

**Harkers Island Sanitary District
Cross Connection Control Policy,
Standards & Details**

Prepared For:

Harkers Island Sanitary District
P.O. Box 1490
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By:

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**Harkers Island Sanitary District
Cross Connection Control Policy,
Standards & Details**

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Harkers Island Sanitary District Cross Connection Control Policy, Standards & Details

Section 1 Narrative and Purpose of Proposed Standards

The purpose of this policy is to protect the Harkers Island Sanitary District's potable water supply system from the possibility of contamination or pollution, due to backflow of contaminants or water from the consumer's private water system or other sources. This policy is intended to prevent delivered water that has passed beyond the District's water meter and into the consumer water system from re-entering the District's system as a result of backflow, back siphonage and/or cross-connection. The intent is to protect the District's water system and consumers on the supply side of the system at the service connection from possible contamination.

This policy serves to establish measures to be used for cross connection control within the District's water distribution system and standards for the selection, installation, testing and maintenance of backflow prevention devices as necessary. These standards are presented to assist the District in promoting uniformity and quality of construction and to set a standard for customers desiring water service from the District.

Section 2 Definitions

"Air-gap separation" shall mean a physical separation between the free-flowing discharge end of a potable water supply pipeline and an open or non-pressurized receiving vessel. An approved air-gap separation shall be at least double the inside diameter of the supply pipe measured vertically above the top rim of the receiving vessel, but in no case shall it be less than 1 inch.

"Approved" as used in reference to a type of backflow prevention assembly or methods, will mean an approval by the Harkers Island Sanitary District.

"Approved Backflow Prevention Assembly" shall mean those backflow prevention assemblies in conformance with AWWA standards, tested and approved by the Foundation for the Cross Connection Control and Hydraulics Research of the University of Southern California, the District or other regulatory entity having jurisdiction.

"AWWA" means the American Water Works Association.

"Backflow" means the undesirable reversal of flow of water or other liquids, mixtures, gases or other substances into or toward the District's water distribution system from any source or sources.

"Backflow Prevention Assembly" means an assembly used to prevent backflow into a potable water system.

"Back Siphonage" means a form of backflow due to a reduction in system pressure which causes a negative or sub-atmospheric pressure to exist at a site in the water system.

"A Certified Backflow Prevention Assembly Tester" means a person who has proven his or her competency in testing, repair and making test reports on approved backflow prevention assemblies to the satisfaction of the District and NCDENR, Public Water Supply Section and AWWA.

"Backpressure" means any elevation of pressure in the downstream piping system above the supply pressure at the point of consideration which would cause or tend to cause a reversal of the normal direction of flow through the backflow prevention assembly.

"Consumer, Customer or User" means the owner or operator of a private water system served from the District's system.

"Consumers Potable Water System" will mean that portion of the privately owned potable water system lying between the point of service and the point of use. This system will include all pipes, conduits, tanks, receptacles, fixtures, equipment and appurtenances used to produce, convey, store or use potable water.

"Contamination" will mean an impairment of the quality of the water which creates an actual hazard to the public health through poisoning or through the spread of disease by sewage, industrial fluids or waste.

"Cross-Connection" will mean any unprotected actual or potential connection or structural arrangement between the District's or a consumer's potable water system and any other source or system through which it is possible to introduce into any part of the potable system any used water, industrial fluid, gas or substance other than the intended potable water with which the system is supplied. By-pass arrangements, jumper connections, removable sections, swivel or change over devices and other temporary or permanent devices through which or because of which "backflow" can or may occur are considered to be cross-connections.

"Degree of Hazard" will be derived from the evaluation of conditions within a system which can be classified as either a pollution (non-health) or a contamination (health) hazard. The highest degree of hazard will determine the type of backflow prevention device required at the service connection to the premises to protect the public water supply system.

"District" shall mean the Harkers Island Sanitary District.

"Double Check Valve Assembly" will mean an assembly composed of two independently acting check valves, including tightly closing shutoff valves attached on each end of the assembly and fitted with properly located test cocks available for testing the water tightness of each check valve.

"Health Agency" will mean the North Carolina Department of Environment and Natural Resources (NCDENR), Public Water Supply Section.

"Health Hazard" will mean an actual or potential threat of contamination of a physical or toxic nature to the District's water system or the consumer's potable water system that would be a danger to health.

"Hazard - Plumbing" will mean an internal or plumbing type cross-connection in a consumer's potable water system that may be either a pollutional or a contamination hazard. This includes, but is not limited to cross-connections to toilets, sinks, lavatories, wash trays, washing machines and lawn

sprinkler systems. The consumer is responsible for providing an appropriate cross-connection control device.

“Hazard - Pollutional” will mean an actual or potential threat to the physical properties of the water system or the potability of the public or the consumer’s potable water system but which would not constitute a health or system hazard, as defined. The maximum degree of intensity of pollution to which the potable water system could be degraded under this definition would cause a nuisance or be aesthetically objectionable or could cause minor damage to the water system or its appurtenances.

“Hazard - System” will mean an actual or potential threat of severe danger to the physical properties of the public or the consumer’s potable water system or of a pollution or contamination which would have a protracted impact on the quality of the potable water in the system.

“Hospital” will mean any institution, place, building or agency which maintains and operates facilities for one or more persons for the diagnosis, care and treatment of human illness, including convalescence and care during and after pregnancy or which maintains and operates facilities for any such purpose to which persons may be admitted for an overnight stay or longer. The term Hospital includes sanitarium, nursing home and maternity home.

“Industrial Fluids” will mean any fluid or solution which may be chemically, biologically or otherwise contaminated or polluted in a form or concentration that would constitute a health hazard if introduced into a potable water supply.

“Laboratory Approved Testing” will mean the Foundation for Cross-Connection Control and Hydraulic Research, University of Southern California or another laboratory having the equivalent facilities for both the laboratory and field evaluation of backflow prevention devices and approved by the District.

“Point of Service” will generally mean the customer’s property line, after the meter installation, where the District loses jurisdiction and sanitary control over the water at its point of delivery to the consumer’s water system.

“Potable Water” will mean water from any source which has been approved by the jurisdictional regulatory authority (NCDENR) for human consumption.

