



**WHUD**

**SPECIFICATIONS  
FOR THE INSTALLATION OF  
REDUCED PRESSURE BACKFLOW  
PREVENTERS  
AND  
CONCRETE VAULTS  
FOR METERS 4" AND LARGER**

Updated  
January 2018

## Installation Specifications

1. In W.H.U.D's service area the **Reduced Pressure Backflow Preventer** is the only Approved Device for new installations. (All Reduced Pressure Principal devices approved by the State of Tennessee's Division of Water Supply are acceptable. However no vertical installation is permitted.)
2. Assemblies shall be horizontally installed with 18-inch minimum clearance between relief valve discharge opening and concrete pad. Maximum height above the floor surface shall not exceed 60 inches.
3. The device shall be installed just down stream of the meter before any branch connections.
4. All devices shall be installed in accordance with manufactures instructions and shall possess appropriate water tight test adapters and caps for testing the device.
5. Y-strainers to be installed on all devices that do not have an approved strainer installed at the meter. Y-strainers shall be plugged with no valves allowed for flushing
6. Three-quarter-inch thru Two-inch devices shall be of bronze construction and installed with bronze, full port, ¼ turn, resilient seat ball valves immediately upstream and downstream.
7. Two and a half-inch thru ten-inch devices are to be installed with epoxy coated, resilient seat, wedge type, OS&Y valves.
8. Two and a half-inch thru ten-inch, devices shall be epoxy coated except those made of stainless steel.
9. The entire device shall be easily accessible for testing and repair.
10. Devices shall be located in an area free from submergence or flood potential.
11. Duplicate units, installed in parallel, shall be provided in cases where the water supply cannot be interrupted for routine testing and maintenance.
12. A WHUD approved protective barrier must be installed to prevent damage from traffic or equipment if deemed necessary by WHUD.
13. The concrete pad shall be constructed above final grade to help prevent eroded soil from obstructing the enclosure drain.
14. Installations shall be provided with a pre-fabricated **Heated Enclosure** with the following specifications:

The enclosure shall be manufactured by **Safe-T-Cover** or an approved equal.

The enclosure shall be constructed of 5052-H32 marine grade aluminum (.050/18 gauge), mill finish, ASTM B209 with polyisocyanurate insulation in the walls having a minimum thermal resistance of (10.0 "R" value). The enclosure shall be certified by ASSE to Class I of ASSE Standard #1060. The complete equipment assembly, including valve stems and hand wheels, shall be inside the enclosure. Access panels shall be completely removable and shall be provided with built-in locks keyed alike with two keys furnished to WHUD. The drain panel(s) shall have a stainless steel hinge and a stainless steel spring as a positive means of closure to prevent activation by wind. The drain panel shall be fabricated of the same materials as the enclosure and integrated into the access panel(s). All mounting hardware and threaded fasteners shall be furnished and shall be 300 series

stainless steel or T6 aluminum. All masonry fasteners shall be metal wedge anchors. The enclosure shall be assembled and mounted to concrete pad in such a way that it will remain locked and secured to pad even if outside screws are removed. Enclosure shall be mounted on a concrete pad a minimum of 14" longer and wider than the inside dimensions of the enclosure.

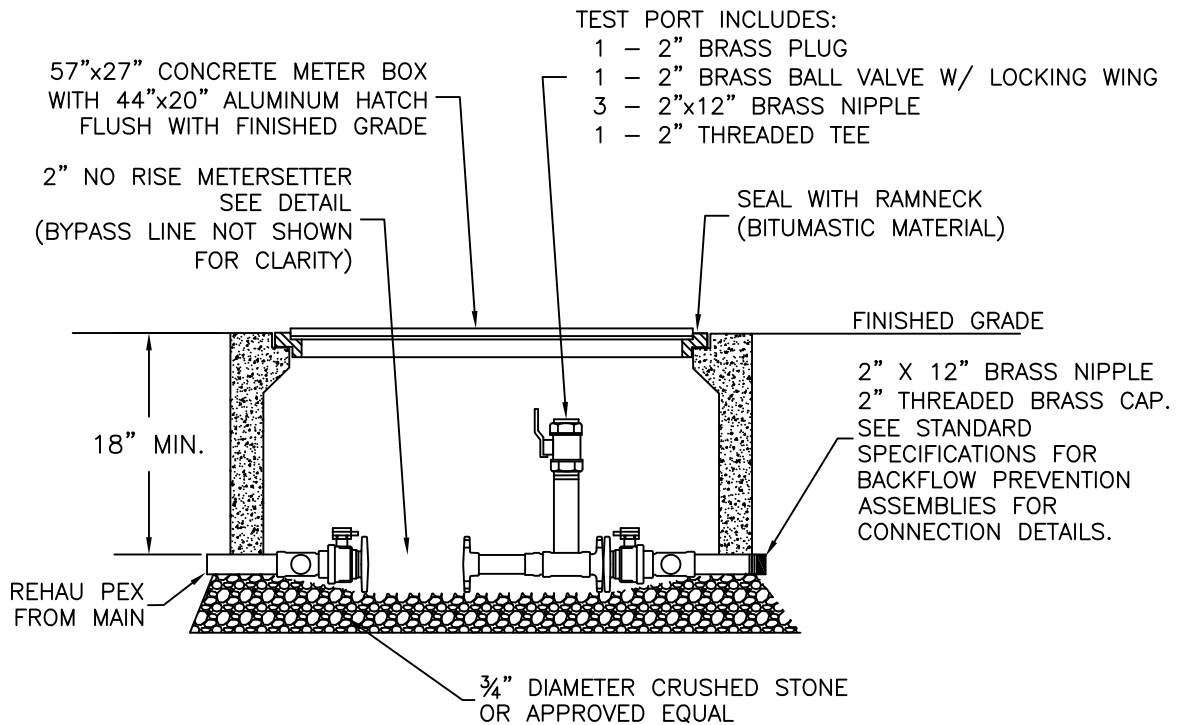
**Heating Equipment (ASSE 1060 Class I-Required.)**

