



WHUD

WHITE HOUSE UTILITY DISTRICT

**POLICY AND PROGRAM GOVERNING CROSS -CONNECTIONS,
AUXILIARY INTAKES, BYPASSES & INTERCONNECTIONS
& INSTALLATION CRITERIA FOR REDUCED PRESSURE PRINCIPLE
BACKFLOW PREVENTION ASSEMBLIES**

Approved 2016

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**WHITE HOUSE UTILITY DISTRICT POLICY AND PROGRAM GOVERNING
CROSS-CONNECTIONS, AUXILIARY INTAKES, BYPASSES AND
INTERCONNECTIONS & INSTALLATION CRITERIA FOR REDUCED
PRESSURE PRINCIPLE BACKFLOW PREVENTION ASSEMBLIES**

WHEREAS, it is essential for the public health and safety of our consumers that the White House Utility District, hereinafter called WHUD, regulate certain acts that could impact WHUD's Potable water supply and other Potable water supplies, the use of water from private sources and provide for the submission of documents to WHUD concerning the use of and/or method of handling water from private sources, and require the correction or elimination of unapproved or unauthorized installations;

WHEREAS, it is essential to protect the Public Water Supply from the possibility of Contamination from Backflow occurrences by isolating within the Customer's internal distribution system, or the Customer's private water system, potential Contamination that could Backflow into the Public Water System;

WHEREAS, it is necessary to eliminate or control existing Cross-Connections, actual or potential, between the Customer's Potable water system and non-Potable water systems, plumbing fixtures and industrial piping systems;

WHEREAS, it is necessary to provide for a continuing program of Cross-Connection control that will systematically and effectively prevent Contamination of the Public Water System; and

WHEREAS, proper installation of Backflow Prevention Assemblies consistent with the Installation Criteria contained herein is necessary to accomplish these purposes;

NOW, THEREFORE, IT IS HEREBY RESOLVED BY THE BOARD OF COMMISSIONERS OF WHUD AS FOLLOWS:

Section 1. Purpose

The purpose of this Policy, Program and Installation Criteria (referred to herein collectively as "Policy") is to govern Cross-Connections, Auxiliary Intakes, By-passes and Interconnections and replace WHUD's previous Policy, Program and Installation Criteria. The requirements contained herein shall apply to all Customers of WHUD and all premises served by WHUD, and are hereby made a condition required to be met before water service is provided or continued for any Customer. This Policy shall be deemed part of every Customer's agreement with WHUD regarding the supply and consumption of water. This Policy shall be strictly enforced since it is essential for the protection of the Public Water Supply against Contamination.

Section 2. Definitions

The following definitions and terms shall apply in this Policy:

Air Gap: A method of Backflow prevention consisting of a physical separation between the free flowing discharge end of a Potable water supply line and an open or non-pressurized receiving vessel. An Air Gap must be a distance at least double the diameter of the supply pipe when measured vertically above the overflow rim of the vessel, but in no case less than 1”.

Auxiliary Intake: Any piping connection or other device whereby water may be secured from any source other than from the Public Water System.

Auxiliary Water Supply: Any water supply on or available to the premises other than water supplied by the Public Water System.

Backflow: The reversal of the intended direction of flow of water or mixtures of water and other liquids, gases or other substances from any source into the distribution pipes of a Potable water system, including the Public Water System.

Back Pressure: A pressure in downstream piping, higher than the supply pressure, that can cause Backflow.

Back Siphonage: A condition causing Backflow that can occur from negative or sub-atmospheric pressure in the supply piping.

Backflow Prevention Assembly: A device to prevent Backflow.

Bypass: Any system of piping or other arrangement whereby water can be diverted around a Backflow Prevention Assembly, meter or any other control device.

Contamination: The introduction, admission or existence of any foreign substance that affects the quality of a Potable water supply or creates a Health Hazard.

Cross-Connection: Any physical arrangement whereby a Public Water Supply is connected, directly or indirectly, either inside or outside of a building, with any other water supply, sewer, drain, conduit, pool, storage reservoir, plumbing fixture or other device or source (whether public or private) that contains or may contain contaminated water, sewage, waste, liquid, gas or solid of unknown or unsafe quality capable of contaminating or affecting the Public Water Supply as a result of Backflow.

Cross-Connection Control and Backflow Prevention Coordinator: That person with WHUD who is vested with the authority and responsibility for implementing this Policy, subject to the direction of the General Manager or his/her designee. The Cross-Connection Control and Backflow Prevention Coordinator shall be certified by the State to test and evaluate Backflow Prevention Assemblies.

Customer: Any person or entity that obtains or seeks to obtain water, by purchase or without charge, from WHUD.

Customer System: The Customer System shall include those parts of the water facilities utilized in conveying water that are on the Customer's side of (a) the water meter (if there is no Backflow Prevention Assembly), (b) a Backflow Prevention Assembly or (c) the Customer's property line (if there is a water line with no meter or Backflow Prevention Assembly).

General Manager: General Manager of WHUD.

Health Hazard: An actual or potential Cross-Connection involving any substance that, if introduced into the Public Water Supply, could cause death, injury, illness or spread of disease.

Industrial Fluid: Any fluid or solution that may be chemically, biologically or otherwise contaminated. This shall include, but is not limited to: contaminated water; all types of process water or used water originating from the Public Water System that may have deteriorated in sanitary quality; chemicals; plating acids and alkalis; circulating cooling water connected to an open cooling tower; water from cooling towers that is chemically or biologically treated or stabilized with any toxic substance; contaminated natural water; oil, gases, glycerin, paraffin, caustic and acid solutions, and other liquids or gases used in industrial processes or for fire protection purposes.

Inter-connection: Any system of piping or other arrangement whereby a Public Water Supply is connected directly with a sewer, drain, conduit, or other device that does, or may, carry sewage or other liquid or waste capable of causing Contamination to the Public Water Supply.

Potable Water: Water that is safe for human consumption as prescribed by the State.

Public Water Supply: Water supplied by WHUD, or any other entity that furnishes Potable water to WHUD for general use and is recognized as a Public Water Supply by the State.

Public Water System: A water system furnishing water to the public for general use that is recognized as a Public Water Supply by the State.

Reduced Pressure Principle Backflow Prevention Assembly or Reduced Pressure Backflow Preventer (collectively "RPBP"): A Backflow Prevention Assembly consisting of two independently acting check valves together with a hydraulically operating, mechanically independent, pressure differential relief valve located between the check valves, and downstream of, the first check valve. This assembly shall be located between two tightly closing, resilient seated shutoff valves and equipped with properly located test cocks. An RPBP is the only type of Backflow Prevention Assembly approved for installation under this Policy.

State: The State of Tennessee or Tennessee Department of Environment and Conservation, Division of Water Supply.

WHUD System: The water system operated by WHUD, whether located inside or outside the corporate or legal limits thereof, consisting of the facilities for the production, treatment, storage and distribution of water, and including all those facilities up to the point where the Customer System begins.

Section 3. Responsibility and Authority Relating to Water System

- A. Notwithstanding any provisions of a plumbing code adopted by any unit of local government having jurisdiction, WHUD shall be responsible for taking the steps necessary to protect the WHUD System from Contamination due to Backflow.
- B. The Cross-Connection Control and Backflow Prevention Coordinator is hereby granted authority for implementation and enforcement of this Policy, subject to the direction of the General Manager or his/her designee. Such authority shall extend beyond the Service Connection to the Customer System to whatever extent reasonably necessary to meet the intent or requirements of this Policy, and includes all types of connections, including but not limited to unmetered fire lines. The Cross-Connection Control and Backflow Prevention Coordinator shall be provided additional WHUD staffing, as needed, to implement this Policy.
- C. The authority to deny or terminate water service, or take other appropriate actions with respect to any violation of any provision of this Policy, shall rest with the General Manager or his/her designee.
- D. This Section shall not be construed to prevent other authorized officers or employees of WHUD from denying or terminating water service, or taking other appropriate action, for failure to pay for water service or for violating any provision of this Policy (or any other applicable rules or policies).

