

CITY OF VAUGHAN

EXTRACT FROM COUNCIL MEETING MINUTES OF DECEMBER 11, 2017

Item 1, Report No. 46, of the Committee of the Whole (Working Session), which was adopted without amendment by the Council of the City of Vaughan on December 11, 2017.

1 IMPLEMENTATION OF BACKFLOW PREVENTION BY-LAW

The Committee of the Whole (Working Session) recommends:

- 1) That the recommendation contained in the following report of the Deputy City Manager, Public Works, and the Director, Environmental Services, dated December 6, 2017, be approved; and**
- 2) That the presentation by the Director of Environmental Services and Communication C1, presentation material titled “Proposed Backflow Prevention By-law and Implementation Program”, dated December 6, 2017, be received.**

Recommendation

The Deputy City Manager, Public Works, and the Director, Environmental Services, in consultation with the Director, By-law & Compliance, Licensing & Permit Services and City Solicitor, recommend:

1. That Council adopt the proposed Backflow Prevention By-law, substantially in the form as set out in Attachment #1, to protect the water distribution system and public health.

Contribution to Sustainability

The proposed By-law will contribute to the following sustainability goals/actions, through Green Directions Vaughan:

Objective 1.4: To ensure efficient and appropriate use of potable water. The proposed By-law will regulate connections to the City of Vaughan’s water distribution system.

Economic Impact

There is no financial impact to the City as a result of the recommendations of this report beyond a ARR already identified and approved through the prior budget process to implement the program.

There will be a financial impact to existing property owners and developers as they will be required to secure backflow prevention devices and any associated permits or licenses. These exact costs will vary according to the type and number of devices required to be purchased and installed. The implementation of the backflow prevention program will be over a ten year period and properties will be prioritized based on a risk analysis as described in CSA B64 Standards and Guidelines.

Communications Plan

For the Backflow Prevention By-law and Implementation Program to be effective, public education and promotion to key stakeholders and Industrial, Commercial and Institutional (ICI), mixed-use and multi-residential property owners is of importance.

Environmental Services staff, along with Economic Development, Corporate Communications, and the Vaughan Chamber of Commerce, invited ICI representatives and other property owners to a public information and education awareness session on October 23, 2017. The proposed Backflow Prevention By-law and related Implementation Program were introduced, and positive feedback was received.

EXTRACT FROM COUNCIL MEETING MINUTES OF DECEMBER 11, 2017

Item 1, CW(W/S) Report No. 46 – Page 2

Implementation Plan – Communication Strategies

The implementation plan includes communication strategies to inform industrial, commercial and institutional and mixed-use and multi-residential property owners of the proposed Backflow Prevention By-law and related Implementation Program

After Council approval of the proposed Backflow Prevention By-law, a range of communication strategies will be employed including information on the City's website; eCommunications outreach; mobile signs; and other methods. The messaging will be shared with our crucial stakeholders – including Access Vaughan, Councillor offices and the Chamber of Commerce.

Purpose

This report seeks Council's approval for the proposed Backflow Prevention By-law. The report also provides Council with an outline of the By-law and related implementation programs, which have been developed in line and to be compatible with those of the other municipalities in York Region and throughout the province.

Background - Analysis and Options

The proposed Backflow Prevention By-law regulates the installation and testing of backflow prevention devices

The most recent Ministry of the Environment and Climate Change (MOECC) Drinking Water Inspection Report supports the development of a program, policy or by-law related to backflow prevention as a measure to increase protection of the City's drinking water system.

The MOECC established a multi-stakeholder working group who were tasked with developing ideas/concepts for reducing the frequency and risk of cross-contamination/backflow incidents and the impacts they have on drinking water systems. The working group recognized that backflow prevention programs are needed and that the prevention of backflow is a critical component in ensuring the safety of the drinking water supply and public health.

The Backflow Prevention By-Law was also identified through the City of Vaughan's Internal Audit Department and included as a Management Action Item in the Audit report.