“Reduced Pressure Principle Backflow Prevention Assembly” will mean an assembly containing two independently acting approved check valves together with a hydraulically operating, mechanically independent pressure differential relief valve located between the check valves and at the same time below the first check valve.

“Service Connection” shall mean the District’s water pipe and appurtenances from the District’s water main to the terminal end of service at the consumer’s system. The terminal end is defined as the downstream end of the meter installation.

“Thermal Expansion”, as it relates to residential water heaters, is the incremental expansion of the water volume within a water heater, as a result of the rising water temperature. In public water systems with residential backflow prevention devices, the expanding volume of water is closed off from the water main and could lead to an unsafe rise in pressure within the home owner’s tank, if not fitted with appropriate mitigation measures such as a pressure relief valve and expansion tank.

“Unapproved Water Supply” will mean a water supply which has not been approved for human consumption by the NCDENR.

“Water System - Public Potable” will mean the District owned water mains operated as a public utility, under a current health permit from (NCDENR), to furnish water for domestic purposes. This system will include all facilities and appurtenances between the approved water supply and the point of service such as valves, pumps, pipes, conduits, tanks, receptacles, fixtures, equipment and appurtenances used to convey water for public consumption use.

“Water System - Consumer’s Potable” will mean that portion of the privately owned potable water system lying between the point of delivery and the point of use. The system will include all pipes, conduits, tanks, receptacles, fixtures, equipment and appurtenances used to produce, convey, use or store potable water.

Section 3 Responsibility

The Harkers Island Sanitary District has the responsibility to prevent water from unapproved sources or any other substance, from entering the District's water system. The District is responsible for the prevention of contamination and pollution of the water system. Such responsibility begins at the point of origin of the District's water supply and includes treatment facilities, and water mains, and ends at the point of service of the consumer's water system. The District will insure adequate backflow and back-siphonage protection is maintained on the customer's water system directly connected to the District's system.

If the District determines that a pollutant or contaminant on the premises or property of the water customer constitutes a hazard to the public water system, the water customer must install a backflow prevention device approved by the District on all water lines entering the premises from the District's water main. The type of backflow prevention device required will be determined by the nature of the customer's system and the degree of hazard it represents.

Prior to the installation of any backflow prevention assembly, the owner/consumer of the private water system should be aware that the installation of a backflow prevention assembly may result in thermal expansion within the customer's system. The consumer is responsible for protecting it's water system from the possible effects of thermal expansion. The customer should consult with their plumber and water heater manufacturer, for appropriate mitigation measures.

Thermal expansion is the expansion of the water volume within a water heater, as a result of the rising water temperature imparted by the heating source. In public water systems with residential backflow prevention devices, the expanding volume of water is closed off from the water main and could lead to an unsafe rise in pressure within the home owner's tank, if not fitted with appropriate mitigation measures such as a pressure relief valve and expansion tank. Current plumbing code requires newer water heaters to have such devices installed; however older or poorly maintained water heaters may be vulnerable to these conditions and should be retro-fitted with the appropriate mitigation devices or replaced with one that meets current plumbing code.

The consumer is responsible for preventing contaminants and pollutants from their water system from entering the District's water system as required by this policy and regulatory authorities.

The District shall not be responsible for any loss or damage to any customer, any person, or property, directly or indirectly resulting from or caused by any improper or negligent installation, operation, use, repair, maintenance, or interfering with, any approved backflow prevention assembly, required by this policy.

The customer will be responsible and bear all costs for the design and installation of approved backflow prevention assemblies, enclosures, and appurtenances in accordance with this policy, standards and details. The customer shall also be responsible for the testing, operation and maintenance of the backflow prevention assembly and bear all costs.

The provisions and recommendations of the following publications are hereby adopted by reference:

- "Recommended Practice for Backflow Prevention and Cross-Connection Control", Manual 14, published by AWWA, 1990 or latest edition.
- "The Manual of Cross-Connection Control", published by the Foundation for Cross Connection Control and Hydraulic Research of the University of Southern California, 9th or latest edition.
- "Cross-Connection Control Manual", published by USEPA (revised 2003) or latest revision.

Section 4 Level of Protection

The type of protection that will be provided to prevent backflow into the District's water system shall be commensurate with the degree of hazard that exists on the consumer's premises. The type of approved backflow prevention assemblies that may be required include: air-gaps, double check valve assemblies, reduced pressure backflow prevention assemblies and dual check valve assemblies. Situations, which are not covered in this policy, shall be reviewed on a case-by-case basis and the appropriate backflow protection shall be determined by the District.

Section 5 Customer Responsibilities

The customer shall furnish and install all approved backflow prevention assemblies in accordance with this policy and as directed by the District. All backflow prevention assemblies shall be kept in good working order.

Upon notification by the District, the customer shall test, repair or replace existing air gap separation and backflow prevention assemblies determined to be unapproved, defective or not providing the level of protection specified in this policy. All work shall be arranged and paid for by the owner through private contract with an approved and certified backflow prevention installer.

The customer shall bear all costs of testing and inspections provided by the certified backflow prevention assembly tester. The customer shall also bear all costs for the maintenance, repairs and replacement of existing air gap and backflow prevention assemblies.

The customer is responsible for obtaining the necessary building or plumbing permits for new consumer water system installations and for alterations or repairs to their existing system.

The customer's premises shall be available for inspection by the District at all reasonable times, to determine if protection of the District's water system is required or being maintained.

Section 6 Backflow Prevention Device Installers

The installer's responsibility is to make proper installation of backflow prevention device assemblies in accordance with the manufacturer's installation instructions, requirements by the District and best practice. The installer will also be responsible to ensure the device is working properly when installed and will be required to furnish to the District, the following information:

- | | |
|----------------------------|---|
| 1) Service address | 5) Date of installation |
| 2) Owners name | 6) Manufacturer, Model & Serial number |
| 3) Type of device and size | 7) Names of contaminant or pollutant used on premises |
| 4) Description of location | 8) Completed copy of test report by a certified tester. |

All backflow prevention assemblies are required to be tested following installation and by a certified backflow prevention device technician approved by the District.

