

# **FIRE SUPPRESSION INSTALLATION CITY OF HARRISONBURG, VIRGINIA**

## **I. PURPOSE**

The purpose of this document is to provide planners and designers with information necessary in the design and construction of sprinkler – type fire suppression systems to be connected to the City of Harrisonburg, Virginia public water system.

## **II. REGULATORY REVIEW**

- A. Suppression system section located inside the building: Review and approval of water-based fire suppression systems for this section shall be conducted by the Building Inspections Office and Fire Department upon submittal of architectural plans.
- B. Suppression systems section located outside the building: Review of design for this section of the fire suppression system shall be conducted by the Fire and Water Departments upon submittal of a site plan or site plan sketch. When making application for a sprinkler tap the applicant shall be required to present a site plan or sketch with a plan and profile view of the proposed installation and including the following:
  - 1. Location and size of the connecting public water main.
  - 2. Location and identification of all other underground utilities in the area of construction.
  - 3. Proposed horizontal location of a detector check assembly including identification of the proposed unobstructed access by City personnel for the purpose of reading the bypass meter.
  - 4. Presentation of piping and valve installation including plan and profile views. (Requires coordination effort between civil site engineer and sprinkler designer).
  - 5. Sufficient information regarding final grade to establish vault installation.
  - 6. Supporting calculations addressing the compatibility of available water delivery from the connecting main and the required fire flow.

7. Verification from the Building Inspections Office that satisfactory backflow prevention devices are shown on the architectural design drawings.

8. Reference to criteria established in this document.

C. Fire department connections:

Location and specifications shall be reviewed and approved by the Building Inspections Office and Fire Department.

### III. DESIGN CRITERIA

A. Suppression system components and water supply:

Use the edition of NFPA 13, 13D, or 13R or other referenced standard in the current edition of the Virginia Uniform Statewide Building Code and Statewide Fire Prevention Code, as amended.

B. Protection of public water system:

Comply with City of Harrisonburg Cross-Connection Control Program as defined in the City Code of Ordinances. Backflow prevention devices shall be inspected, tested, and maintained in accordance with the Statewide Fire Prevention Code.

C. Fire system connection requirements to public main:

Refer to City Code of Ordinances, Section 7-2-5, drawings in this appendix and clarifications below:

1. Drawing 1: "Exterior Detector Check Installation for Un-metered System"
2. Drawing 2: "Interior Combination of Detector Check & Backflow"
3. Exterior combination of detector check & backflow: Includes combination double detector check / backflow devices in sealed concrete vault behind curb or on site adjacent to public main. Vault must have floor drain that provides positive grade above any possible storm water level, or shall be fitted with a sump and sump pump with outlet pipe, together with required electric service (on owner's meter). This configuration cannot be used for applications requiring the use of reduced-pressure backflow devices
4. Drawing 3: "Isolated Fire Suppression and Domestic Arrangement"

5. Drawing 4: "Metered Fire Suppression Arrangement" This arrangement generally applies to smaller sizes where detector checks are not common.
6. Drawing 5: "Combination Fire Suppression and Domestic Arrangement" This arrangement generally applies to the conditions where it is not as practical to separate the fire suppression and domestic service piping in the immediate area of the detector and meter devices.

D. City access on private property:

Comply with City of Harrisonburg ordinances for right of access, easement policies in this manual and policies of the Department of Public Utilities.