The proposed new Backflow Prevention By-law will regulate the installation and testing of backflow prevention devices to prohibit practices and other actions that may place the water distribution system at risk; and to establish a system of recourse and penalties for non-compliance for all new and existing ICI properties as well as mixed-use and multi-residential properties. As mentioned prior, these requirements are consistent with the City's Drinking Water Quality Management System (DWQMS) and Quality Management System (QMS) Policy.

The City's Water Distribution System is regulated by the Safe Drinking Water Act and adheres to the City's Drinking Water Quality Management System Policy

The policy states that:

As the owners and operators of the City of Vaughan's water distribution system we are committed to:

- providing safe drinking water to our residents and businesses
- complying with applicable legislation and regulations as related to the provision of safe drinking water
- implementing and continually improving the effectiveness of our Quality Management System.

CITY OF VAUGHAN

EXTRACT FROM COUNCIL MEETING MINUTES OF DECEMBER 11, 2017

Item 1, CW(WS) Report No. 46 – Page 3

The City of Vaughan continues to provide safe drinking water to the residents and businesses in Vaughan. The Backflow Prevention By-law provides enhanced protection to the drinking water system and supports continuous improvement as outlined in the policy.

The installation of backflow prevention device is a continuous improvement initiative as it stops water from flowing from private property back into the water distribution system

Under normal conditions, water flows from the City's pressurized distribution system into the property owner's plumbing system and due to the water pressure cannot flow back into the water distribution system. Backflow is the reversal of direction of this flow and may occur due to either back siphonage or back pressure events.

- Back siphonage happens when the demand for water for a large firefighting event or a large watermain break pulls the water back from the private property plumbing.
- Back-pressure situation occurs when private water pressure is greater than the municipal water supply pressure in situations where private booster pumps, thermal expansion in boilers and elevated piping system exists.

Cross connection is any actual or potential connection between the potable drinking water system and any source of pollution or contamination. It includes any temporary or permanent connecting arrangement through which backflow may occur.

Back siphonage, back pressure and cross connections are all possible sources of backflow and the backflow prevention device is designed to prevent the reversal of water flow back into the City's water distribution system.

The City's Backflow Prevention By-law and Implementation Program aligns with the best practices of neighbouring municipalities

Currently, there are more than 50 municipalities in Ontario, including the City of Markham, Town of Richmond Hill, and Township of King who have implemented a Backflow Prevention By-law and successfully executed the program. The City's proposed Backflow Prevention By-law and associated implementation program mirror those of adjacent Regional municipalities such as York and Peel in terms of obligations of property owners and licensing requirements for device installations.

The City's Backflow Prevention By-law includes obligations, installation and testing requirement and penalties

The City's Backflow Prevention By-law is intended to establish guidelines and requirements for existing and new construction of ICI properties as well as mixed-use and multi-residential properties.

The highlights of the proposed Backflow Prevention By-law include:

1. Property Owner's Responsibility for the Prohibition of Cross Connections and Premise Isolation

The Owner is prohibited from making a cross connection. The by-law also states that the property owner is responsible for premise isolation, which is the separation of the private water system from the City's water supply. This is to ensure that the backflow prevention device is installed correctly downstream of the water meter on every structure or building where municipal drinking water is supplied.

CITY OF VAUGHAN

EXTRACT FROM COUNCIL MEETING MINUTES OF DECEMBER 11, 2017

Item 1, CW(W/S) Report No. 46 – Page 4

2. Persons Permitted to Perform Installation and Testing of a Backflow Prevention Device
This By-law provides guidelines to ensure the integrity of the installation and testing of the backflow prevention devices by stipulating that only testers who have the required qualifications can perform the installation and testing of backflow prevention devices.
3. Procedures for the Type, Installation, Testing, and Reporting Related to Backflow Prevention Devices

The by-law provides guidelines regarding the type, installation and field testing of backflow prevention devices all in accordance with current Canadian Standards Association (CSA) (B64) and American Water Works Association (AWWA) Standards.

The City of Vaughan's Design Criteria and Standards are developed in support of backflow prevention device requirement and installation on all new water service connection for industrial, commercial, institutional, mixed-use and multi-residential properties.