Section 7 Approval of Backflow Prevention Assemblies

All backflow prevention assemblies shall be the type approved by the University of Southern California Foundation for Cross Connection Control and Hydraulic Research and the District. The District reserves the right to accept or reject a backflow prevention assembly, deemed in the best interests of the District. The consumer shall submit proposed backflow prevention assembly and installation information, including make and model number, manufacturer catalog data and cut-sheets, descriptive literature and certifications, to the District for review and approval, prior to ordering and installation.

Section 8 Certification of Backflow Prevention Assembly Testers

Backflow prevention assembly testers are limited to those individuals with a current certificate of competence from a training entity approved by NCDENR, AWWA and the District. The District shall have final authority to accept or reject an individual selected by the consumer for testing of any backflow prevention device assemblies connected to its water system.

Section 9 Testing

Testing of backflow prevention assemblies shall be performed by a certified backflow prevention assembly tester, arranged and paid for by the consumer. Approved backflow prevention assemblies shall be tested immediately after installed, relocated or repaired. They shall not be placed into service until functioning as required. The consumer shall advise the District in advance of testing to allow a representative from the District to witness the test. At a minimum each backflow prevention assembly shall be tested for proper function at the time of installation and annually thereafter. In instances where a hazard is deemed great enough, testing may be required at more frequent intervals. Test procedures shall be as recommended by the University of Southern California Foundation for Cross Connection Control and Hydraulic Research and AWWA.

The appropriate test form shall be provided and completed by the Certified Backflow Prevention Assembly Tester and submitted to the District for review and approval, prior to placing the device into service and annually as described above. The consumer is responsible for maintaining records of tests and repairs. The District will keep a copy of the tests for compliance review as may be required by NCDENR. See attachments for example test reporting form

Section 10 Implementation

- A. New Construction - all new backflow prevention control assemblies shall be designed by a North Carolina licensed Professional Engineer. Construction plans shall be submitted to the District for review and approval prior to construction. Each submittal shall be accompanied by a written report on the degree of hazard expected from the customer's site and basis for the equipment proposed. The District shall make a site survey to confirm the proposed backflow prevention assembly meets the requirements of this policy, the USC Foundation for Cross-Connection Control Manual, AWWA and NCDENR.

The District will not approve a development's water system or provide water service, until a backflow prevention assembly installation detail, meeting the requirements of this policy, has been submitted and approved. The District will not provide water service until the approved backflow prevention assembly has been satisfactorily installed and tested. See attached permit application.

- B. Existing Backflow Assemblies - existing cross-control and backflow prevention assemblies, not previously the subject of a hazard site survey, shall be inspected for compliance with this policy and USC Foundation for Cross-Connection Control Manual of Cross-Connection Control, AWWA and NCDENR standards and regulations.

Any deficiencies found by the District shall be reported to the owner of the assembly and a written order for correction, repair and/or retrofit shall be issued. The owner will have 60 days to make the necessary improvements for compliance. The owner shall notify the District when the work is completed and a re-inspection will be made. Non-compliance with the written order shall be grounds for termination of water service.

Section 11 Installation Requirements

Approved backflow prevention assemblies shall have the same size diameter as the existing or proposed water meter. Approved backflow prevention assemblies shall have the same size diameter as the water service connection on un-metered services. Installation requirements are listed in decreasing levels of protection:

A. Air-Gap Separation (AG):

1. Is the physical separation between the discharge end of a potable water supply pipeline and an open or non-pressure receiving vessel.

An approved air-gap separation shall be at least double the diameter of the supply pipe measured vertically above the overflow rim of the receiving vessel and in no case be less than one (1) inch.

No outlet, tap, tee, or connection between the water main and backflow preventer is allowed.

2. Point of Service:
 - a. Point of service is the meter location.
 - b. Where the point of service is unclear, the location shall be determined by the District.
3. PVC pipe shall not be used for the above ground portion of the installation.
4. Approved air-gap separation shall be installed within 5 feet from the point of service or meter, unless otherwise approved by the District.
5. All piping shall be above ground and visible. In no case shall piping installed below ground exceed twelve (12) inches from the point of service or meter.

B. Reduced Pressure Principle Backflow Prevention Assembly (RP):

1. Reduced pressure principle backflow prevention assemblies, must be installed by a licensed plumber or utility contractor. Once connected to the District's water system, shall be tested by a certified backflow assembly tester and approved by the District, prior to being placed into service.
2. Point of Service:
 - a. Point of service is the meter location.
 - b. Where the point of service is unclear, the location shall be determined by the District.

3. The reduced pressure backflow prevention assembly shall be installed above ground, in a horizontal and level position. The assembly shall be located on the customer's side and no further than five feet from the point of service or the meter. The assembly shall be installed in a protective enclosure or above ground vault, with lockable hatch and of dimensions suitable to allow easy access for maintenance and testing. Freeze protection is recommended during fall and winter seasons. Protection should be removable for assembly maintenance and testing. Protection shall not obstruct the relief valve discharge port opening.
4. No outlet, tap, tee, or connection between the water main and backflow preventer is allowed.

C. Double Check Valve Assembly (DCVA) for Domestic and Fire Service:

1. Double check valve assemblies must be installed by a licensed plumber or utility contractor. Once connected to the District's water system shall be tested by a certified backflow assembly tester and approved by the District, prior to being placed into service.
2. Point of Service:
 - a. Point of service is the meter location.
 - a. Where the point of service is unclear, the location shall be determined by the District.
3. The double check valve assembly shall be installed above ground, in a horizontal and level position. The assembly shall be located on the customer's side and no further than five feet from the point of service or the meter. The assembly shall be installed in a protective enclosure or above ground vault, with lockable hatch and of dimensions suitable to allow easy access for maintenance and testing. Freeze protection is recommended during fall and winter seasons. Protection should be removable for assembly maintenance and testing.

Section 12 Specific Facilities and Type of Backflow Protection Required

Situations which are not covered in this policy shall be evaluated on an individual basis. Appropriate backflow prevention will be determined by the District.

The District shall require an approved double check valve backflow prevention assembly on any fire service sprinkler system serving single family or multifamily residences, commercial, industrial or institutional customers.