Section 4. System Operation

- A. The WHUD System and the Customer System shall be operated at all times in compliance with TENN. CODE ANN. §§ 68-221-104 & 68-221-711, TENN. COMP. R. & REGS R. 1200-05-01-.17(6) & -.20(1)(h), all other applicable laws, rules and regulations, as amended from time to time, and this Policy.
- B. Before service is provided to a Customer, the Customer shall provide information to WHUD about the existence of any well or other water supply, and such other information requested by WHUD (see also Section 5 herein). WHUD shall make a determination and inform the Customer of the location and layout of the Backflow Prevention Assembly or Assemblies the Customer needs to have installed and/or other actions the Customer needs to take. Prior to executing any work order for a new Customer requiring a 3/4" meter or larger, or for any change in service to an existing Customer with a 3/4" meter or larger, notification shall be given to the WHUD Backflow Prevention Coordinator if it is determined that a Backflow Prevention Assembly is required for a new meter or change in service for an existing meter. Water service shall not be established or continued until all necessary Backflow Assemblies are installed and other necessary actions are taken.

Section 5. Customer Information

A. WHUD shall inform its Customers of the health hazards associated with potential Cross-Connections and Backflows and acquaint them with this Policy. Information will be provided to Customers about Cross-Connection control and Backflow prevention when new service is requested, through WHUD's website, or by pamphlets, reminders or articles sent to customers at least once per year.

B. Any Customer who has, or intends to have, on its premises a well or other Auxiliary Water Supply, or who stores, or intends to store, water in an uncovered or unsanitary storage reservoir from which the water is circulated through a piping system, shall submit to WHUD a statement of the existence of these conditions. Such statement also shall contain an agreement to comply with this Policy and that no Cross-Connection, Auxiliary Intake, Bypass or Inter-connection will be permitted or will continue on the premises without a Backflow Prevention Assembly and/or Air Gap, as determined by WHUD and in compliance with this Policy, in place and the operation and maintenance of same has been placed under direct supervision of WHUD. Upon request, the Customer or owner, lessee or occupant of any property so served shall furnish to WHUD all pertinent information regarding the Customer System on or relating to such property. Refusal to provide such access or information shall be deemed evidence of the presence of unapproved Cross-Connections or other conditions in violation of this Policy. WHUD will survey the property to ensure that adequate backflow protection is in place.

C. WHUD will survey its Customers, both residential and non-residential, for possible Cross-Connections. If a survey indicates that a Cross-Connection may exist, the Customer's premise will be inspected in accordance with this Policy. WHUD will survey approximately 5% of connections annually for the potential existence of a cross-connection. These inspections are in addition to annual testing of known devices, and will be a physical inspection of the property being surveyed. Documentation of the surveys will be generated and maintained for review by the Division of Water Supply during a Sanitary Survey event.

Section 6. Backflow Prevention and Cross-Connections

A. No person shall cause a Cross-Connection, Auxiliary Intake, Bypass or Inter-Connection to be made, or allowed to exist, for any purpose, unless there is a Backflow Prevention Assembly, and the operation and maintenance of such are at all times, in compliance with this Policy and subject to the direction of WHUD. No person shall install or allow any unprotected connection to a water service line on WHUD's side of any meter or Backflow Prevention Assembly.

B. It shall be a violation of this Policy if a Backflow Prevention Assembly required by this Policy is not properly installed, tested and maintained, or if it is found that a required or necessary Backflow Prevention Assembly has been removed, bypassed, altered or not kept in proper working condition, or if an unprotected Cross-Connection exists on the premises.

C. If, in the judgment of WHUD, a Backflow Prevention Assembly is required for the safety of the Public Water Supply, WHUD shall give notice in writing to the Customer to install one or more Backflow Prevention Assemblies at specific location(s) and/or take other actions; and Customer shall comply therewith in order to be entitled to obtain or continue water service.

D. For new commercial or industrial construction, or renovation or expansion of a commercial or industrial property, WHUD shall inspect the site and review and approve/disapprove plans in order to determine the location and layout of any Backflow Prevention Assembly required. Such review and approval/disapproval shall be in accordance with the WHUD Large Meter Developer's Packet (see WHUD.org).

E. No installation of, or alteration or change to, any Backflow Prevention Assembly connected to the Public Water Supply shall occur without approval from WHUD.

F. Where there are premises with a well or other Auxiliary Water Supply that do not have a Backflow Prevention Assembly that complies with this Policy, WHUD shall verify, by on-site inspection, that there is adequate separation of the Auxiliary Water Supply from the Public Water Supply. WHUD will develop and maintain an up-to-date list of all known wells within the water system. Additionally, wells where no backflow prevention is provided will be inspected at least every 5 years to insure separation is maintained. Documentation of these inspections will be generated and maintained for review by the Division of Water Supply during a Sanitary Survey event. WHUD will inspect 20% of the wells annually, to get the wells on a 5 year rotation. An acceptable method of separation is shown on drawing STD-BFP-7 in Section 17(I) herein.

Section 7. Circumstances Requiring Backflow Prevention

A Backflow Prevention Assembly and/or Air Gap, as determined by WHUD, in compliance with this Policy must be in place on each service line to a Customer's premises within distances set out in the Installation Criteria herein and on the Customer's side of the meter, and in all cases before the first branch line leading off the service line, when any of the following conditions exist:

A. Premises where Industrial Fluids or any other non-Potable substances are handled in such a manner as to create an actual or potential hazard to the Public Water System;

B. Premises having internal Cross-Connections that cannot be corrected and controlled permanently, or intricate plumbing and piping arrangements, or where entry to all portions of the premises is not readily accessible or safe for WHUD personnel for inspection purposes, making it impracticable or impossible to ascertain whether a Cross-Connection exists;

C. Premises having an Auxiliary Water Supply, including but not limited to a well, cistern, spring, pond, river or creek, that is not disconnected from the Public Water Supply

in a manner acceptable to WHUD (refer to drawing STD-BFP-7 in Section 17(I) hereof for an acceptable manner of disconnection);

D. The owner or occupant of the premises cannot, or is not willing to, demonstrate that the water use and protective features of the plumbing are such as to pose no threat to the safety or portability of the water;

E. The nature and mode of operation within the premises is such that frequent alterations are made to the plumbing;

F. The nature of the premises is such that the use of the structure may change to a use wherein Backflow prevention is required;

G. There is a likelihood that Backflow protective measures may be subverted, altered or disconnected;

H. Premises having service and fire flow connections, commercial or educational buildings, construction sites, industrial, institutional or medical facilities, lawn irrigation systems, public swimming pools, fire hydrant connections used by any fire department, photographic laboratories, standing ponds or other bodies of water, or Auxiliary Water Supplies;

I. Premises where there is any substance, toxic or otherwise, that would be objectionable, even though not a Health Hazard, if introduced into the Public Water System;

J. Premises where there is any material dangerous to health that is handled in such a fashion as may create an actual or potential hazard to the Public Water System, the Public Water System. Premises where such conditions may exist include, but are not limited to: sewage treatment plants, sewage pumping stations, chemical manufacturing plants, hospitals, mortuaries and plating plants;

K. Premises where, because of security requirements or other restrictions, it is impossible or impractical to make a complete Cross-Connection survey, the Public Water System;

L. Premises having a residential fire sprinkler system not approved by WHUD; or

M. Premises, including residential, otherwise determined by WHUD to need Backflow prevention.

Section 8. Approved Backflow Prevention Assemblies

Except as provided in Section 9 hereof, all Backflow Prevention Assemblies shall be RPBBs fully approved by the Foundation for Cross-Connection Control and Hydraulic Research, listed as acceptable by the State as to manufacturer, model, size and application, and satisfactory to WHUD.

The location and layout of all Backflow Prevention Assemblies shall be approved by WHUD prior to installation and the installation shall comply with Installation Criteria set forth herein. Purchase and installation of the assembly shall be at the expense of Customer.