- A. Heating equipment shall be furnished and sized by the manufacturer of the enclosure to maintain an interior temperature of +40°F with a worst case outside temperature of -30°F.
- B. The heater shall have two electrical resistance elements completely enclosed within a solid aluminum cast platen base.
- C. The platen heater shall be designed for attachment to the concrete base pad with mounting hardware provided.
- D. The platen heater shall be suitable for installation underneath a reduced pressure zone backflow prevention assembly and designed to sustain occasional water discharge without damage to or impeding the performance of the heater.
- E. The platen heater shall be provided with a thermostat adjustable from +40°F to +100°F. The thermostat, all conduits and wiring fittings provided shall be suitable for wet environment installation.
- F. On devices 2 inches or smaller heat tape may be used as an approved heat source if it is installed to the manufacturer's instructions for wet environments.

## **Irrigation Systems Notes**

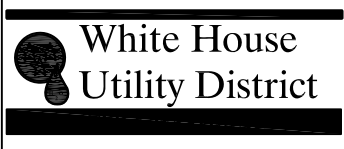
**All previously mentioned specifications apply**

1. If supplied by a domestic water tap, the connection for an irrigation system must be as close to the existing meter as possible with the protective device installed as close to the point of connection as possible.
2. A heated enclosure is not required on irrigation devices as long as the following requirements are met:
  - (a) The irrigation system has its own separate water tap and can be winterized or:
  - (b) The device is installed with unions to allow for winter removal.



NOTE: CONTRACTOR TO PROVIDE WHUD APPROVED METER AND TELEMTRY

- NOTES:**
1. CONCRETE VAULT IS TO BE 4500 PSI @ 28 DAYS.
  2. CONCRETE VAULT IS TO BE REINFORCED WITH #3 BARS.
  3. ENTIRE VAULT AREA IS TO HAVE A MINIMUM BEDDING OF 3" DEEP 3/4" DIA. CRUSHED STONE OR APPROVED EQUAL.
  4. SEE APPROVED W.H.U.D. MATERIAL LIST.



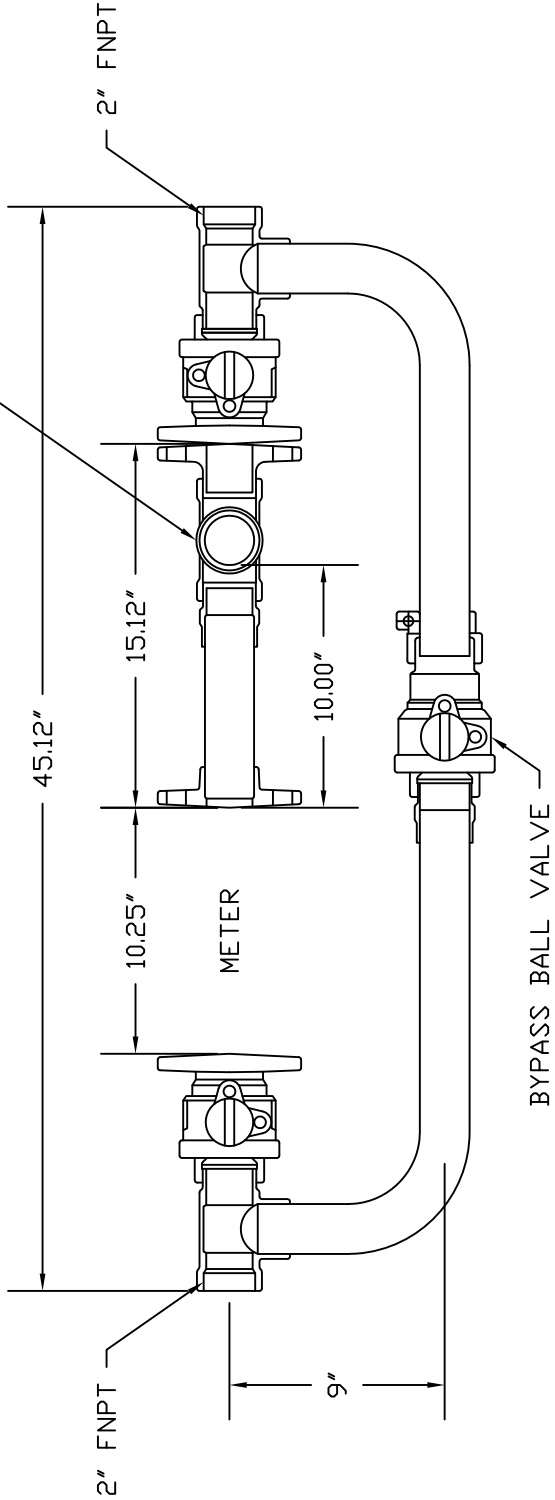
WHITE HOUSE UTILITY DISTRICT

DATE : JAN 2015  
 SCALE : N.T.S.