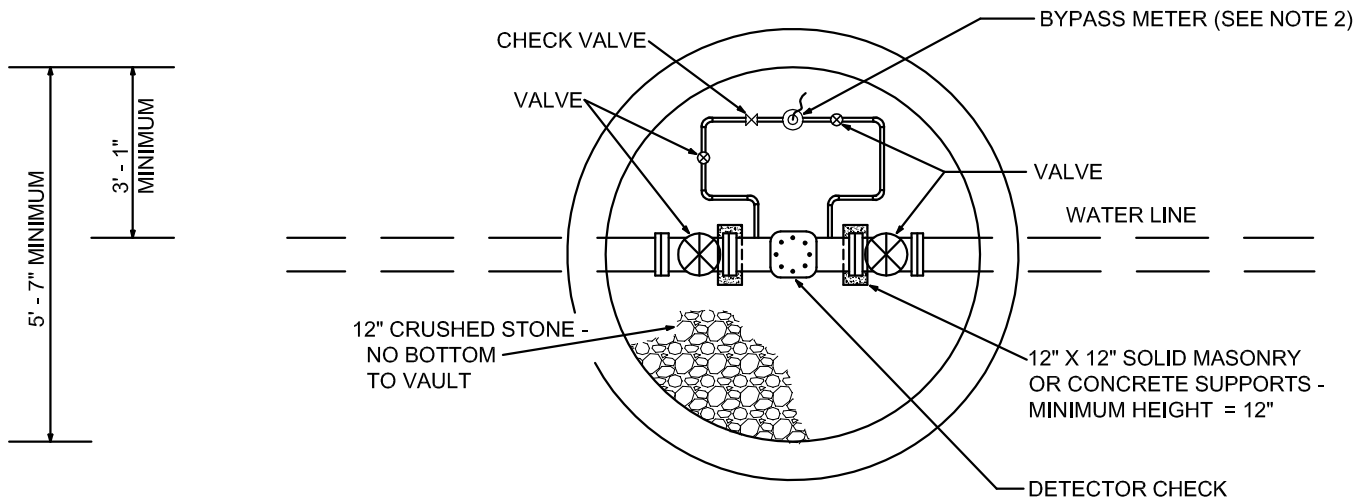
#### **IV. INFORMATION ABOUT AVAILABLE SUPPLY**

The City Department of Public Utilities has records of available static and residual pressures for fire hydrants located within the public water system. Designers may obtain such information from the Water Operations Center. Should such information for a particular hydrant not be available, the department can obtain this information with an approximate one-week lead-time.

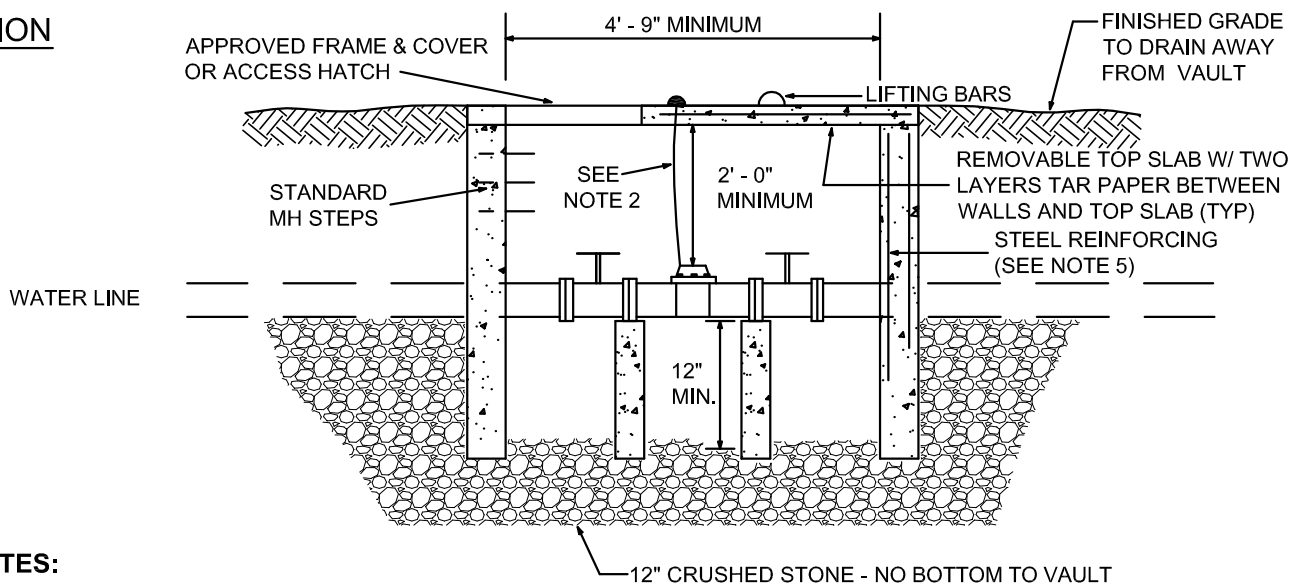
#### **V. APPLICATION FOR INSTALLATION**