Section 9. Existing Protection Assemblies

A. All Backflow Prevention Assemblies that were installed and previously acceptable to the State as of the Effective Date of this Policy, and that, in the sole discretion of WHUD, adequately protect the Public Water System from Backflow may be retained in service, except as otherwise provided in this Section.

B. Notwithstanding the foregoing, any Backflow Prevention Assembly installed in a vertical run of pipe shall be replaced, or re-installed, in a horizontal run of pipe in a manner and location satisfactory to WHUD. In addition, wherever the location of an assembly, or the assembly itself, has been altered, or access to the assembly has been altered or restricted such that testing or maintenance is affected, or when WHUD finds that the assembly constitutes a Health Hazard, the assembly shall be replaced by an RPBP meeting the requirements of this Policy for new installations.

Section 10. Safety Standards – Duplicate Equipment in Parallel Required

Where the use of water is critical to the continuation of normal operations or protection of life, property or equipment, duplicate RPBPs shall be installed by the Customer to avoid the necessity of discontinuing water service to test or repair an assembly.

Section 11. Relief Valves

A. All storage water heaters operating above atmospheric pressure shall be provided with a self-closing pressure relief valve and temperature relief valve, or combination thereof, except for nonstorage instantaneous heaters. Such valves shall be installed in the shell of the water heater tank or may be installed in the hot water outlet, provided the thermo-bulb extends into the shell of the tank. Temperature relief valves shall be so located in the tank as to be actuated by the water in the top 1/8 of the tank.

B. For installations with separate storage tanks, the valve shall be installed on the tank and there shall not be any type of valve installed between the water heater and the storage tank. There shall not be a check valve or shut off valve between a relief valve and the heater or tank it serves. The relief valve shall not be used as a means of controlling thermal expansion.

Section 12. Thermal Expansion Control

A device for the control of thermal expansion shall be installed on the Customer System where the thermal expansion of the water in the system may cause the water pressure to exceed the pressure setting of the pressure relief valve of the water heater. The thermal expansion device shall control

the water pressure to less than the pressure setting of all pressure relief valves and must be installed/maintained properly by the Customer.

Section 13. Non-Potable Water Supplies

A. Any water outlet connected to auxiliary water sources, industrial fluid systems, or other piping containing non-Potable liquids or gases that could be used for Potable or domestic purposes shall be labeled in a conspicuous manner as follows:

WATER UNSAFE FOR DRINKING

The sign shall have black letters at least one inch (1”) high on a red background.

B. Color coding of piping in accordance with OSHA/TOSHA requirements may be required in locations where, in the judgment of WHUD, such color coding is necessary to identify and protect the Potable water supply.

Section 14. Inspection, Testing and Maintenance of Customer System and Assemblies

A. All Backflow Prevention Assemblies shall be inspected and tested at least every twelve (12) months. In those instances where WHUD deems it appropriate, inspections and tests may be required more frequently. WHUD promptly shall be provided records and results of all tests.

B. All tests and repairs shall be at the expense of the Customer. Assemblies found to be defective or otherwise not in compliance with this Policy shall be timely repaired, overhauled or replaced, and the repaired/overhauled or replacement assembly shall be tested and proved to be, in compliance with this Policy, at the expense of the Customer. Copies of all records of inspections, tests, repairs and overhaul promptly shall be supplied to WHUD for its retention.

C. Customer shall maintain a Backflow Prevention Assembly in proper working order. The removal, bypassing or altering of a protective assembly or the installation thereof that reduces any assembly’s effectiveness is not permitted.

D. WHUD shall have the right to enter any property served by the Public Water System for the purpose of inspecting for, or taking other necessary actions with respect to, Cross-Connections, Auxiliary Intakes, Bypasses or Interconnections, or for its own inspection and testing of Backflow Prevention Assemblies, whenever it deems necessary. Except in emergencies, water service shall not be disrupted by WHUD to take any such actions without notice to the occupant of the premises.

1. During any inspection, a field sheet will be completed documenting the observations and findings of the inspection

2. If after review of the information gathered during the inspection WHUD determines in its sole discretion that further action is necessary, a written report shall be prepared summarizing the inspection findings. Such report shall be sent to the Customer(s) responsible for the Cross-Connection, Auxiliary Intake, Bypass or Interconnection, and/or Backflow Prevention Assembly. The reports shall describe the findings of the inspection and the corrective measures that are required. Such corrective measures shall be completed in accordance with the requirements of this Policy.
3. WHUD will perform reinspections as needed to assist the customer and to assure that the corrective measures have been properly implemented.
4. WHUD will develop and maintain an up-to-date list of all know wells within the water system. Additionally, wells where no backflow prevention is provided will be inspected at least every 5 years to insure separation is maintained. Documentation of these inspections will be generated and maintained for review by the Division of Water Supply during a Sanitary Survey event. WHUD will inspect 20% of the wells annually, to get the wells on a 5 year rotation. An acceptable method of separation is shown on drawing STD-BFP-7 in Section 17(I) herein.

Section 15. Persons Evaluating and Testing Assemblies

- A. Any person testing Backflow Prevention Assemblies shall have a current and valid certification from the State for the testing and evaluation of such assemblies and all other required licenses and certifications, copies of which shall be submitted to WHUD, and shall be subject to WHUD approval. A list of approved persons will be maintained by WHUD.
- B. For any services, tests, inspections, certifications, work or approvals requiring a State licensed and/or certified technician or representative not employed by WHUD, the third-party provider shall submit to WHUD (1) proof of the State certification and/or license authorizing the individual to perform the services, tests, inspections, certifications, work or approvals rendered; (2) a current address, telephone number and other means by which such third-party provider may be contacted and (3) original reports, records and other documentation showing compliance of the applicable assembly with this Policy. WHUD shall have the right to review and approve/disapprove any and all services, tests, inspections, certifications, work or approvals. WHUD shall further be permitted to inspect, evaluate or otherwise verify the services, tests, inspections, certifications, work and approvals performed by the third-party providers on behalf of the Customer.

Section 16. Correction of Violations

- A. Any Customer having Cross-Connections, Auxiliary Intakes, Bypasses or Interconnection(s) in violation of this Policy shall commence and complete the work

required to bring the situation into compliance with this Policy within the time designated by WHUD, but in no case shall the time for such correction exceed ninety (90) days.

B. Where Cross-Connections, Auxiliary Intakes, Bypasses or Interconnections are found to present an imminent threat of contaminating the Public Water System, WHUD may require that immediate corrective action be taken to eliminate the threat. In such event, expeditious steps shall be taken to disconnect the Public Water System from the Customer System by Air Gap or other physical separation satisfactory to WHUD, unless the threat is otherwise removed immediately to the satisfaction of WHUD.

Section 17. Criteria For The Installation Of RPBPs

A. Introduction. WHUD's criteria for the installation of RPBPs are an integral part of this Policy. The purpose of these criteria is to provide a guide for the proper installation of assemblies intended to protect the Public Water Supply from Backflow. Proper installation of assemblies is vital to help ensure that the assembly functions as intended and is easily accessed for maintenance, inspection and testing. In matters where these criteria do not address specific issues and the manufacturer's recommendations do not conflict with WHUD's requirements, the manufacturer's recommendations may be used.

B. General Installation Notes.

1. All assemblies shall be installed in accordance with these Installation Criteria.
2. For purposes of complying with these criteria, an RBPB is the only approved device for new installations.
3. No vertical installation of assemblies is permitted.
4. No below ground installation of assemblies will be permitted.
5. In no case shall Backflow Prevention Assemblies be installed in locations subject to flooding or where the relief valve opening would be less than 18" above the higher of potential high water elevations or the enclosure foundation. Care must be taken when selecting the installed height of the Backflow Prevention Assembly as the potential high water elevation may be higher than the enclosure foundation elevation.
6. An Air Gap satisfactory to WHUD shall be provided between the relief valve opening and any drainage system. The Air Gap assembly shall not be altered without the specific approval of WHUD. Gravity shall be the only means of accomplishing drainage away from the assembly.