2" WHUD APPROVED METER

STD-W-04

IDLER W/TAP  
(SOLD SEPARATELY)

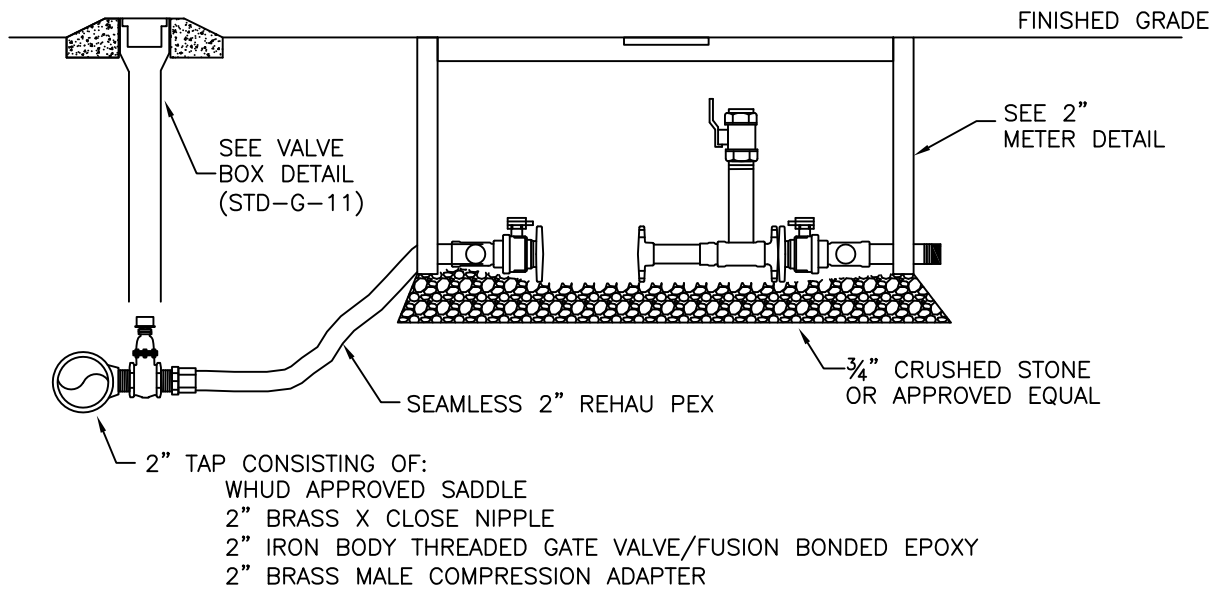


WHITE HOUSE UTILITY DISTRICT

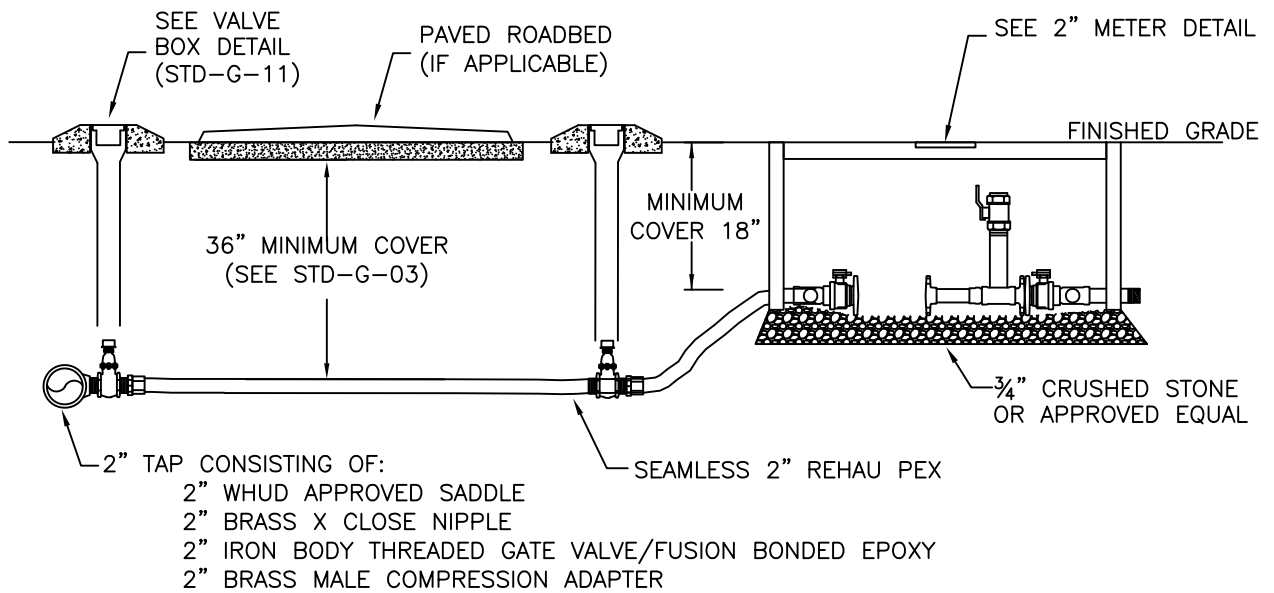
NO RISE 2" METERSETTER

DATE : JAN 2015  
SCALE : N.T.S.