Application for installation of City-maintained connections shall be made at the Water Operations Center at 2155 Beery Road, upon deposit of fees as set forth by City Code of Ordinances; Section 7-4-28.

PLAN VIEW



SECTION



**NOTES:**

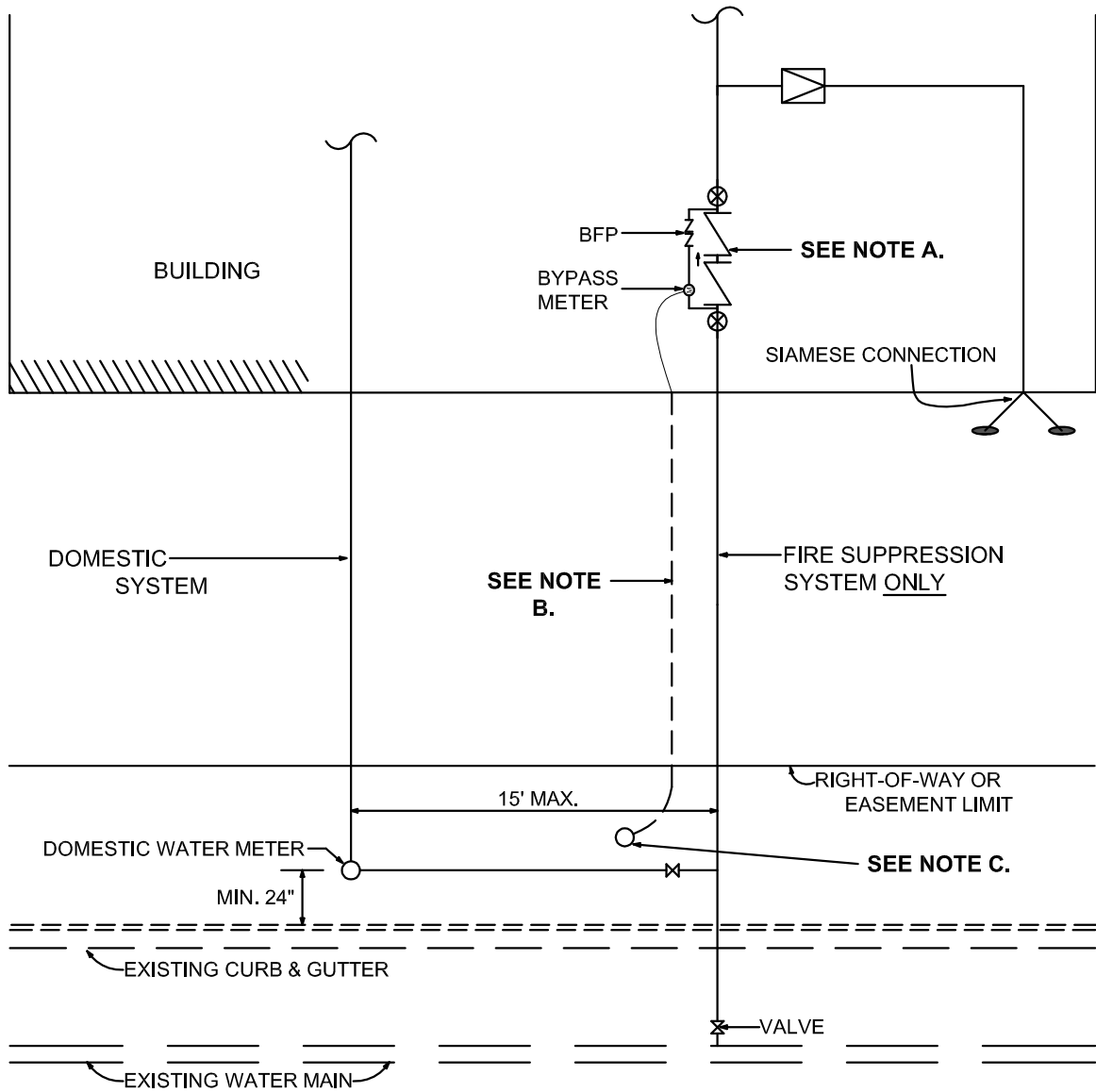
1. REQUIREMENTS OF COMPLETE INSTALLATION SHALL INCLUDE DETECTOR CHECK WITH BYPASS METER INSTALLED IN A VAULT OUTSIDE THE BUILDING AND A BACKFLOW PREVENTOR INSTALLED INSIDE THE BUILDING.
2. BYPASS METERS INSTALLED BY CONTRACTOR, SHALL HAVE PIT LID ADAPTER WITH TOUCH READ PAD FOR READING, WITH WIRE OF SUFFICIENT LENGTH TO ALLOW OPENING OF THE LID. CITY PROVIDES METER, PIT LID ADAPTER WITH TOUCH PAD AND WIRE.
3. OWNER TO PROVIDE THE CITY UNOBSTRUCTED ACCESS TO THE BYPASS METER PER CITY CODE ORDINANCE OR RECORDED EASEMENT AGREEMENT.
4. ALL PIPING, APPURTENANCES AND CONSTRUCTION PRACTICES SHALL CONFORM TO THE DESIGN & CONSTRUCTION STANDARDS MANUAL AND OTHER REGULATIONS REFERENCED THEREIN.
5. VAULT SHALL BE CONCRETE CAPABLE OF BEARING TRAFFIC LOADS. (DIMENSIONS MAY VARY WITH CASE APPROVAL)
6. ALTERNATE DESIGNS TO BE SUBMITTED FOR REVIEW AND APPROVAL.