7. Assemblies shall not be located where discharge from the relief valve will create undesirable conditions.
8. Assemblies shall be installed a minimum of 4 feet and a maximum of 8 feet downstream of the water meter prior to any unprotected branches in the service line, except with respect to irrigation systems (see Section 17(H)(1) below).
9. All assemblies shall be installed complete with resilient seat test cocks, test adapters and protective caps – all manufactured from brass.
10. Piping and fitting materials shall be copper, brass or ductile iron, except as noted below for winterized irrigation assemblies.
11. All installed assemblies shall be easily accessible for testing and repair, as well as meet all applicable confined space and safety requirements of OSHA/TOSHA.
12. Assemblies shall be protected from vandalism, mechanical abuse, and any corrosive, sticky, greasy, abrasive or other damaging substances.
13. All assemblies shall be adequately supported to prevent sagging. Flushing ports on wye-strainers shall be plugged.
14. No valves or other devices that would enable easy connection to the upstream side of the assembly shall be permitted on the flushing port.
15. In these criteria, ¾” through 2” diameter assemblies are referred to as “small assemblies” and 2-1/2” through 10” diameter assemblies are referred to as “large assemblies.”

C. Installation Notes for Small Assemblies

1. Bodies for small assemblies shall be constructed of bronze.
2. Shutoff valves for small assemblies shall be bronze, full port, quarter turn, resilient seat ball valves.
3. Wye-strainers are to be installed on all small assemblies. Strainers shall be constructed with bronze bodies. Brass nipples shall be used between the strainer and the assembly.

D. Installation Notes for Large Assemblies

1. Shutoff valves for large assemblies shall be cast or ductile iron body, resilient seat, wedge type OS&Y valves.
2. A minimum of two sets of all-thread rods and eye-bolts of ¾” diameter shall be used to restrain fittings on vertical runs of pipe on the inlet and outlet of all large assemblies.
3. Bodies for large assemblies shall be constructed of cast or ductile iron and epoxy coated. The only exception to this will be for those made of stainless steel.

E. Enclosures

1. Installations shall be provided with pre-fabricated, heated enclosures that will prevent the assembly from freezing.
2. Enclosures shall be manufactured by Safe-T-Cover, G & C Enclosures or an equal previously submitted to and approved by WHUD.
3. The enclosure shall be manufactured to house specific assemblies and shutoff valves such that adequate internal clearance is maintained and the drain panel sizing is adequate to provide positive drainage in the event the relief valve opens.
4. The enclosure shall be supplied with rigid insulation that provides a minimum “R” value of 10.0. Insulation other than the rigid type, supplied by the manufacturer, shall not be allowed. Insulation other than the rigid type, supplied by the manufacturer, shall not be allowed on the original installation or at any time in the future.
5. Enclosures provided with access panels shall be manufactured such that the panels are completely removable and shall be provided with built-in locks, keyed alike, with keys furnished to WHUD.
6. Drain panel(s) shall have a stainless steel hinge and stainless steel spring, or an approved gravity style positive means of closure, to prevent activation by wind. The drain panel shall be an integral part of the enclosure and be fabricated by the manufacturer of the same materials as the enclosure.

7. All mounting hardware and threaded fasteners shall be 300 series stainless steel or T6 aluminum. All masonry fasteners shall be metal wedge anchors.

F. Heating Equipment

1. Heating equipment shall be furnished and sized by the manufacturer of the enclosure to maintain a minimum interior temperature of plus 40°F when outside temperature is at or above minus 30°F.
2. An automatic, adjustable thermostat, integrally constructed with the heating element with a setting range of plus 40°F to plus 100°F, shall control the heating element.
3. Heating equipment shall be installed per the manufacturer's recommendations with factory supplied hardware.
4. Heating equipment shall be designed such that repeated submersion will not damage it or impede its operation.
5. The heater, wiring, electrical fittings and associated connectors shall be manufactured and installed such that wet conditions will not constitute a hazardous environment or impede the operation or effectiveness of the heating equipment.
6. The installation contractor shall be responsible for installing properly sized electrical circuits capable of providing power to the heating equipment per all applicable safety standards and codes.

G. Enclosure Foundation

1. The enclosure shall be assembled and mounted to a concrete foundation in such a way that it will remain locked and secured to the foundation even if outside enclosure screws are removed.
2. Enclosures for small assemblies shall be mounted on a concrete foundation of such thickness that the top elevation of the foundation is a minimum of 4" above finished grade. The foundation length and width dimensions shall be 16" longer and wider than the outside dimensions of the enclosure.
3. Enclosures for large assemblies shall be mounted on a concrete foundation of such thickness that the top elevation of the foundation is a minimum of 6" above finished grade. The foundation length and width dimensions shall be 24" longer and wider than the outside dimensions of the enclosure.

4. Concrete mix strength shall be a minimum of 3,000 psi after 14 days of curing. Concrete reinforcing material shall be adequate to prevent cracking of the foundation due to supported loads or differential settlement.
5. Concrete for enclosure foundations shall be placed on a minimum of 6" of ¾" crushed stone base.
6. Where multiple assemblies are installed parallel and in close proximity to one another, a minimum lateral separation of 36" shall be maintained between the edges of enclosure foundations.

H. Irrigation System Notes

1. All assemblies installed on irrigation systems must be located downstream of and within two feet of the water meter box. The device must be located upstream of any branches in piping on the Customer side of the meter.
2. Irrigation system installations may be completed without a heater or enclosure if they are restricted to seasonal use and are winterized to prevent freezing. The installation must be complete with unions to allow easy removal of the assembly. WHUD recommends that winterized assemblies be completely removed in cold weather months. All non-winterized irrigation installations must follow criteria for standard assemblies mentioned above.
3. Irrigation installations may be completed with Schedule 40 PVC pipe and fittings if the device is to be winterized during cold weather months.
4. Testing is required for previously winterized irrigation assemblies prior to restoring service to the irrigation system for the next season.

I. Drawings. Installations shall be in accordance with the following drawings (STD-BFP-1 through 6), as applicable. An acceptable manner of disconnecting a well from the Public Water Supply is shown on the following drawing STD-BFP-7.

Section 18. Fees and Charges

Fees and charges related to the implementation and continuance of this Policy may be established from time to time by the Board of Commissioners of WHUD.

Section 19. Failure to Comply with Policy

A. If this Policy is violated or any Customer or occupant of premises fails to comply with any provision herein, WHUD may take any or all of the following actions:

1. Deny water service;
2. Terminate water service;
3. Require compliance with, and/or correction or elimination of any condition that exists in violation of, this Policy;
4. Eliminate or correct any condition that is in violation of this Policy;
5. Impose and recover such fees and charges as are authorized from time to time by the Board of Commissioners of WHUD;
6. Take whatever other action is appropriate under, or authorized by, this Policy or applicable law to address the failure to comply;
7. Charge, and recover from, the violating Customer or person all costs and damages, including attorneys' fees, incurred by WHUD in taking any of the above actions or any other action expressly permitted or otherwise deemed appropriate by WHUD under this Policy.

B. If water service has been denied or terminated because of any violation of or failure to comply with this Policy, service will not be provided or restored until all such conditions are eliminated, corrected or otherwise addressed to the satisfaction of WHUD.

C. For existing installations, WHUD may cause water service to be denied or terminated until such time as the Customer complies with all applicable requirements of State law and this Policy.

D. When an unprotected Cross-Connection or other violation of this Policy exists, WHUD may deny or discontinue service by requiring or causing an Air Gap or other physical break satisfactory to WHUD until the Customer has eliminated or corrected all violations in accordance with the Policy.

E. Failure to correct conditions threatening the safety of the Public Water System that are prohibited by this Policy, Tennessee Code Annotated Section 68-221-711 or other applicable law, as amended from time to time, within the time set by WHUD or this Policy

shall constitute a violation of this Policy and cause for, among other things, denial or termination of water service. In such case, WHUD shall give the Customer written notification that the water service is being denied or terminated and shall require or cause a physical separation, by Air Gap or other means satisfactory to WHUD, of the Public Water System from the Customer System in such manner that the two systems cannot be connected again, except by WHUD.