STD-W-04B



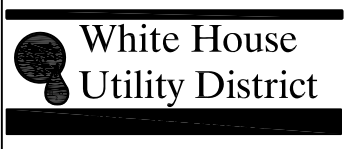
2" SHORT TAP ASSEMBLY



2" LONG TAP ASSEMBLY

NOTES:

1. CONTRACTOR TO PROVIDE ALL LABOR AND MATERIALS INCLUDING MAKING THE 2" MAIN TAP.
2. SEE APPROVED W.H.U.D. MATERIALS LIST.



WHITE HOUSE UTILITY DISTRICT

DATE : JAN 2015  
 SCALE : N.T.S.

2" TAP ASSEMBLY DETAIL

STD-W-05

TYPICAL METER VAULT SIZES		
METER SIZE	VAULT DIMENSIONS	EASEMENT SIZE
4", 6", 8"	84"L x 60"W x 72"H (OUTSIDE)	40' X 40'
12" AND LARGER	CONTACT W.H.U.D.	CONTACT W.H.U.D.

\*GFI PLUG LOCATED AT HATCH ENTRANCE, AT ANY TIME CAN ELECTRICAL CONDUIT BE LAID IN SAME DITCH AS THE WATER MAIN.

1" HOLE AT HATCH FOR FUTURE EQUIPMENT

ALUMINUM HATCH TO BE CAST INTO CONCRETE LID AND OFFSET TO PROVIDE EASY ACCESS TO LADDER ON SIDE WALL OF VAULT

WHUD APPROVED METER

STEPS SHOULD BE PLACED 12" APART WITH FIRST STEP BEGINNING A MAXIMUM OF 12" FROM TOP AND LAST STEP ENDING A MAXIMUM OF 12" FROM BOTTOM OF VAULT

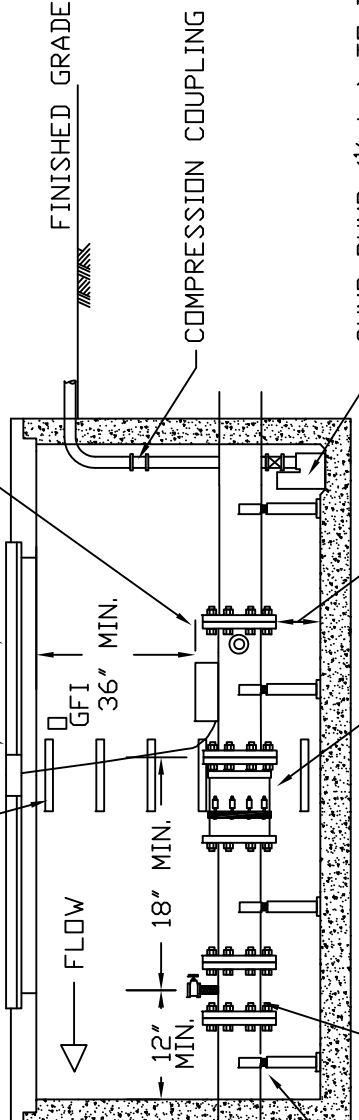
SEE JOINTS WITH BITUMASTIC MATERIAL

FINISHED GRADE

PRE-CAST CONCRETE VAULT MINIMUM THICKNESS OF 6" WITH REINFORCING STEEL AS NECESSARY

MANUFACTURED STEEL PIPE SUPPORT (TYPICAL)

2" TEST ASSEMBLY CONSISTING OF:  
2" TAP TEE  
2" X CLOSE BRASS NIPPLE  
2" THREADED BRASS LOCKABLE BALL VALVE (FULL PORT)  
2" THREADED BRASS PLUG



SUMP PUMP (1/2 hp) TO BE INSTALLED IN RECESS AND A 1 1/2" PVC DISCHARGE LINE EQUIPPED WITH A PVC SPRING LOADED CHECK VALVE SHALL BE POSITIONED DIRECTLY ABOVE SUMP PUMP AND FLOW DIRECTED AWAY FROM METER VAULT AREA