NOT TO SCALE

NO.	DATE	DESCRIPTION	INIT.
1.	4/25/05	2005 D&CSM UPDATE	SDC

**EXTERIOR  
DETECTOR CHECK  
INSTALLATION FOR  
UNMETERED SYSTEM**

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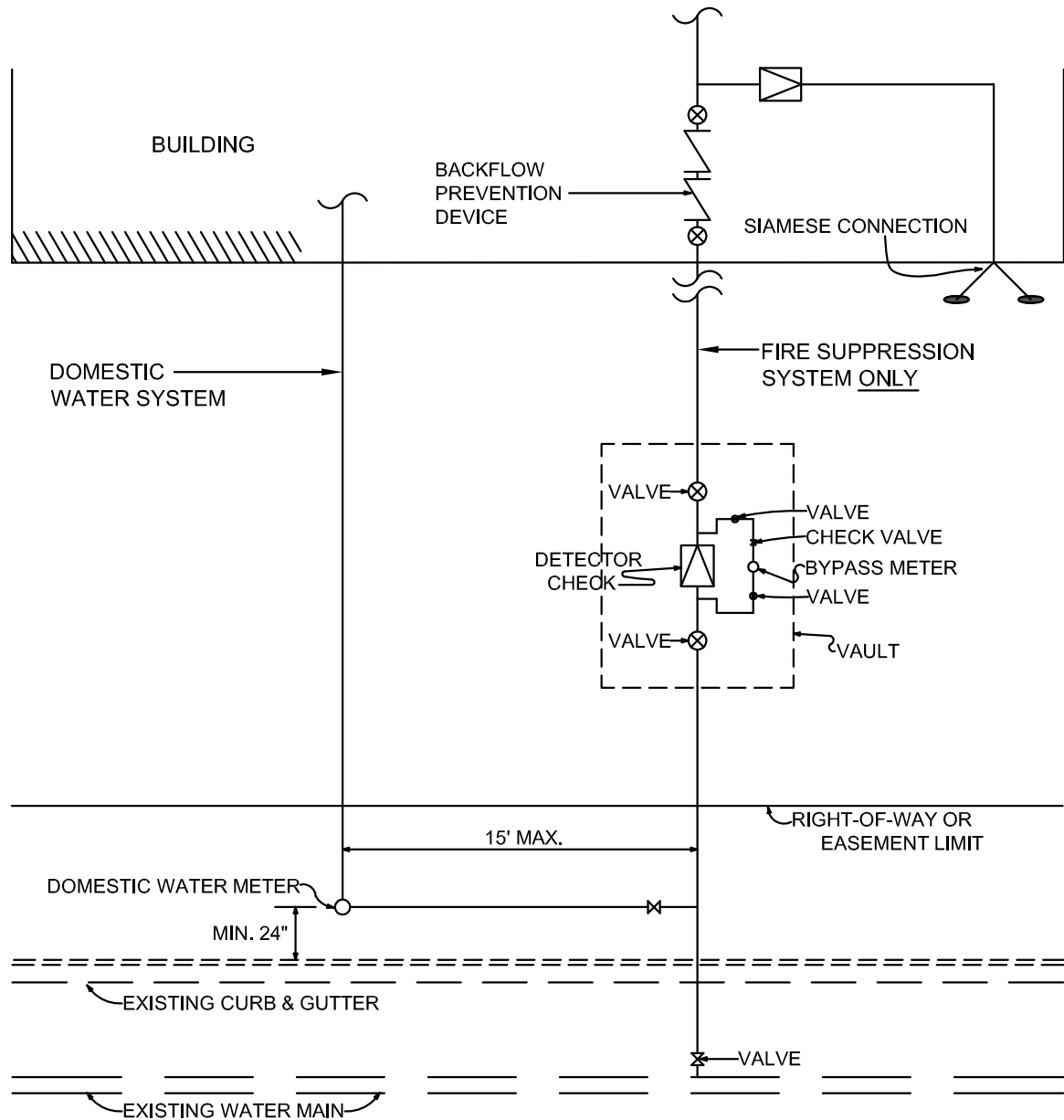


**NOTES:**

- A. APPROVED BACKFLOW PREVENTION DEVICE WITH METERED BYPASS ASSEMBLY PROVIDED AND INSTALLED BY CONTRACTOR, UNLESS OTHERWISE NOTED BELOW
- B. 3/4" ELECTRICAL CONDUIT FROM BYPASS METER INSIDE THE BUILDING TO A METER BOX OUTSIDE, FURNISHED AND INSTALLED BY CONTRACTOR. MAXIMUM ALLOWABLE WIRE LENGTH IS 100 FEET FROM BYPASS METER TO METER BOX OUTSIDE.
- C. METER BOX, FRAME & LID AND PIT LID ADAPTER WIRE AND BYPASS METER FURNISHED BY CITY AND INSTALLED BY CONTRACTOR (EXISTING OR PROPOSED WATER METER BOX MAY BE USED TO ACCOMMODATE TOUCH PAD LOCATION).
- D. OWNER TO PROVIDE THE CITY ACCESS TO THE BYPASS METER PER CITY CODE ORDINANCE OR EASEMENT AGREEMENT.