The following types of facilities or services that may be supplied water from the District shall have an approved backflow prevention assembly installed according to the degree of hazard present. As a general rule, all commercial customers will be required to install, at a minimum, a double check valve assembly, unless otherwise listed as follows:

1. Aircraft and missile plants - RP
2. Automotive plants - RP
3. Autopsy facilities - RP
4. Auxiliary water system - defined as any water supply on, or available to, a customer's premises other than the District's water system:
 - (a) auxiliary water system with no known cross-connection - DC
 - (b) auxiliary water system with known cross-connections - RP
 - (c) unapproved public/private water supply -AG
5. Beverage bottling plants - RP
6. Bakeries - DCVA
7. Beauty or Barber shops - DCVA
8. Breweries - RP
9. Buildings (Hotels, apartment houses, public and private buildings or other structures having unprotected cross-connections:

 (Under five stories) No health hazard: DCVA
 (Under five stories) Health hazard: RP
 (Over five stories) All: RP
10. Canneries, packing houses and rendering plants - RP
11. Chemical plants, manufacturing, processing, compounding or treatment - RP
12. Chemically contaminated water systems - any premises served where chemicals are used as additives to the water supply or where the water supply is used for transmission or distribution of chemicals or where chemicals are used with the water in the compounding or processing of products - RP

13. Commercial car wash facilities - RP
14. Commercial greenhouses or nurseries - RP
15. Concrete / asphalts plants - RP
16. Dairies and cold storage plants - RP
17. Convalescent homes - RP
18. Decorative fountains, waterfalls, ponds, etc. - RP
19. Dental clinics - RP
20. Dry cleaning facilities - RP
21. Dye works - RP
22. Film laboratories - RP
23. Hospitals, medical buildings, sanitarium, morgues, mortuaries, autopsy facilities, nursing and convalescent homes, clinics and veterinary hospitals - RP
24. Ice manufacturing plants - RP
25. Irrigation systems - RP
26. Individual commercial sales establishments:
No health hazards - DCVA
Health hazard - RP
27. Industrial facilities:
No health hazard - DCVA
Health hazard - RP
28. Laboratories - RP
29. Laundries - RP
30. Metal manufacturing, cleaning, processing
or fabrication plants - RP
31. Mobile home & RV parks - RP
32. Mortuaries - RP
33. Morgues - RP
34. Oil and gas production, storage or transmission - RP
35. Paper and paper products plants - RP
36. Plating plants - RP
37. Pest control - RP
38. Power plants - RP
39. Portable spray and cleaning equipment - AG

40. Public swimming pools - RP
41. Radioactive materials or substances - plants or facilities that process or handle - RP
42. Restricted, classified or other closed facilities - RP
43. Rubber manufacturing plants - RP
44. Sand and gravel plants - RP
45. Schools - RP
46. Vehicle washing facilities - RP
47. Veterinary clinics - RP
48. Waterfront facilities and industries - including docks, fisheries, fish hatcheries, marinas - RP

All assemblies and installations shall be subject to inspection and approval by the Harkers Island Sanitary District. Filling of tanks/tankers or any other container from a District fire hydrant is prohibited unless it has been equipped with the proper meter and backflow (air-gap) protection and has obtained permission from the District.

All single family residential homes/services will be considered a low hazard and shall have a dual check valve (DC) installed directly after the water meter. (See attached residential service and meter installation details).

Section 13 Temporary Water Use

A. Temporary Water Service Connection to Main

1. A temporary water service connection may be one to two inches in diameter. The fee for temporary water service shall be based upon the District's water service charges and rates.
2. A reduced pressure backflow prevention assembly shall be furnished and installed by the owner/contractor and tested by a certified backflow assembly tester before placing into service.
3. Drawings of the installation shall be submitted to the District for review. Documentation of the backflow assembly test results, tester's certification and the District's approval shall be required, prior to placing the temporary connection in service.

B. Water Use from Fire Hydrants

Permission from the District is required for all water use from fire hydrants.

1. Temporary water use from fire hydrants requires the installation of a reduced pressure backflow assembly.
2. Consumer shall furnish, install and have tested all backflow assemblies for temporary water use.
3. If desired by the customer, the District may supply and install the backflow prevention assembly for a fee.
4. The contractor/customer shall be responsible for the security and condition of the backflow assembly for the duration of use. Any backflow prevention assemblies provided by the District shall be returned to the District upon completion of work.

Section 14 Penalties for Non-Compliance

If the District finds the customer to be in violation of this policy, appropriate administrative and/or legal remedies shall be taken. Such penalties may include fines and discontinuance of water service.

Notification of intent to terminate water service shall be delivered by the District to the customer residence where hazards to the public water system exist.

The following notices shall be mailed to each owner of a cross-connection and backflow prevention assembly:

- a. 30-day notice of the annual inspection being due
- b. Notice of needed repair observed by the District
- c. Notice of non-compliance
- d. Notice of termination of water service.

The owner/customer of an unprotected cross-connection which has an imminent hazard to the District's water system is subject to a fine of \$ 1,000 per day not to exceed \$ 10,000.

The owner/customer that fails to perform annual tests, submit test results to the District or fails to maintain their backflow prevention assembly is subject to a fine of \$ 100 per day.

Section 15 Public Awareness

The District will issue news releases to the local press regarding issues related to cross-connection control and backflow prevention. Open discussion will be held during scheduled public Board meetings to inform the public of current and changing policies. News bulletins will also be included in monthly billings, as needed, to inform the water customers of changing policies and requirements of installing cross-connection and backflow prevention assemblies.

Section 16 Continued Education and Training

The District supports training and continued education for its employees and management team who are certified backflow prevention testers and technicians. Attendance at seminars and workshops is encouraged.

This policy is hereby adopted by the District and approved this _____ day of _____ 2011.

Ayes:

Nays:

Absent:

Abstentions:

Harkers Island Sanitary District

By: _____
Clifford Rice, Chairman

Attest: _____

Section 17 Attachments

- Customer Notification Letter & Inquiry
- Cross-Connection Control and Backflow Preventer - Permit Application
- Backflow Preventer - Test & Maintenance Report Form
- Backflow Preventer Assembly - Installation Details

Harkers Island Sanitary District
P.O. Box 1490
Newport, N. C. 28570

Date: _____

Re: Water Distribution System - Cross-Connection Control Program

Dear Customer:

The Safe Drinking Water Act of 1974, promulgated by the Federal government and administered by the EPA and the NC Department of Environment and Natural Resources (NCDENR), defines the maximum contaminant levels allowed in a public water supply and designates the water supplier as the prime entity responsible for insuring safe drinking water at the tap. This poses a problem for water suppliers such as Harkers Island Sanitary District. We have no control over a customer's private water system, yet we are liable if pollutants from a customer's building should enter and contaminate the District's public water supply. Such contamination may occur by backflow through unprotected cross-connections between the potable public supply and potential contaminants in the customer's private water system.