6" MIN. CLEARANCE BETWEEN METER FLANGE AND VAULT FLOOR

DISMANTLING JOINT

**NOTES:**

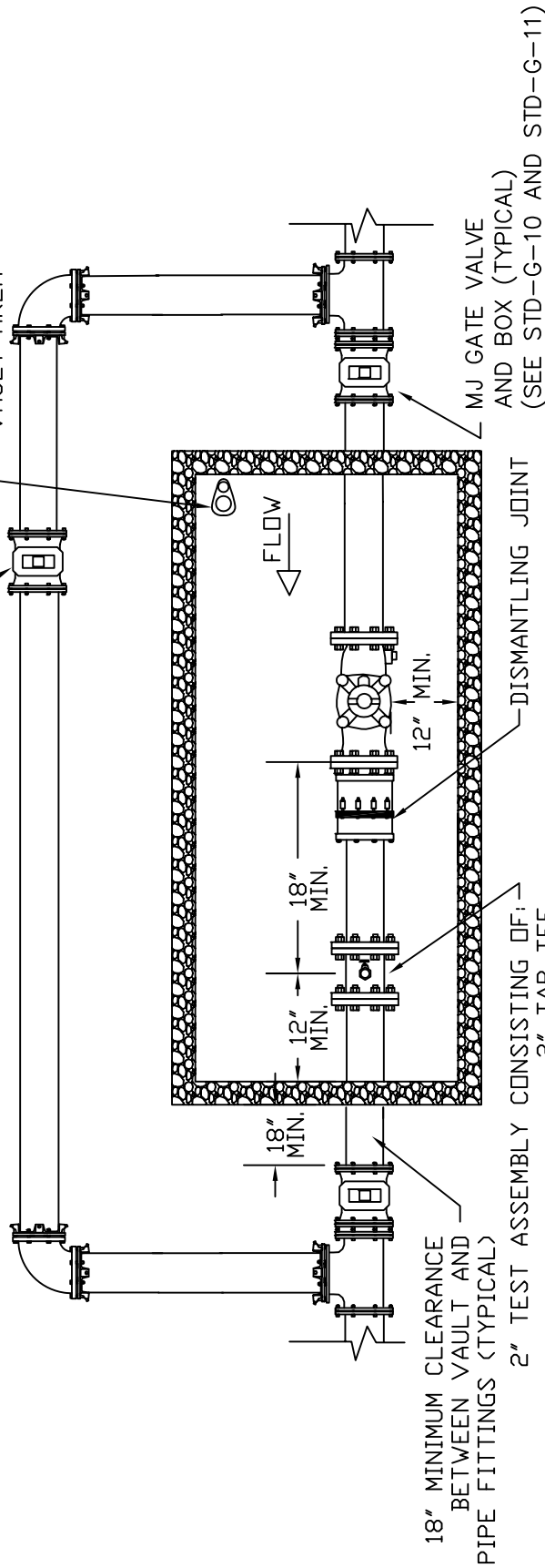
- SEE STD-W-08 FOR PLAN VIEW OF 4" AND LARGER METER WITH PRE-CAST CONCRETE VAULT.
- CAST IN PLACE VAULT STRUCTURES ARE NOT ALLOWED.
- ALL EXTERIOR MECHANICAL JOINT FITTINGS THAT ARE SUBJECT TO THRUST SHALL BE RESTRAINED WITH MECHANICAL JOINT RESTRAINTS AND/OR CONCRETE THRUST BLOCKING AS PER W.H.U.D. STD-G-09.
- A MINIMUM OF TWELVE INCHES (12") OF 3/4" CRUSHED STONE BEDDING (OR APPROVED EQUAL) IS REQUIRED UNDER THE PRE-CAST CONCRETE VAULT.
- A MINIMUM OF SIX INCHES (6") OF 3/4" CRUSHED STONE BEDDING (OR APPROVED EQUAL) IS REQUIRED UNDER PIPING.
- SEE APPROVED W.H.U.D. MATERIALS LIST.

TYPICAL METER VAULT SIZES		
METER SIZE	VAULT DIMENSIONS	EASEMENT SIZE
4", 6", 8"	84"L x 60"W x 72"H (OUTSIDE)	40' X 40'
12" AND LARGER	CONTACT W.H.U.D.	CONTACT W.H.U.D.

\*GFI PLUG LOCATED AT HATCH ENTRANCE. AT NO TIME CAN ELECTRICAL CONDUIT BE LAID IN SAME DITCH AS THE WATER MAIN.

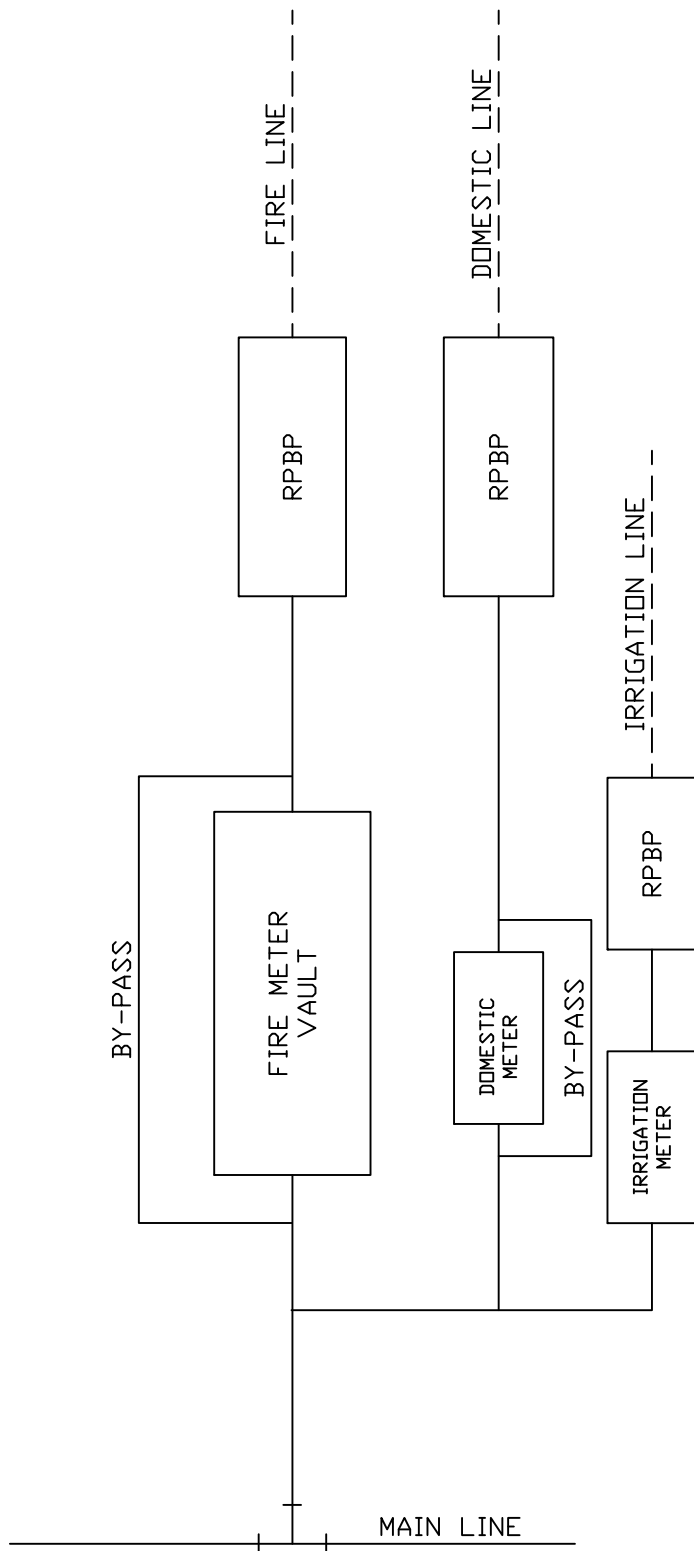
SUMP PUMP (½ hp) TO BE INSTALLED IN RECESS AND A 1½" PVC DISCHARGE LINE EQUIPPED WITH A PVC SPRING LOADED CHECK VALVE SHALL BE POSITIONED DIRECTLY ABOVE SUMP PUMP AND FLOW DIRECTED AWAY FROM METER VAULT AREA