NOT TO SCALE

NO.	DATE	DESCRIPTION	INIT.	INTERIOR COMBINATION OF DETECTOR CHECK AND BACKFLOW	DWG. NO
1.	4/21/05	2005 D&CSM UPDATE	SDC		2
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**NOTES:**

- A. CITY PROVIDES PERPETUAL MAINTENANCE TO THE DOMESTIC METER. FOR PARTIALLY METERED SYSTEMS (DETECTOR CHECK AND BYPASS METER) OR UNMETERED SYSTEMS, CITY MAINTAINS TO THE CITY LIMITS OF RIGHT-OF-WAY OR EASEMENT. OWNER TO PROVIDE THE CITY UNOBSTRUCTED ACCESS TO THE BYPASS METER PER CITY CODE ORDINANCE OR RECORDED EASEMENT AGREEMENT.
- B. INSTALLATION RESPONSIBILITIES ARE DEFINED DURING CITY REVIEW OF THE PROJECT; COST SHALL BE PER CITY CODE OF ORDINANCE.

NOT TO SCALE

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1.	4/21/05	2005 D&CSM UPDATE	SDC

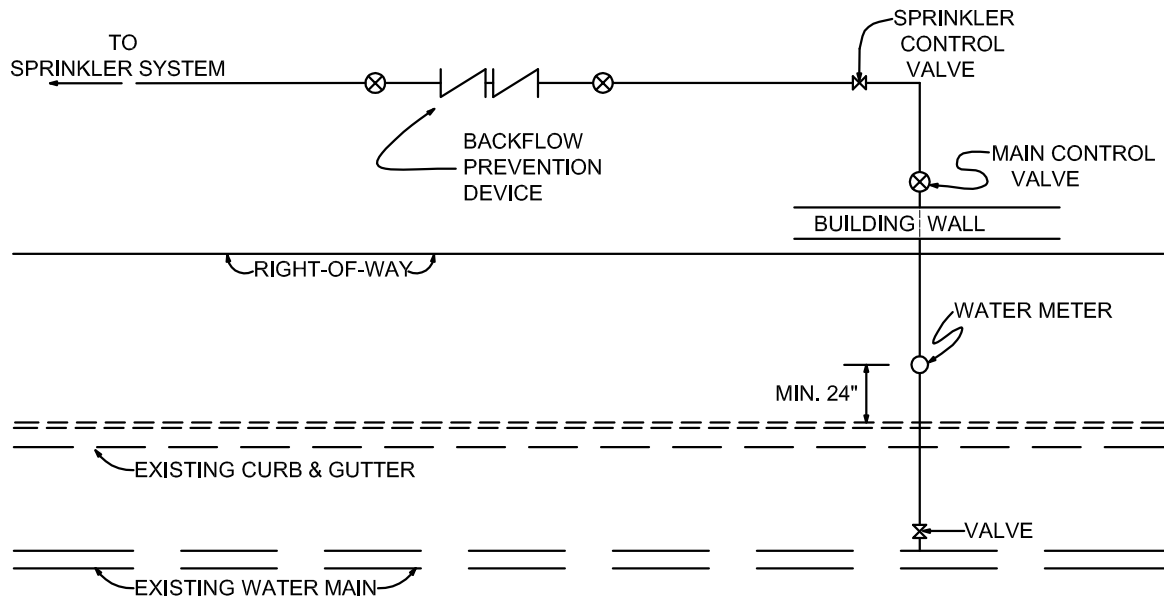
**ISOLATED FIRE  
SUPPRESSION  
AND DOMESTIC  
ARRANGEMENT**

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- NOTES:**
1. **Metering applications 4" and larger** - Use an approved Fire Service Meter Assembly.
  2. **Metering applications less than 4" Size** - Approved sizes available include 1 1/2" and/or 2" single-jet meter installed with a 2" custom setter in a 4' diameter manhole or approved large meter box.
  3. **Alternate Designs** - The Department is willing to consider alternate designs for sizes less than 4" or other products, both subject to a detailed Public Utilities review and approval process, including referral to the Product Review Committee for adoption of appropriate materials. Designers should be advised that a significant delay could be incurred by pursuing this option
  4. **Positive Displacement Meters shall not be used for fire line applications.**
  5. Refer to Public Utilities Product Manual.
  6. Upon payment of fees by the customer, the City installs and maintains from the City main to, and including the meter. Customer installs and maintains behind meter box.