F. In the event that a Backflow Prevention Assembly fails the initial or annual test, or there are deficiencies in the installation either from failure to conform to the Installation Criteria specified in this Policy, or for any other reason, WHUD may issue a written notice of failure or deficiency. If a failure or deficiency is not corrected within the time required by WHUD, WHUD may take action it deems appropriate.

G. WHUD may waive any fees, charges or other remedy it has in its sole discretion.

Section 20. Conflicting Provisions

If any provision of this Policy is found to conflict with any provision of any other policy, the provision of this Policy shall control. Should any part(s) of this Policy be declared invalid for any reason, no other part(s) of this Policy shall be affected thereby.

Section 21. Records

Records required by this policy will be maintained for a minimum of five (5) years. Such records include but are not limited to the following:

- A. Master List of all Customers with Backflow Prevention Assemblies, including the location and a description of the assembly used;
- B. Correspondence regarding suspected Cross-Connections;
- C. Test records and reports for Backflow Prevention Assemblies;
- D. Customer survey information, site inspection records and site inspection reports;
- E. Backflow incident documentation; and
- F. Public education pamphlets, reminders, articles, and other information.

Section 22. Backflow Contamination Procedures

If contamination is suspected from a Cross Connection or caused by Backflow, WHUD will take the following actions:

- A. Notify Customers with potentially contaminated lines not to consume or use the water;

- B. Isolate all potentially contaminated lines in the WHUD System;
- C. Separate the Cross-Connection from the WHUD System;
- D. Take steps to remove potential contamination from WHUD lines;
- E. Test lines to ensure all State rules and regulations for safe drinking water have been met;
- F. Return service to affected Customers;
- G. Document the incident, including suspected cause, WHUD's response, and corrective actions taken; and
- H. Notify and report to the State as required by applicable State rules and regulations.

Section 23. Modifications to Plan

This Policy may be modified from time to time to meet the needs WHUD and to comply with applicable State rules and regulations. This Policy shall be reviewed by WHUD every five (5) years to assess whether it continues to meet State requirements and whether it effectively addresses Cross-Connections and Backflow prevention in the WHUD System. The General Manager or his/her designee is authorized to modify this plan, as needed, without prior approval of the WHUD Board of Directors, and shall report any substantive modification to this plan to the Board of Directors for their information in a timely manner. The General Manager shall also notify the State, as required by applicable State rules and regulations, of any substantive modification to this plan.

Section 24. Approval

State Approval: _____ Date: _____

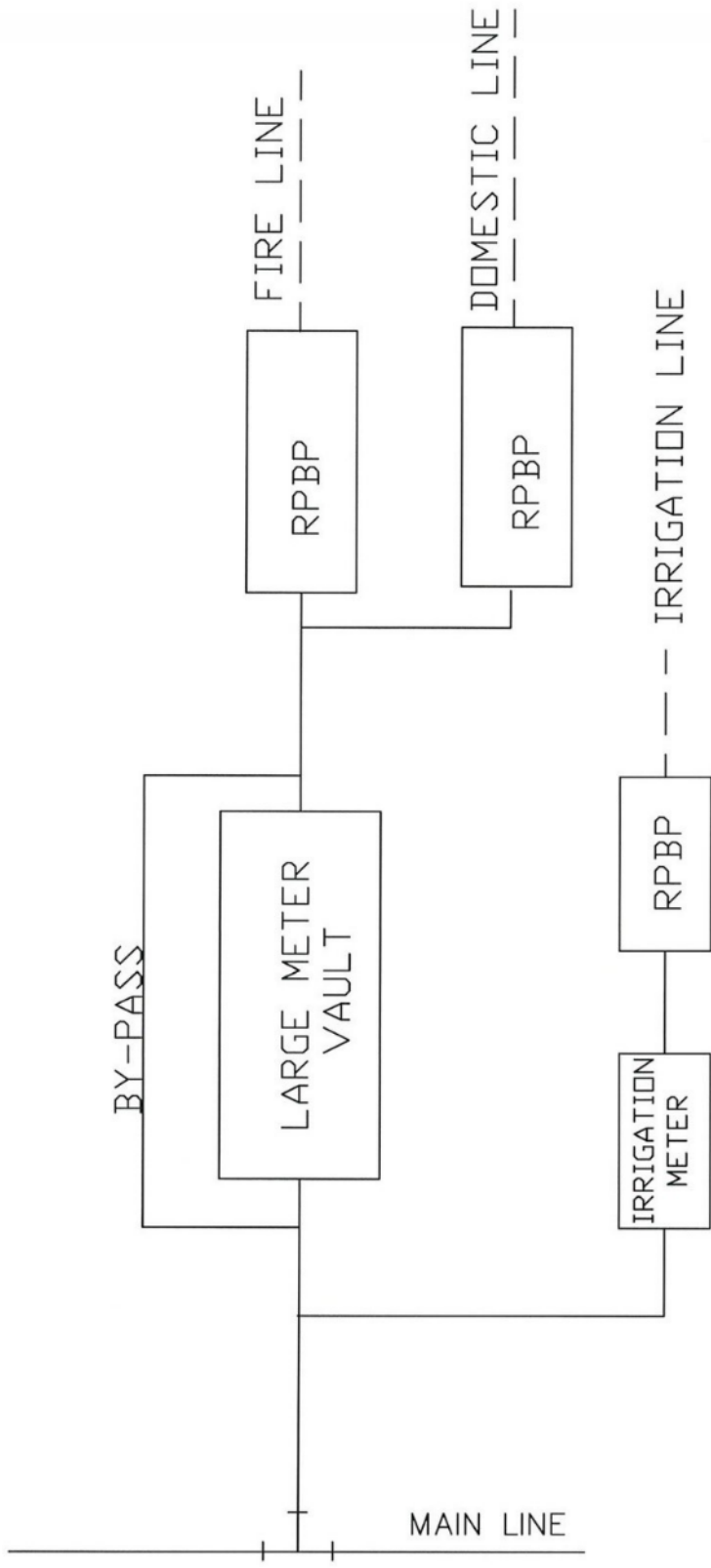
Having received approval of this Policy from the State, the WHUD Board of Directors authorizes the General Manager to implement this Policy, effective _____, 2010:

Frank Flynn, Commissioner

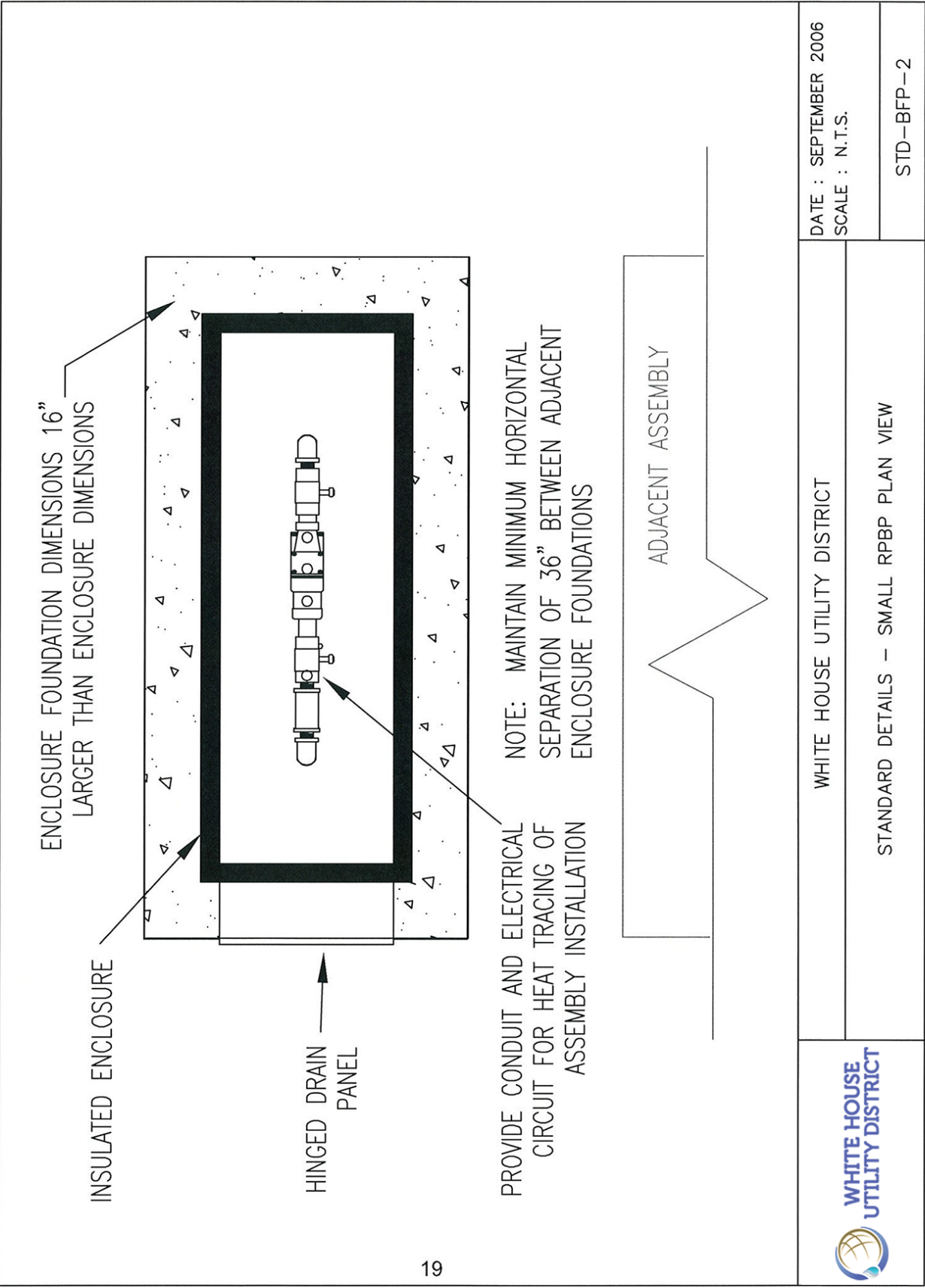
Dan Green, Commissioner

Valerie Webb, Commissioner

Bill Thompson, General Manager



 WHITE HOUSE UTILITY DISTRICT	WHITE HOUSE UTILITY DISTRICT	DATE : SEPTEMBER 2006 SCALE : N.T.S.
	STANDARD DETAILS - SCHEMATIC BACKFLOW PREVENTION ASSEMBLY LAYOUT	STD-BFP-1



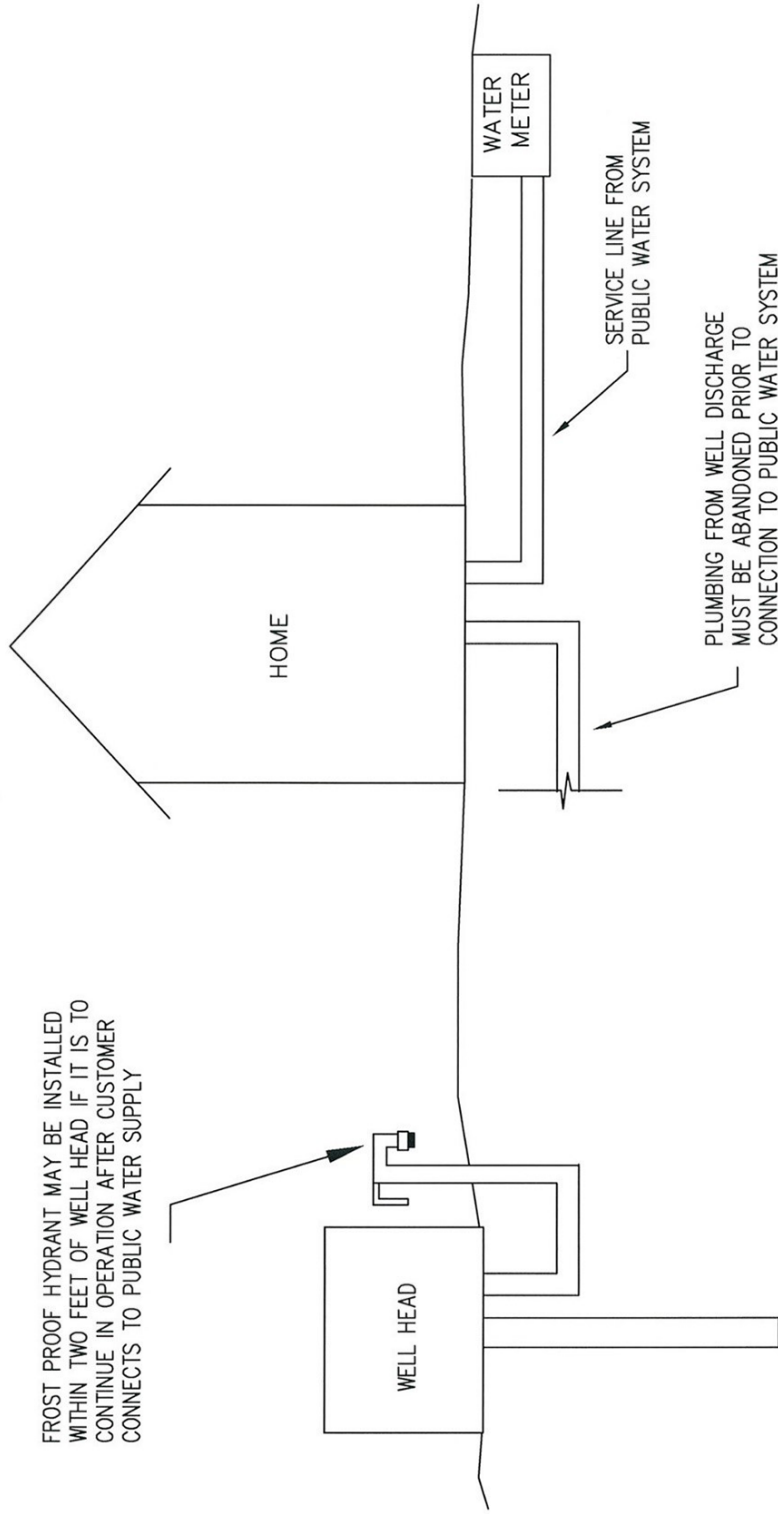
DATE : SEPTEMBER 2006
 SCALE : N.T.S.
 STD-BFP-2