GATE VALVE WITH LOCKABLE POST INDICATOR PAINTED BLUE IMMEDIATELY AFTER INSTALLATION



- NOTES:
1. SEE STD-W-07 FOR PROFILE VIEW OF 4" AND LARGER METER WITH PRE-CAST CONCRETE VAULT.
  2. CAST IN PLACE VAULT STRUCTURES ARE NOT ALLOWED.
  3. ALL EXTERIOR MECHANICAL JOINT FITTINGS THAT ARE SUBJECT TO THRUST SHALL BE RESTRAINED WITH MECHANICAL JOINT RESTRAINTS AND/OR CONCRETE THRUST BLOCKING AS PER W.H.U.D. STD-G-09.
  4. A MINIMUM OF TWELVE INCHES (12") OF ¾" CRUSHED STONE BEDDING (OR APPROVED EQUAL) IS REQUIRED UNDER THE PRE-CAST CONCRETE VAULT.
  5. A MINIMUM OF SIX INCHES (6") OF ¾" CRUSHED STONE BEDDING (OR APPROVED EQUAL) IS REQUIRED UNDER PIPING.
  6. SEE APPROVED W.H.U.D. MATERIALS LIST.





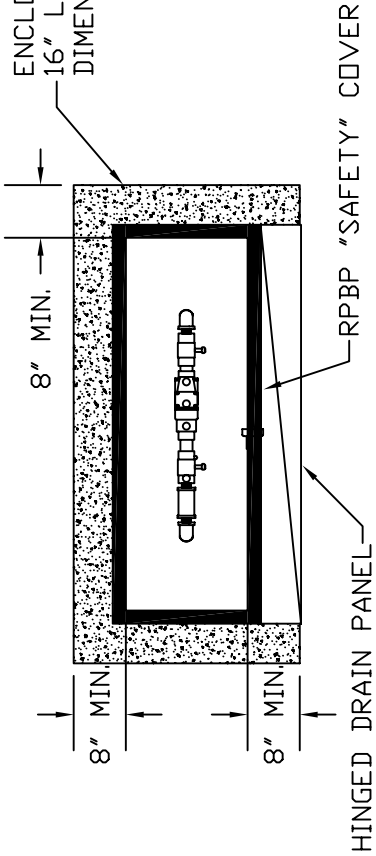
WHITE HOUSE UTILITY DISTRICT

SCHEMATIC REDUCED PRESSURE BACKFLOW PREVENTER ASSEMBLY LAYOUT FOR TYPICAL LARGE METER INSTALLATION DETAIL

DATE : MARCH 2017  
SCALE : N.T.S.

STD-W-08

ENCLOSURE FOUNDATION DIMENSIONS  
16" LARGER THAN ENCLOSURE  
DIMENSIONS



INSULATED ENCLOSURE

PROVIDE BRASS TEST ADAPTERS WITH  
PROTECTIVE CAPS ON ALL TEST COCKS

WYE STRAINER HORIZONTALLY

ELEVATION OF TOP OF  
ENCLOSURE FOUNDATION TO  
BE 6" ABOVE FINISHED GRADE

MAINTAIN MINIMUM VERTICAL  
SEPARATION OF 18" BETWEEN  
RELIEF VALVE OPENING AND  
ENCLOSURE FOUNDATION OR  
HIGH WATER LEVEL, WHICHEVER  
IS HIGHER

FINISHED GRADE

FINISHED GRADE

MINIMUM 6" THICK, 3/4" CRUSHED STONE BASE  
(OR APPROVED EQUAL)

**NOTES:**

1. A THREE FOOT (3') MINIMUM HORIZONTAL SEPARATION BETWEEN RPBP FOUNDATION AND ALL OTHER ITEMS SHALL BE MAINTAINED.
2. CONDUIT AND ELECTRICAL CIRCUIT FOR HEAT TRACING OF RPBP ASSEMBLY INSTALLATION SHALL BE PROVIDED BY CONTRACTOR.
3. SEE APPROVED W.H.U.D. MATERIAL LIST.