For this reason, and in compliance with the Safe Drinking Water Act, the District adopted a Cross Connection Control Policy requiring all residential, commercial, industrial or institutional users to install a backflow prevention assembly. The policy was adopted on _____, and will be effective _____.

Your facility may already have an approved assembly installed. In order to assess the risk at each site, we would appreciate your cooperation in answering the attached permit application.

Based upon the information provided, you will be notified in writing if and when you need to install a backflow prevention assembly, make repairs to existing backflow prevention assemblies or provide the District with an annual backflow prevention assembly test and maintenance report.

Should you have any questions, please contact the District at _____. Please fill out the enclosed document and return it in the enclosed self-addressed envelope. Your cooperation is greatly appreciated.

Sincerely,

Clifford Rice, Chairman
Harkers Island Sanitary District

**HARKERS ISLAND SANITARY DISTRICT
WATER DISTRIBUTION SYSTEM
CROSS CONNECTION CONTROL AND BACKFLOW PREVENTION PROGRAM
PERMIT**

PROPERTY OWNER _____

FIRST NAME _____ LAST NAME _____

COMPANY/
PROPERTY OWNER _____ PHONE _____

CITY _____ STATE _____ ZIP _____

ADDRESS OF
OCCUPANT _____ PHONE _____

CITY _____ STATE _____ ZIP _____

- | | | |
|--|-----|----|
| 1. Do you have an existing back-flow device? | Yes | No |
| 2. Is there any mixing of water and other substances in your operation? | Yes | No |
| 3. Are there any toxic chemicals used in your operation? | Yes | No |
| 4. Does your cooling system utilize recycled water? | Yes | No |
| 5. Are there any other sources of water to your property for fire protection or additional storage, e.g. private well, elevated storage fed from a well? | Yes | No |
| 6. Is this service for lawn irrigation only? | Yes | No |
| 7. WILL SPRINKLER SYSTEM USE CHEMICALS? | Yes | No |
| 8. Type of facility, e.g. commercial, industrial, medical, institutional | | |

9. Type of operation, e.g. retail container co., warehouse, mfg. plant

10. List type(s) of equipment used in your facility, e.g. chemical feed tanks, mixing vats, dishwashers, booster pumps, cooling towers)

Contact Person _____ Phone _____

DATE OF APPROVAL _____

HARKERS ISLAND SANITARY DISTRICT

CROSS CONNECTION CONTROL PROGRAM TEST AND MAINTENANCE REPORT

CUSTOMER _____

STREET ADDRESS _____

ASSEMBLY LOCATION _____

TYPE OF ASSEMBLY: RP ☐ DC ☐ PVB ☐ SIZE _____

MANUFACTURER _____

MODEL _____ SERIAL NO _____

RELIEF VALVE	CHECK VALVE #1	CHECK VALVE #2	PRESSURE VACUUM BREAKER
OPENED AT _____ PSID DID NOT OPEN ☐	LEAKED ☐ CLOSED TIGHT ☐ DIFF PRESSURE ACROSS CHECK VALVE _____ PSID	LEAKED ☐ CLOSED TIGHT ☐ DIFF PRESSURE ACROSS CHECK VALVE _____ PSID	AIR INLET OPENED AT _____ PSID DID NOT OPEN ☐ CHECK VALVE: LEAKED HELD AT _____ PSID
CLEANED ONLY ☐ REPLACED ☐ RUBBER KIT ☐ RV ASSEMBLY ☐	CLEANED ONLY ☐ REPLACED ☐ RUBBER KIT ☐ CV ASSEMBLY ☐	CLEANED ONLY ☐ REPLACED ☐ RUBBER KIT ☐ CV ASSEMBLY ☐	CLEANED ONLY ☐ REPLACED ☐ RUBBER KIT ☐ CV ASSEMBLY ☐
OPENED AT _____ PSID	CLOSED TIGHT _____ PSID	CLOSED TIGHT _____ PSID	AIR INLET _____ PSID CHECK VALVE _____ PSID
SHUT OFF VALVE #1		SHUT OFF VALVE #2	
LEAKED ☐	CLOSED TIGHT ☐	LEAKED ☐	CLOSED TIGHT ☐

NOTE: ALL REPAIRS MUST BE COMPLETED WITHIN THIRTY DAYS.

REMARKS: _____

I HEREBY CERTIFY THAT THIS DATA IS ACCURATE AND REFLECTS THE PROPER OPERATION AND MAINTENANCE OF THE ASSEMBLY.