WHITE HOUSE UTILITY DISTRICT
 STANDARD DETAILS - SMALL RPBP PLAN VIEW

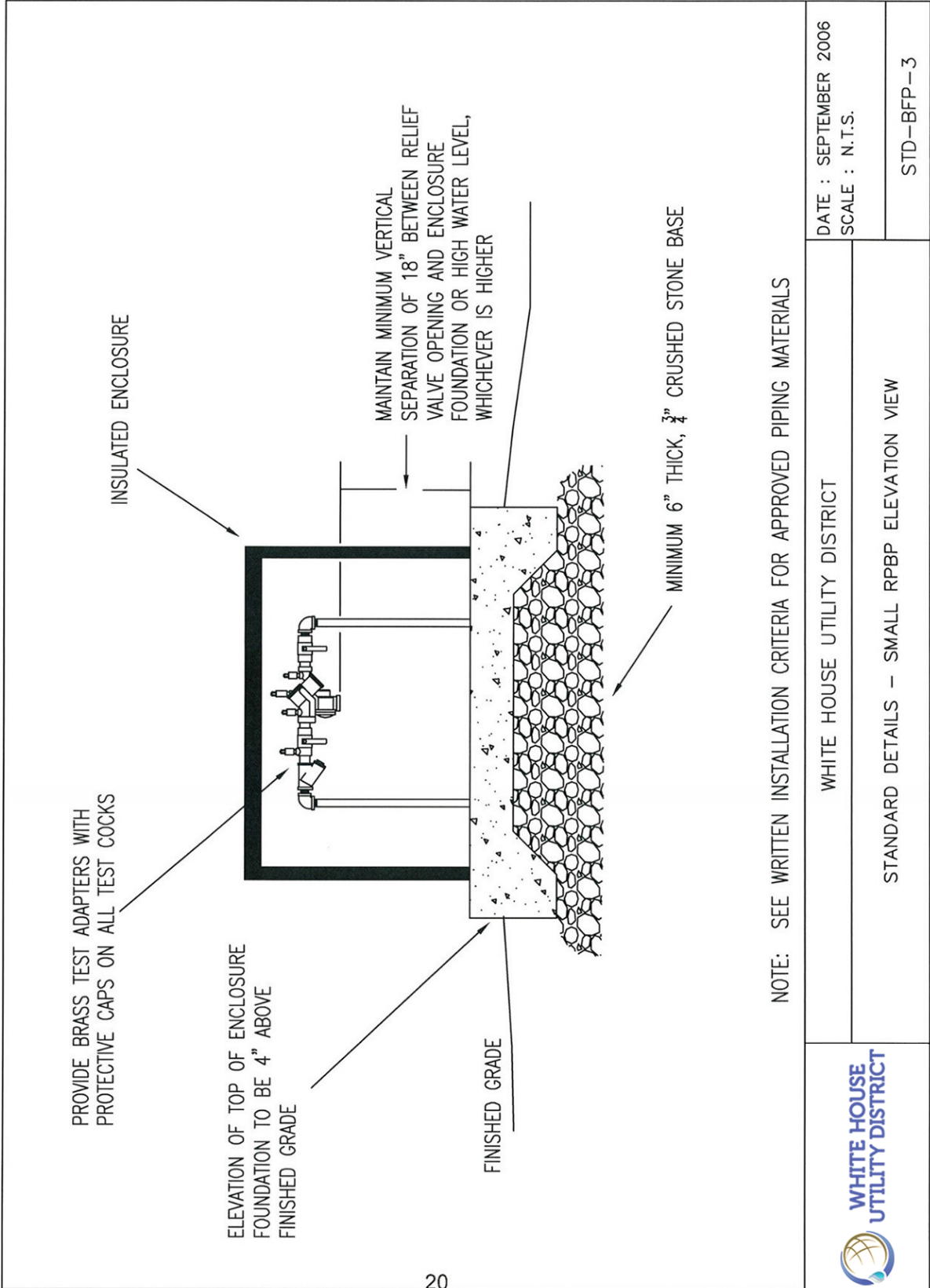


NOTE: CUSTOMERS CONNECTING TO THE PUBLIC WATER SUPPLY MUST NOTIFY WHUD OF THE EXISTENCE OF WELLS OR OTHER AUXILIARY WATER SUPPLIES. THE CUSTOMER MUST ALSO NOTIFY WHUD OF THE INTENT TO USE OR INSTALL A WELL OR AUXILIARY WATER SUPPLY AFTER CONNECTION TO THE PUBLIC WATER SUPPLY. WHUD PERSONNEL MUST VERIFY SEPARATION OF WELL OR AUXILIARY WATER SUPPLY PIPEWORK PRIOR TO CONNECTION TO THE PUBLIC WATER SUPPLY.

FROST PROOF HYDRANT MAY BE INSTALLED WITHIN TWO FEET OF WELL HEAD IF IT IS TO CONTINUE IN OPERATION AFTER CUSTOMER CONNECTS TO PUBLIC WATER SUPPLY



 WHITE HOUSE UTILITY DISTRICT	WHITE HOUSE UTILITY DISTRICT	DATE : SEPTEMBER 2006 SCALE : N.T.S.
	STANDARD DETAILS - WELL PIPEWORK SEPARATION FOR NEW AND EXISTING PUBLIC WATER SUPPLY CUSTOMERS	STD-BFP-7



DATE : SEPTEMBER 2006
SCALE : N.T.S.