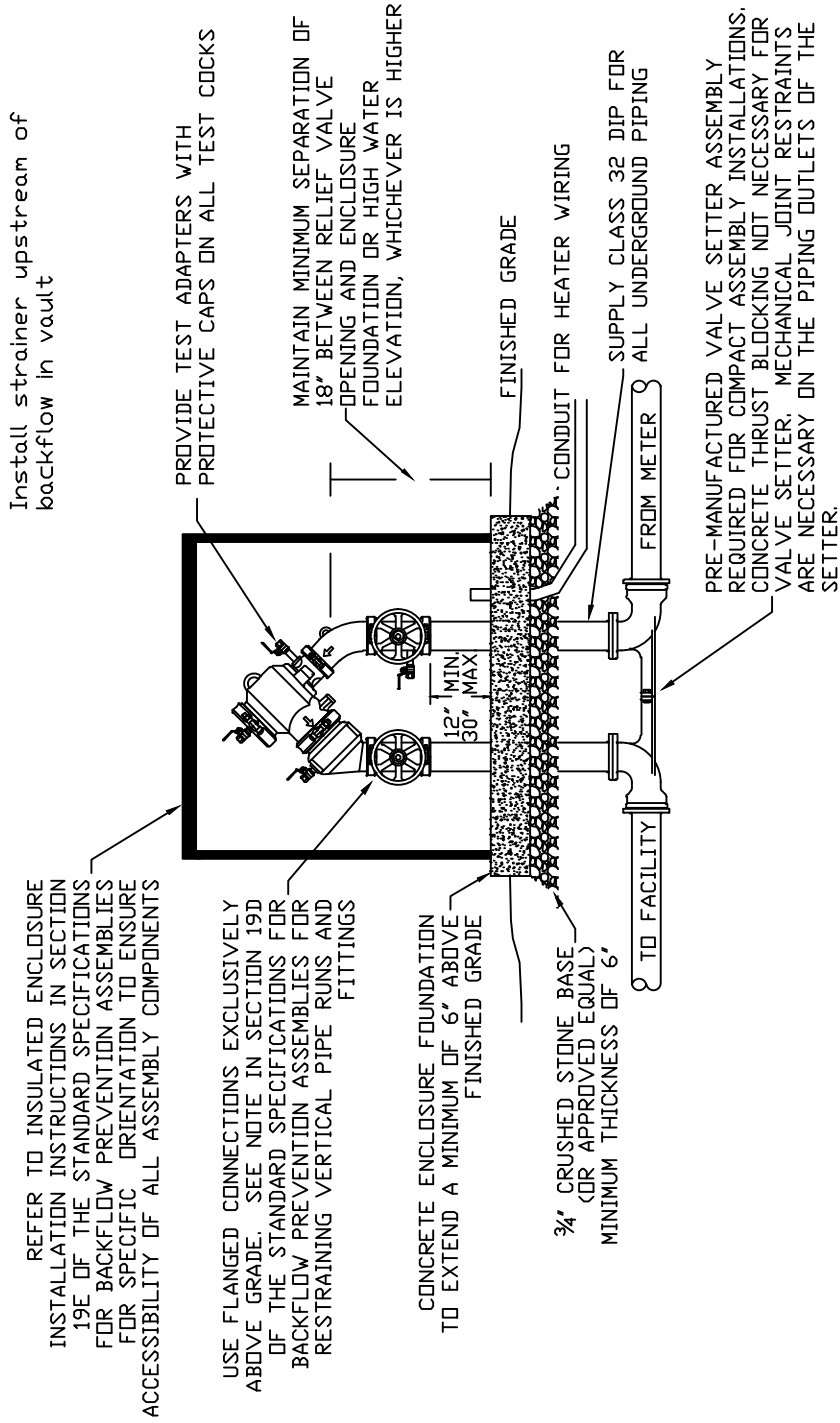


WHITE HOUSE UTILITY DISTRICT

SMALL RPBP PLAN & PROFILE VIEW DETAIL  
(3/4" - 2")

DATE : AUG 2008  
SCALE : N.T.S.