Initial Test by _____ Certified Tester No. _____ Date _____

Repaired by _____ Date _____

Final Test by _____ Certified Tester No. _____ Date _____

Domestic ☐ Fire ☐ Lawn Irrigation ☐ New Test ☐ Recertification Test ☐

Water Meter No. _____ Plumbing Permit No. _____

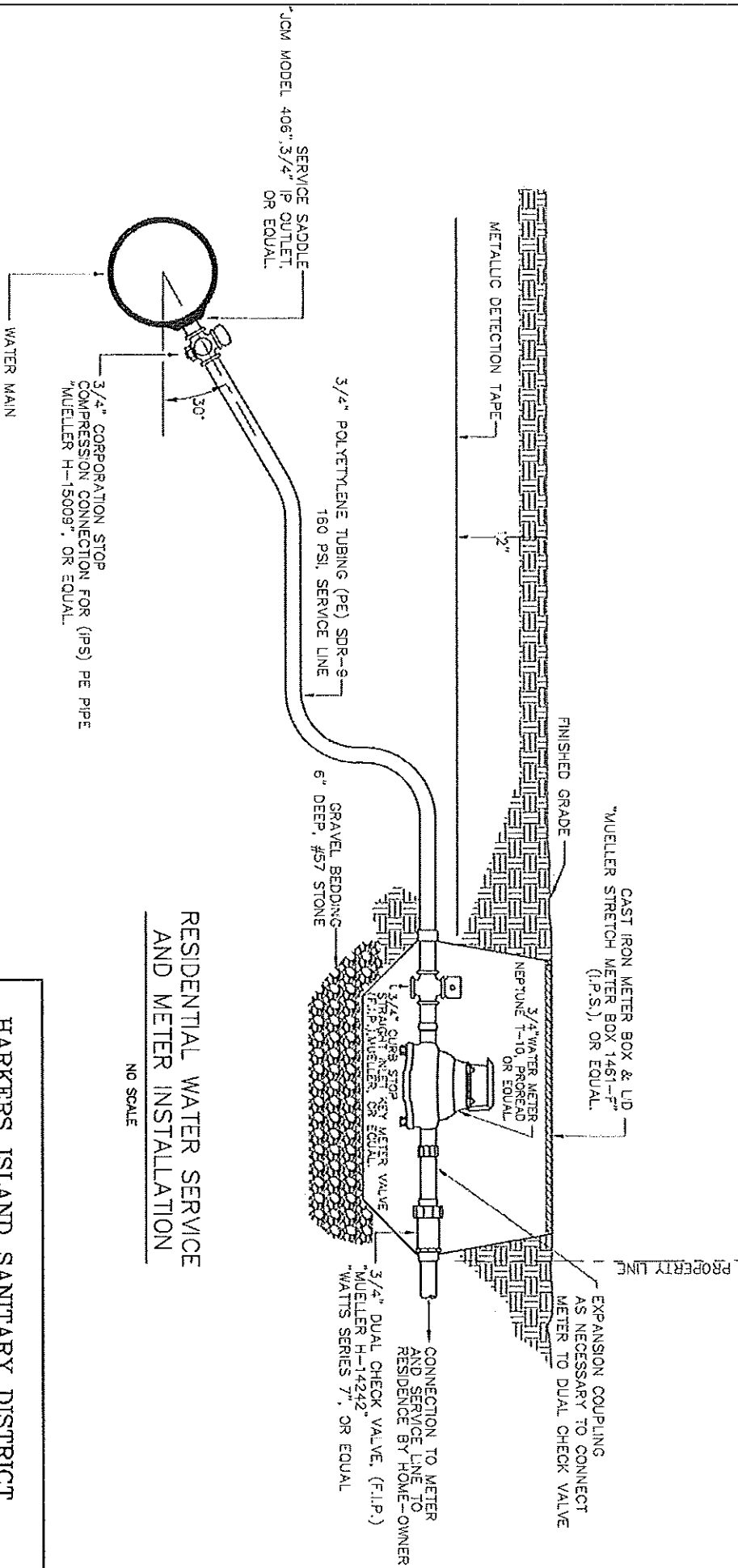
Test Kit Serial No. _____ Differential ☐ Duplex ☐ Electronic ☐