The By-law also refers to specific procedures for the post-installation reporting, which includes completion of documentation, of backflow prevention device.
4. Administration, Enforcement and Penalty Provisions
The By-law will be actively enforced and monitored for non-compliance of backflow prevention activities (i.e. survey, installation, testing, device upgrade completed within required time frames). The By-law also contains the procedures for City staff to pursue both convictions and financial damage recovery in events of non-compliance.

Vaughan's Backflow Prevention Implementation Program includes a phased approach to allow time for installation

The City of Vaughan's Backflow Prevention Implementation Program is designed to ensure that backflow prevention devices are installed on existing ICI as well as mixed-use and multi-residential properties within a ten (10) year period, in accordance with CSA (B64) and AWWA Standards. The program includes:

1. Phased Implementation of the Program
The program outlines the phases of the program implementation, providing detailed descriptions of each phase. The determination of phase order will be prioritized by assigning a risk factor of severe, moderate and minor based on CSA B64 Standards and Guidelines. A planning schedule for the entire program, from development to implementation, is provided to assist users to estimate time line for each of the phases.
2. Authority and Administrative Responsibility
A summary defining the authority and responsibilities of the City of Vaughan, the Property Owner, and the Certified Tester during each step of the process is included. Requirements for compliance and proposed enforcement for non-compliance are also provided.
3. Communication Plan
A communication plan will be created to inform businesses and ICI property owners about the new Backflow Prevention By-law. The plan will outline strategies for educating the public about backflow prevention, as well as those required to participate in the program such as building and facility owners and certified backflow prevention testers.
4. Backflow Incident Response Plan
The program contains a detailed response plan in the event that a backflow incident does occur. To address this, Standard Operating Procedures, an Incident Escalation & Response Plan and an Emergency Management Plan have been included.

CITY OF VAUGHAN

EXTRACT FROM COUNCIL MEETING MINUTES OF DECEMBER 11, 2017

Item 1, CW(WS) Report No. 46 – Page 5

5. Quality Control, Monitoring, and Evaluation

This program will be monitored and reviewed each year for effectiveness and to ensure that any improvements, adjustments are implemented as required.

Relationship to Term of Council Service Excellence Strategy Map (2014-2018)

This report supports the following priorities set forth in the Term of Council Service Excellence Strategy Map (2014-2018):

- Invest, renew and manage infrastructure and assets
- Continue to cultivate an environmentally sustainable City
- Continue to ensure the safety and well-being of citizens

Regional Implications

There are no Regional implications as a result of the proposed Backflow Prevention By-law and corresponding Backflow Prevention Implementation Program.

Conclusion

The City of Vaughan currently does not have a Backflow Prevention By-law in place to regulate the introduction of backflow, to require backflow prevention devices, or to control cross connection, all of which support the quality and safety of our drinking water.

The proposed Backflow Prevention By-law and corresponding Backflow Prevention Implementation Program are intended to enforce our commitment to the protection of the City's drinking water, thereby reducing risks to public health and increase citizen confidence.

Attachments

Attachment #1: By-Law

Report prepared by:

Harry Persaud, Project Manager – Wastewater/Stormwater, ext. 6304
Deepak Panjwani, Manager, Program and System Planning, ext. 6110

(A copy of the attachments referred to in the foregoing have been forwarded to each Member of Council and a copy thereof is also on file in the office of the City Clerk.)

Proposed Backflow Prevention By-law and Implementation Program

Committee of the Whole
December 6, 2017

| | |
|---------------|----------|
| C | 1 |
| COMMUNICATION | |
| CW (WS) | Dec 6/17 |
| ITEM - | 1 |



Purpose of Council Report

To seek Council's approval for the new Backflow Prevention By-law



2



Need of a New Backflow Prevention By-law

- Internal Audit recommended the development of the Backflow Prevention by-law
- Annual MOECC Drinking Water Inspection Report
- Represents best practices to enhance protection of our Drinking Water System
- Supports continuous improvement as stated in our Quality Management System (QMS) Policy