STD-BFP-3

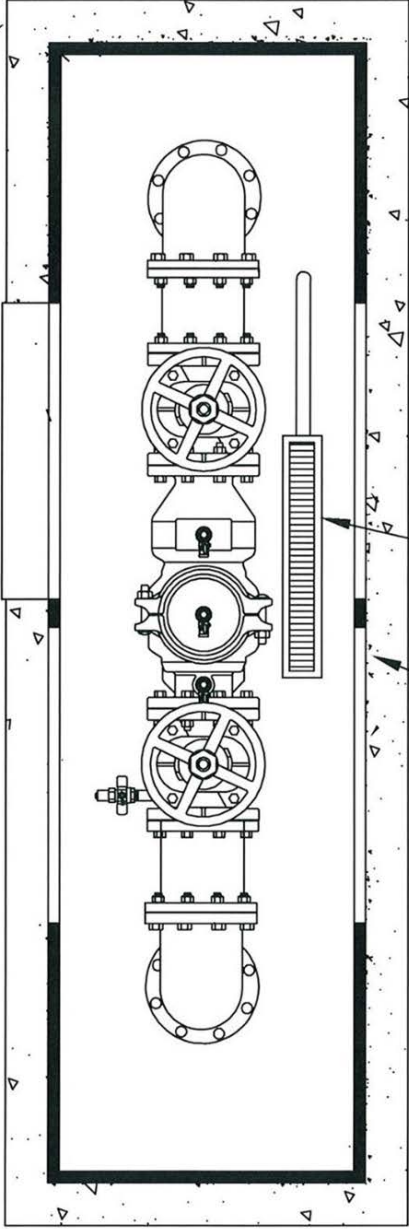
WHITE HOUSE UTILITY DISTRICT

STANDARD DETAILS - SMALL RPBP ELEVATION VIEW



ENCLOSURE FOUNDATION DIMENSIONS TO BE
24" LARGER IN WIDTH AND LENGTH THAN ENCLOSURE

HINGED DRAIN PANEL AND
REMOVABLE ACCESS PANELS



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

REMOVABLE ACCESS PANELS

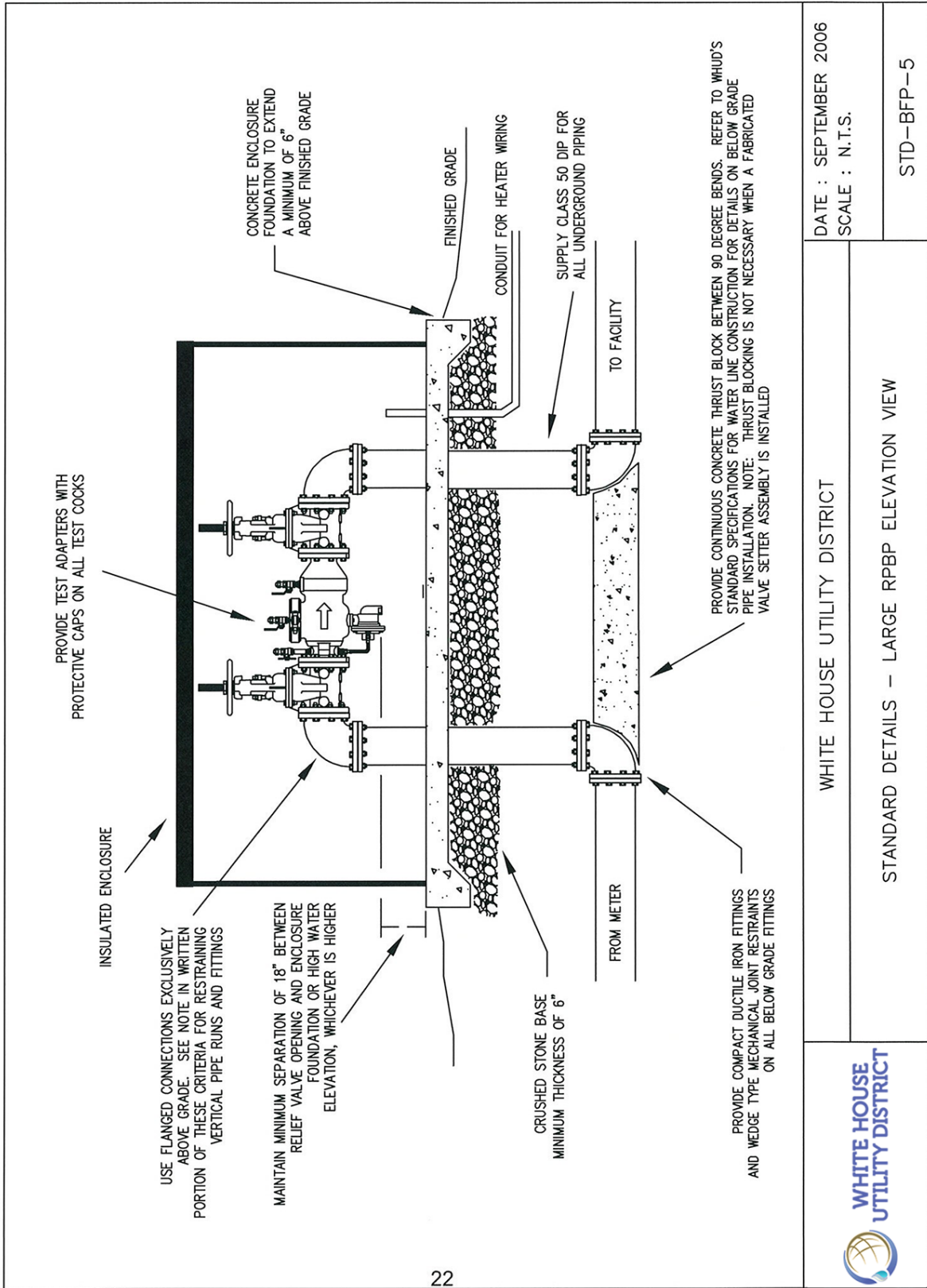
DATE : SEPTEMBER 2006
SCALE : N.T.S.

WHITE HOUSE UTILITY DISTRICT

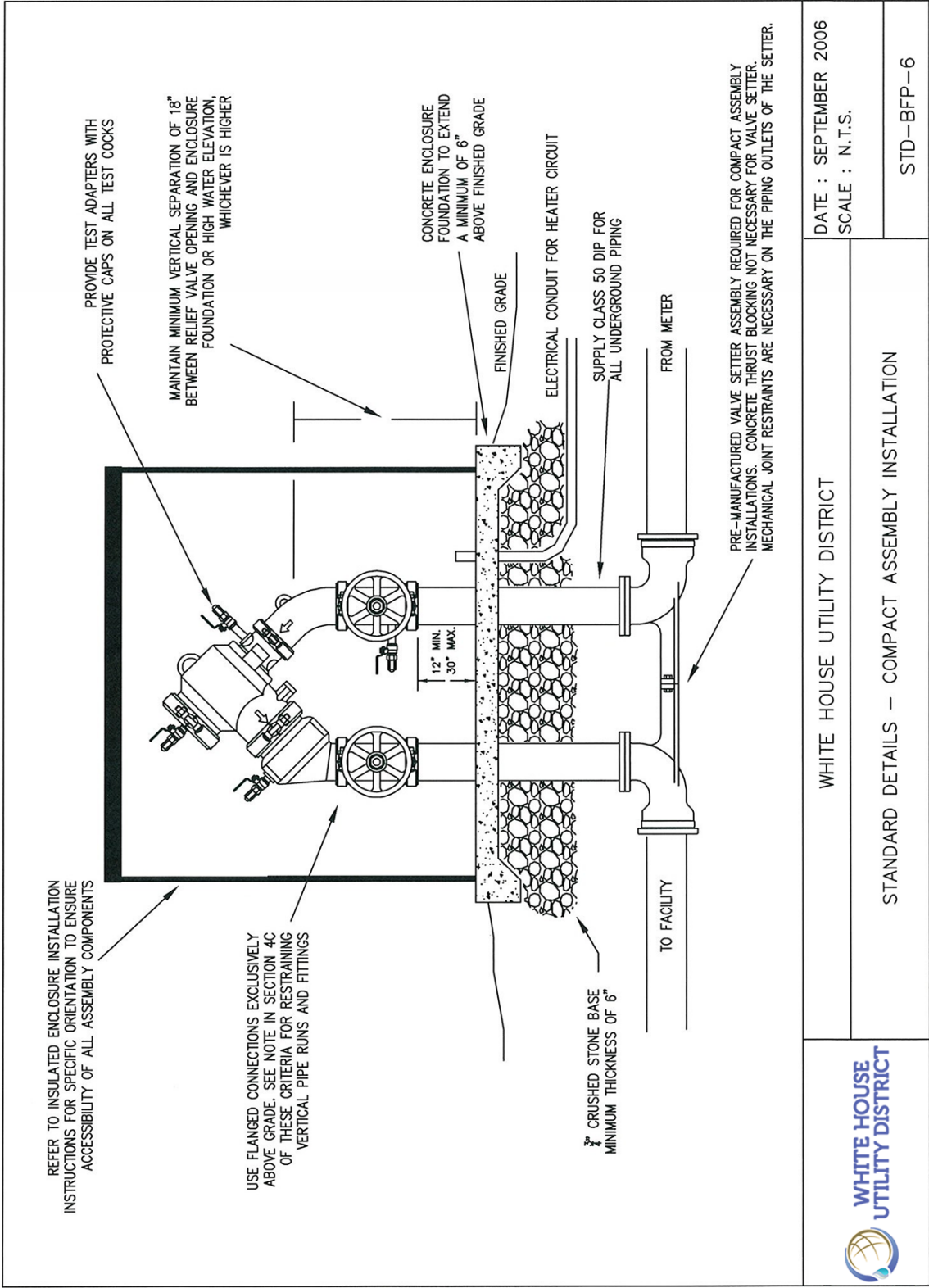
STANDARD DETAILS - LARGE RPBP PLAN VIEW

STD-BFP-4





 WHITE HOUSE UTILITY DISTRICT	WHITE HOUSE UTILITY DISTRICT STANDARD DETAILS – LARGE RPBP ELEVATION VIEW	DATE : SEPTEMBER 2006 SCALE : N.T.S.
		STD-BFP-5



REFER TO INSULATED ENCLOSURE INSTALLATION INSTRUCTIONS FOR SPECIFIC ORIENTATION TO ENSURE ACCESSIBILITY OF ALL ASSEMBLY COMPONENTS

PROVIDE TEST ADAPTERS WITH PROTECTIVE CAPS ON ALL TEST COCKS

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

USE FLANGED CONNECTIONS EXCLUSIVELY ABOVE GRADE. SEE NOTE IN SECTION 4C OF THESE CRITERIA FOR RESTRAINING VERTICAL PIPE RUNS AND FITTINGS

CONCRETE ENCLOSURE FOUNDATION TO EXTEND A MINIMUM OF 6" ABOVE FINISHED GRADE

FINISHED GRADE

ELECTRICAL CONDUIT FOR HEATER CIRCUIT

SUPPLY CLASS 50 DIP FOR ALL UNDERGROUND PIPING

FROM METER

TO FACILITY

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

PRE-MANUFACTURED VALVE SETTER ASSEMBLY REQUIRED FOR COMPACT ASSEMBLY INSTALLATIONS. CONCRETE THRUST BLOCKING NOT NECESSARY FOR VALVE SETTER. MECHANICAL JOINT RESTRAINTS ARE NECESSARY ON THE PIPING OUTLETS OF THE SETTER.

	WHITE HOUSE UTILITY DISTRICT	DATE : SEPTEMBER 2006 SCALE : N.T.S.
	STANDARD DETAILS – COMPACT ASSEMBLY INSTALLATION	STD-BFP-6