NOT TO SCALE

NO.	DATE	DESCRIPTION	INIT.
1.	4/21/05	2005 D&CSM UPDATE	SDC
2.	8/25/06	REVISED NOTES	SDC
3.	01/29/09	ADDED BUILDING WALL	SDC

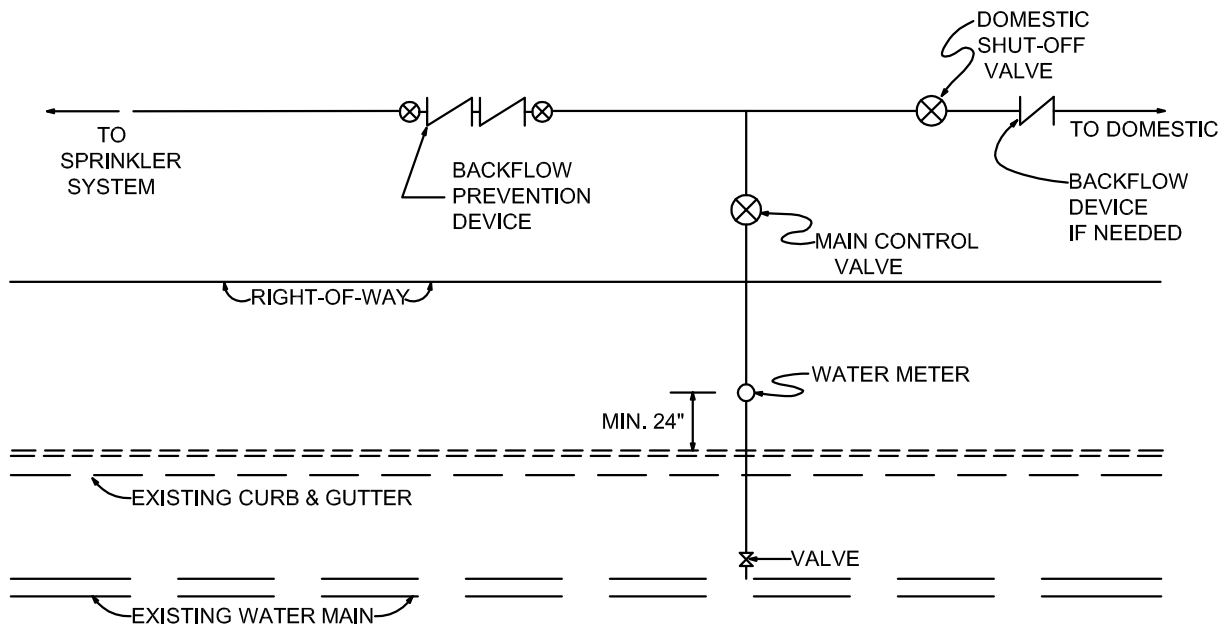
METERED FIRE  
SUPPRESSION  
ARRANGEMENT

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**NOTES:**

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5. Refer to Public Utilities Product Manual.
6. Upon payment of fees by the customer, the City installs and maintains from the City main to, and including the meter. Customer installs and maintains behind meter box.
7. This service arrangement approved for single building only.

NOT TO SCALE

NO.	DATE	DESCRIPTION	INIT.
1.	4/21/05	2005 D&CSM UPDATE	SDC
2.	8/25/06	REVISED NOTES	SDC

COMBINATION FIRE  
SUPPRESSION AND  
DOMESTIC  
ARRANGEMENT

DWG. NO

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