Line Pressure _____ PSI Time of Day: _____ AM ☐ PM ☐

Signature of Tester _____

RETURN TO: Harkers Island Sanitary District
 P.O. Box 1490
 Newport, N. C. 28570

RIGHT-OF-WAY | PRIVATE PROPERTY



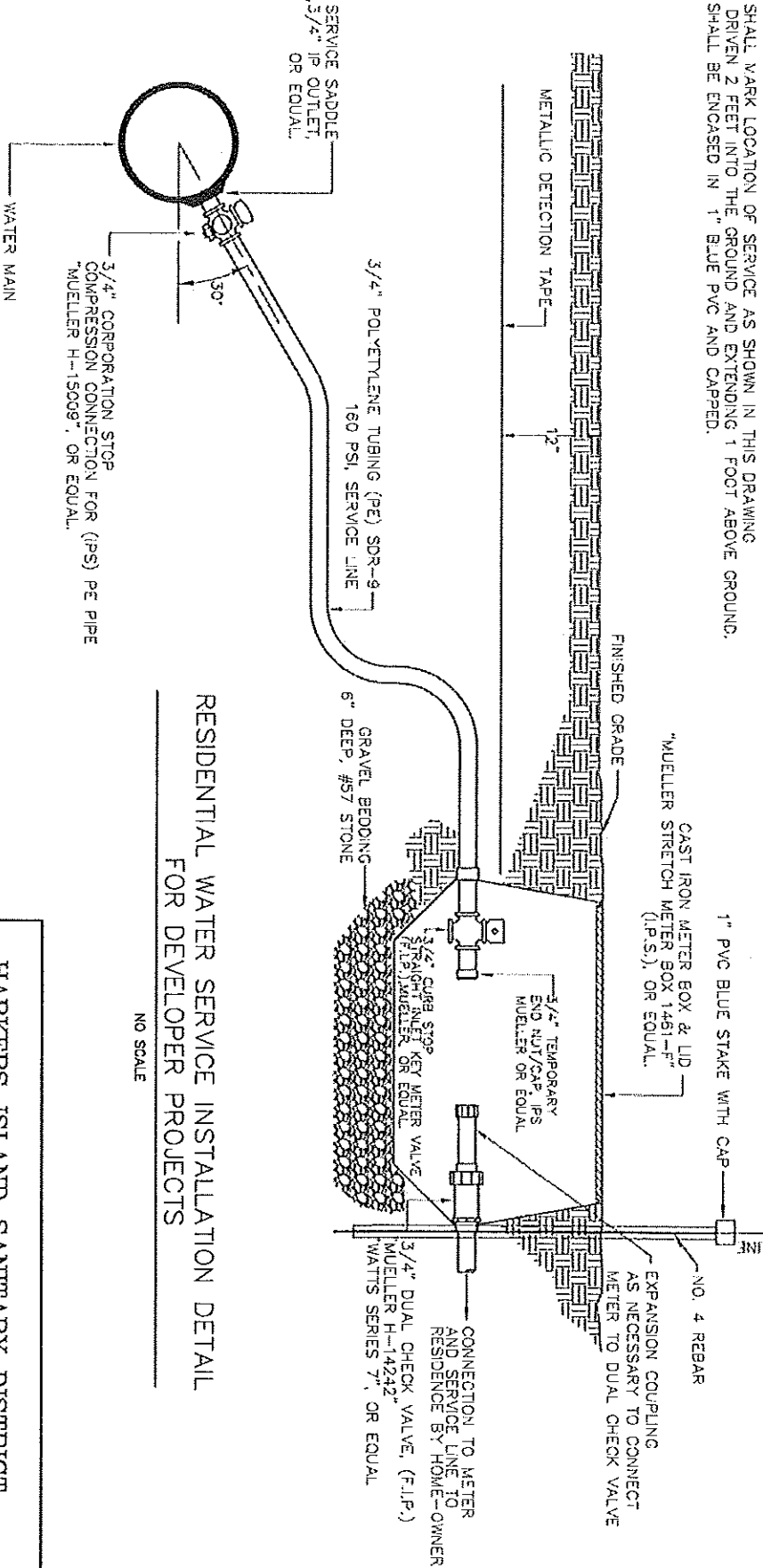
RESIDENTIAL WATER SERVICE
AND METER INSTALLATION

NO SCALE

HARKERS ISLAND SANITARY DISTRICT		
3/4" RESIDENTIAL WATER SERVICE AND METER INSTALLATION DETAIL		
DATE: 2/21/2011	REVISED:	DRAWING NO.
SCALE: N.T.S.	APPROVED BY:	HISD-WM1

NOTES:

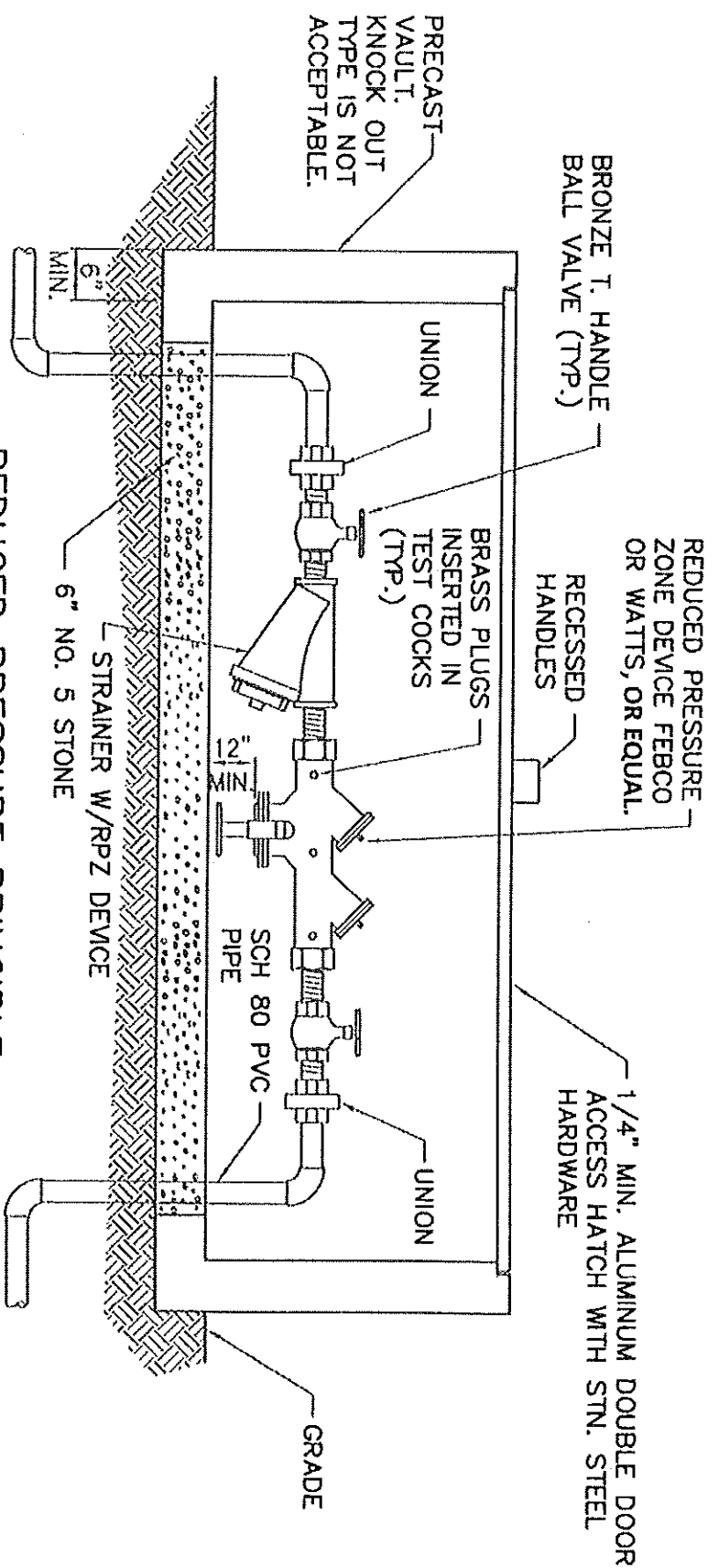
1. DEVELOPER IS RESPONSIBLE FOR INSTALLING THE WATER SERVICE LINE AND METER BOX AS SHOWN IN THIS DRAWING. METER BOX SHALL BE "MUELLER STRETCH METER BOX MODEL 1461-F, WITH INLET KEY METER VALVE, DUAL CHECK VALVE AND EXPANSION COUPLING (WHEEL) PRE-INSTALLED BY MANUFACTURER. HARKERS ISLAND SANITARY DISTRICT IS RESPONSIBLE FOR INSTALLING THE METER.
2. DEVELOPER SHALL MARK LOCATION OF SERVICE AS SHOWN IN THIS DRAWING WITH REBAR DRIVEN 2 FEET INTO THE GROUND AND EXTENDING 1 FOOT ABOVE GROUND. THE REBAR SHALL BE ENCASED IN 1" BLUE PVC AND CAPPED.