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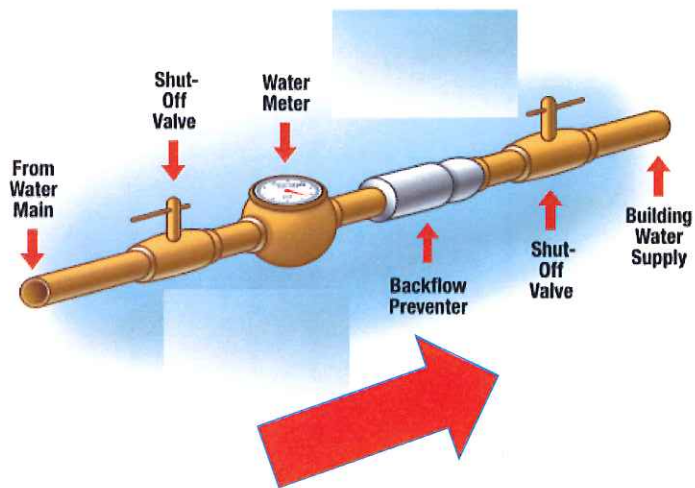


The City's Proposed Backflow Prevention By-law

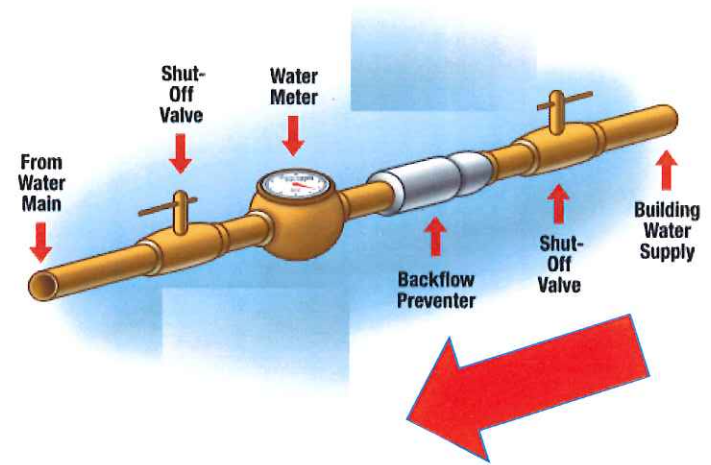
- The objectives of the By-law:
 - To enhance protection of the Drinking Water System by preventing contaminants from entering into the drinking water system due to backflow from ICI sites
 - To safeguard public health & safety



Example of Backflow



Normal Condition



Backflow Condition



Backflow Prevention By-laws & Implementation Programs Within Ontario

- Many municipalities in Ontario have implemented or are in the process of implementing a backflow prevention By-law and program.
- Municipalities that have implemented the program include:
 - Markham
 - Hamilton
 - Ottawa
 - Toronto
 - Kitchener
 - Waterloo



Properties Affected by the Proposed Backflow Prevention By-law, Implementation Program & Impact

- **Existing ICI, Mixed-Use, Multi-Use and Multi-Residential Properties**
 - 3,230 existing Industrial, Commercial, Institutional, Multi-use and Mix-use Residential/Commercial Properties in the City
 - Since 2004, property owners were required to install a backflow prevention device (check valve) per the City's Engineering Design Standards & Criteria, but may not meet CSA and AWWA guidelines
- **New ICI, Mixed-Use, Multi-use and Multi-Residential Properties**
 - In accordance with City's Engineering Design Standards & Criteria, backflow prevention devices are required to be installed for new properties



10-Year Implementation Plan

(Based on CSA Guidelines)

| Phases | Hazard Classification | Examples | Years |
|---------|-----------------------|---|-------|
| Phase 1 | Severe | Carwash, Hospital, Restaurant, Laboratory, Chemical cleaning, Dental vacuum pump | 1-5 |
| Phase 2 | Moderate | Air compressor oil cooler, Private fire hydrants, Spa or hot tub, Irrigation system | 5-8 |
| Phase 3 | Minor | Water distilleries, Industrial pressure washer | 8-10 |



Key Activities in Each Implementation Phase

- Public education and outreach program
- Properties survey, risk assessment and hazard classification
- Communication/coordination with the property owners
- Selection of backflow prevention devices
- Installation, testing and commissioning
- Annual inspection and maintenance program



Questions?