STD-W-10

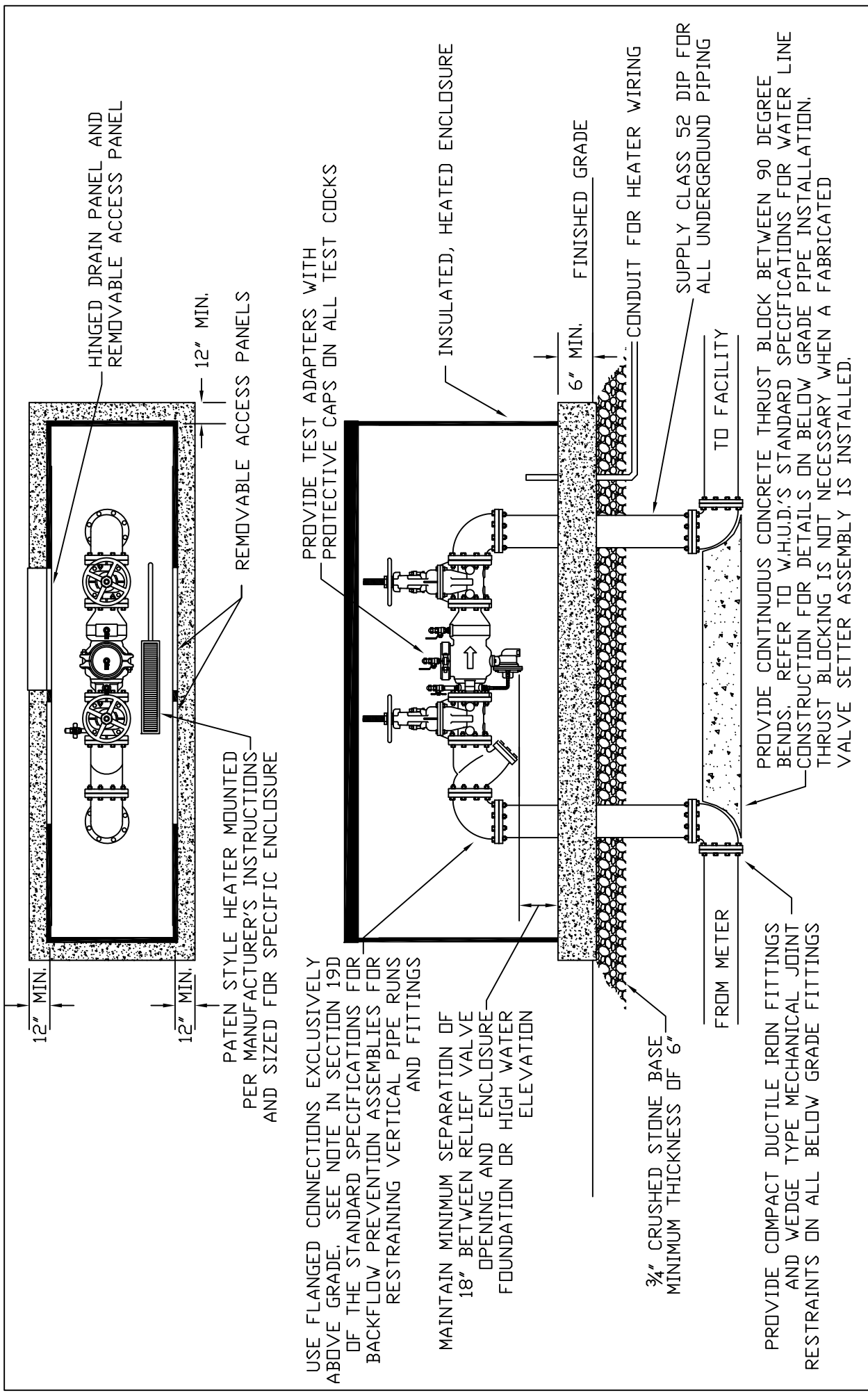


DATE : AUG 2008  
SCALE : N.T.S.

WHITE HOUSE UTILITY DISTRICT  
SMALL RBPB COMPACT ASSEMBLY INSTALLATION DETAIL  
(2 1/2" & Larger)



STD-W-11



HINGED DRAIN PANEL AND  
REMOVABLE ACCESS PANEL

12" MIN.

12" MIN.

REMOVABLE ACCESS PANELS

12" MIN.

PATEN STYLE HEATER MOUNTED  
PER MANUFACTURER'S INSTRUCTIONS  
AND SIZED FOR SPECIFIC ENCLOSURE

PROVIDE TEST ADAPTERS WITH  
PROTECTIVE CAPS ON ALL TEST COCKS

USE FLANGED CONNECTIONS EXCLUSIVELY  
ABOVE GRADE. SEE NOTE IN SECTION 19D  
OF THE STANDARD SPECIFICATIONS FOR  
BACKFLOW PREVENTION ASSEMBLIES FOR  
RESTRAINING VERTICAL PIPE RUNS  
AND FITTINGS

MAINTAIN MINIMUM SEPARATION OF  
18" BETWEEN RELIEF VALVE  
OPENING AND ENCLOSURE  
FOUNDATION OR HIGH WATER  
ELEVATION

INSULATED, HEATED ENCLOSURE

6" MIN.

FINISHED GRADE

3/4" CRUSHED STONE BASE  
MINIMUM THICKNESS OF 6"

CONDUIT FOR HEATER WIRING


SUPPLY CLASS 52 DIP FOR  
ALL UNDERGROUND PIPING

TO FACILITY

FROM METER

PROVIDE COMPACT DUCTILE IRON FITTINGS  
AND WEDGE TYPE MECHANICAL JOINT  
RESTRAINTS ON ALL BELOW GRADE FITTINGS

PROVIDE CONTINUOUS CONCRETE THRUST BLOCK BETWEEN 90 DEGREE  
BENDS. REFER TO W.H.U.D.'S STANDARD SPECIFICATIONS FOR WATER LINE  
CONSTRUCTION FOR DETAILS ON BELOW GRADE PIPE INSTALLATION.  
THRUST BLOCKING IS NOT NECESSARY WHEN A FABRICATED  
VALVE SETTER ASSEMBLY IS INSTALLED.

	WHITE HOUSE UTILITY DISTRICT	DATE : JAN 2015 SCALE : N.T.S.
	LARGE RPBP PLAN & PROFILE VIEW DETAIL (2 1/2" OR LARGER)	
		STD-W-12