RESIDENTIAL WATER SERVICE INSTALLATION DETAIL FOR DEVELOPER PROJECTS

NO SCALE

HARKERS ISLAND SANITARY DISTRICT			
3/4" RESIDENTIAL WATER SERVICE INSTALLATION FOR DEVELOPER PROJECTS			
DATE: 2/21/2011	REVISED:	DRAWING NO.	
SCALE: N.T.S.	APPROVED BY:	HISD-WM2	



**REDUCED PRESSURE PRINCIPLE
BACKFLOW PREVENTOR - 2 1/2" AND SMALLER**
NOT TO SCALE

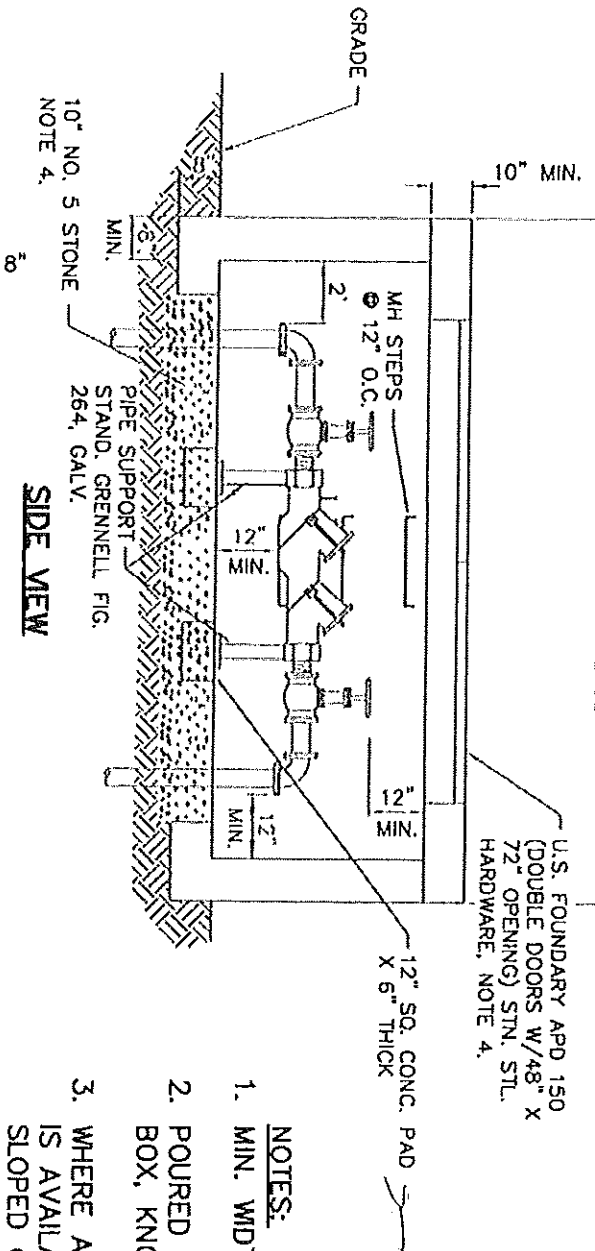
NOTES:

1. MIN. WIDTH OF BOX 4' INSIDE.
2. POURED CONCRETE OR PRECAST CONCRETE BOX, KNOCK-OUT TYPE IS NOT ACCEPTABLE
3. WHERE A POSITIVE DRAIN (NO SURCHARGING) IS AVAILABLE, A FLOOR DRAIN WITH A 2" SLOPED CONCRETE BOTTOM MAY BE USED AND VAULT AND THE VAULT CAN BE INSTALLED WITH THE TOP 2" ABOVE GRADE.
4. IF SUBJECT TO TRAFFIC PROVIDE A HEAVIER DOOR.

HARKERS ISLAND SANITARY DISTRICT			
REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTOR - 2 1/2" AND SMALLER			
APPROVED BY:	DATE 2/23/11	DRAWING NO.	
SCALE:	NTS	REVISED:	HISD-BP1

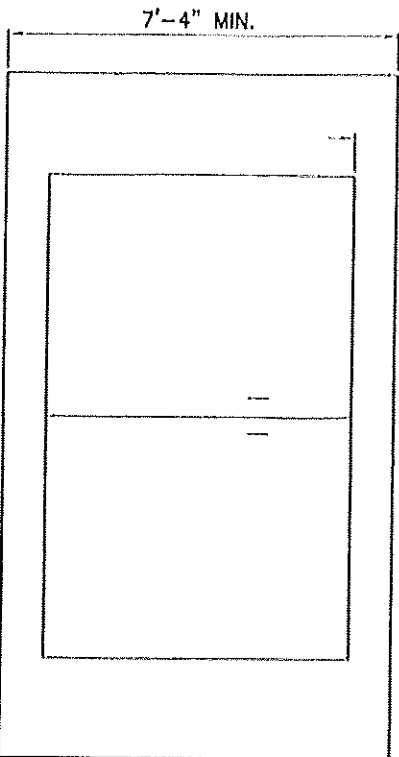
DIMENSION AS REQUIRED TO MEET
MIN. CLEARANCE AT BENDS

U.S. FOUNDARY APD 150
(DOUBLE DOORS W/48" X
72" OPENING) STN. STL.
HARDWARE, NOTE 4.



10" NO. 5 STONE
NOTE 4.

SIDE VIEW



TOP VIEW

DOUBLE CHECK OR BACKFLOW PREVENTER

3" AND LARGER

NOT TO SCALE

NOTES:
1. MIN. WIDTH OF BOX 6' INSIDE.

2. POURED CONCRETE OR PRECAST CONCRETE BOX, KNOCK-OUT TYPE IS NOT ACCEPTABLE

3. WHERE A POSITIVE DRAIN (NO SURCHARGING) IS AVAILABLE, A FLOOR DRAIN WITH A 2" SLOPED CONCRETE BOTTOM MAY BE USED AND THE VAULT CAN BE INSTALLED WITH THE TOP 2" ABOVE GRADE.

4. IF SUBJECT TO TRAFFIC PROVIDE A HEAVIER DOOR.

5. IF PIPING ENTERS THROUGH SIDE OF BOX, PROVIDE A UNIFLANGE COUPLING AT THE VALVE CONNECTION.

HARKERS ISLAND SANITARY DISTRICT

**DOUBLE CHECK OR BACKFLOW PREVENTER
3" AND LARGER**

APPROVED BY:	DATE: 2/23/11	DRAWING NO.
SCALE:	REVISION:	HISD-BP2
NTS		