10

IMPLEMENTATION OF BACKFLOW PREVENTION BY-LAW

Recommendation

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The highlights of the proposed Backflow Prevention By-law include:

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2. Persons Permitted to Perform Installation and Testing of a Backflow Prevention Device
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Vaughan's Backflow Prevention Implementation Program includes a phased approach to allow time for installation

The City of Vaughan's Backflow Prevention Implementation Program is designed to ensure that backflow prevention devices are installed on existing ICI as well as mixed-use and multi-residential properties within a ten (10) year period, in accordance with CSA (B64) and AWWA Standards. The program includes:

1. Phased Implementation of the Program

The program outlines the phases of the program implementation, providing detailed descriptions of each phase. The determination of phase order will be prioritized by assigning a risk factor of severe, moderate and minor based on CSA B64 Standards and Guidelines. A planning schedule for the entire program, from development to implementation, is provided to assist users to estimate time line for each of the phases.

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A summary defining the authority and responsibilities of the City of Vaughan, the Property Owner, and the Certified Tester during each step of the process is included. Requirements for compliance and proposed enforcement for non-compliance are also provided.

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The program contains a detailed response plan in the event that a backflow incident does occur. To address this, Standard Operating Procedures, an Incident Escalation & Response Plan and an Emergency Management Plan have been included.

5. Quality Control, Monitoring, and Evaluation

This program will be monitored and reviewed each year for effectiveness and to ensure that any improvements, adjustments are implemented as required.

Relationship to Term of Council Service Excellence Strategy Map (2014-2018)

This report supports the following priorities set forth in the Term of Council Service Excellence Strategy Map (2014-2018):

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Attachments

Attachment #1: By-Law

Report prepared by:

Harry Persaud, Project Manager – Wastewater/Stormwater, ext. 6304
Deepak Panjwani, Manager, Program and System Planning, ext. 6110

Respectfully submitted,

Stephen Collins, P.Eng
Deputy City Manager, Public Works

Jennifer Rose
Director, Environmental Services

**THE CITY OF VAUGHAN
BY-LAW NO. XX-XX**

A By-law to regulate *cross connections* and to prevent backflow as required to protect the City of Vaughan drinking water supply and system.

AND WHEREAS Section 8 of *the Municipal Act, 2001*, provides that a municipality has the capacity, rights, powers and privileges of a natural person for the purpose of exercising its authority under the Act;

AND WHEREAS Section 9 of *the Municipal Act, 2001*, provides that Sections 8 and 11 shall be interpreted broadly so as to confer broad authority on municipalities to (a) enable municipalities to govern their affairs as they consider appropriate and, (b) enhance their ability to respond to municipal issues;

AND WHEREAS Section 80(1) of *the Municipal Act, 2001*, provides that a municipality may enter onto land to which it supplies a public utility to inspect, repair, alter or disconnect the service pipe or wire, machinery, equipment and other works used to supply the public utility;

AND WHEREAS Section 425 of *the Municipal Act, 2001*, authorizes the *City* to pass By-laws providing that a person who contravenes a By-law of the *City* passed under that act is guilty of an offence;

AND WHEREAS *the Municipal Act, 2001*, further authorizes the *City*, amongst other things, to delegate its authority, to impose fees and charges on persons for services or activities provided or done by or on behalf of it, to provide for inspections and inspection *orders*, and to make *orders* to discontinue activity or to do work;

AND WHEREAS Part 7 of the *Building Code Act, 1992* – O. Reg. 332/12 requires potable water systems to be protected from contamination;

AND WHEREAS pursuant to subsection 20(1) of the *Safe Drinking Water Act, 2002*, S.O. 2002, c. 32 (“*the Safe Drinking Water Act, 2002*”), it is an offence to cause or permit anything to enter a drinking-water system if it could result in, a drinking-water health hazard, a contravention of a prescribed standard or the interference with the normal operation of the system;

AND WHEREAS Subsection 11(1) of *the Safe Drinking Water Act, 2002*, requires every owner of a *municipal drinking water system*, amongst other things, to ensure that all water provided by the system to the point where the system is connected to a user’s *plumbing* system meets the requirements of the prescribed drinking-water quality standards;

AND WHEREAS the *City* desires to protect the health, safety, and well-being of the inhabitants of the *City* by passing a By-law to put mechanisms in place so as not to permit the discharging of a contaminating substance into the municipal drinking-water system for which the *City* is responsible;

AND WHEREAS Section 446 of *the Municipal Act, 2001* authorizes a municipality through By-law to require, in default of a required matter or thing being done, that the work may be done by the municipality

at the expense of the person required to do it and costs may be added to the tax rolls and collected in the same manner as taxes.

