send one completed copy to the designated health department representative and one copy to the water supplier within 30 days of testing of the device.

DOH-1013 (9/91) Notify owner and water supplier immediately if device fails test and repairs cannot be made.
INSTRUCTIONS FOR COMPLETING DOH 1013 (9/91)
REPORT ON TEST AND MAINTENANCE OF BACKFLOW PREVENTION DEVICE

PART A - To Be Completed by Certified Tester

- Indicate the test year and whether initial or annual test.
- Complete public water supply name, customer account number (if available) and county.
- Complete block and lot (if available) for New York City Metropolitan area tests.
- Complete facility name, address and specific location of device (e.g., meter room, etc.)
- Complete device information including manufacturer, type, model, size and serial number.
- Complete section “Test Before Repair” and indicate:
  - Whether check valve #1 leaked or closed tight. For RPZ devices, the pressure drop across the first check valve must be at least 5.0 psid.
  - Whether check valve #2 leaked or closed tight.
  - Opening of RPZ differential pressure relief valve - must be at least 2.0 psid or device must be failed and/or repaired.
  - Complete water system line pressure in psi and indicate test date.
- Describe any repairs and materials used and the name and license number of the repairer and indicate repair date.
- Complete “final test” section only if repairs have been made.
- Indicate the water meter number/meter reading and the type of service (describe “other” e.g., boiler feed, irrigation line, etc.)
- Complete the Remarks section if there are any deficiencies.
- Complete the certification indicating if the device meets or does not meet the requirements at the time of testing - print and sign your name and indicate certificate number and expiration date.
- Have the property owner (or owner’s agent) certify that test was performed.

PART B - To Be Completed By Design Engineer, Architect or Water Supplier For Initial Tests Only

- Complete name, title, license number, phone number, company name and address.
- Sign and date form and indicate NYSDOH (or local health department/water supplier) approval number.
- Describe minor installation changes.

After completion, submit copies of test reports to the supplier of water, customer, State or local health department and retain copies for the tester’s personal records.

Revised 12/93
TYPICAL RPZ INSTALLATIONS
THE FOLLOWING TYPICAL RPZ INSTALLATIONS ARE MEANT AS A GUIDE ONLY. THESE DRAWINGS ARE NOT MEANT TO REPRESENT AN ACCEPTABLE PLAN SUBMISSION AS THE DRAWINGS SHOWN ARE NOT OF SUFFICIENT DETAIL.

THE TYPICAL SETUPS ARE SOLELY INTENDED TO GIVE EXAMPLES OF AND MAKE YOU AWARE OF THE VARIOUS OPTIONS AVAILABLE FOR RPZ INSTALLATIONS.
ELEVATION VIEW

Note: Plan View for this type of installation is not shown. However, if this type of installation is proposed, a Plan View would be required.
RPZ VAULT INSTALLATIONS

The proper installation of these devices can negate the desired protection. Most critical is the need to provide a gravity drain large enough to receive the maximum potential discharge of the relief valve. This drain cannot be subject to flooding and must be screened.

PLAN VIEW

W = 30" Minimum
A = 6" to 12" Minimum

ELEVATION VIEW

F = 12" Minimum
B = 18" Minimum
Grade
Public Water Main

30" Minimum
RPZ

INSTALLED WITHIN A FACILITY

ELEVATION VIEW

NOTE: Device to be installed above highest possible flooding

PLAN VIEW