NOW THEREFORE THE COUNCIL OF THE CORPORATION OF THE CITY OF VAUGHAN ENACTS AS FOLLOWS:

1. DEFINITIONS

1.0 For the purposes of this By-law:

“Authorized Functions” means those functions on the *Authorized Functions List* and carried out by a *qualified person*;

“Authorized Functions List” means the list, in the prescribed form and as amended from time to time of functions and of the *persons* with the required qualifications who are authorized to carry out such functions;

“AWWA” means the American Water Works Association;

“AWWA Standards” means the Series Published in 2006 by the American Water Works Association, in effect at the time of the enactment of this By-law, and as amended from time to time, or successor thereof;

“Backflow” means the flowing back or reversal of the normal direction of flow of water, as defined by the *Ontario Building Code*, as amended;

“Backflow Prevention” means the prevention of the flow of water, other liquids, chemicals or substances back into the water being supplied by the *City’s water distribution system*;

“Backflow Prevention Device” means a device that prevents *backflow* in the *City’s Water Distribution System*, as defined by the *Ontario Building Code*, and includes all valves and test ports approved by the *CSA Standard* and/or *AWWA Standards*;

“Backflow Prevention Device Test and Inspection Report” means an inspection and testing report, in the prescribed form and as communicated from time to time, of a *Backflow Prevention Device*, containing the make, model, serial number, size, type, installation date, location and installation address and the test results. The report must also contain information related to the *qualified person*;

“Backflow Prevention Device Test Tag” means a tag containing the make, model, serial number, size, type, installation date, installation address as well as test history of a *Backflow Prevention Device*, as prescribed by the *City*, as amended from time to time;

“Back Siphonage” means a condition in which the pressure in the distribution system is less than the atmospheric pressure, which allows contamination to enter a water system through a *cross connection*;

“*Building*” shall have the same meaning as set out in the *Building Code Act*;

“*Building Code Act*” means the Ontario Building Code Act, 1992, S.O. 1992, c. 23, as amended, or any successor thereof;

“*City*” means the corporation of the *City of Vaughan*;

“*Cross Connection*” means any actual or potential connection between a *potable water system* and any source of pollution or contamination and includes any by-pass, jumper connection, removable section of pipe, swivel or changeover device and any other temporary or permanent connecting arrangement through which a *backflow* may occur;

“*Cross Connection Control Manual*” means the AWWA Canadian *Cross Connection Control Manual*, Edition #1, 2007, as amended from time to time, or successor thereof;

“*Cross Connection Control Survey Report*” means a report, in the prescribed form and as amended from time to time, to be completed by a *person* listed on the *Authorized Functions List* and which shall include all *cross connections* and all identified existing method of protecting those *cross connections* and corrective measure and recommendations;

“*CSA Standard*” means the CAN/CSA B-64 Series published in July 2007 by the Canadian Standards Association, in effect at the time of the enactment of this By-law, and as amended from time to time, or successor thereof;

“*Device Upgrade Implementation Report*” means a report which shall record all work done by a *property owner* for taking corrective actions on those deficiencies identified either on the *Cross Connection Control Survey Report* or on the *Backflow Prevention Device Test and Inspection Reports* for their *property*. This report shall be completed on the *City of Vaughan*’s prescribed form, as amended from time to time;

“*Drinking Water*” means drinking water as defined in Subsection 2(1) of the *Safe Drinking Water Act* as follows:

- a) Water intended for human consumption, or
- b) Water that is required by an Act, Regulation, *Order*, Municipal By-law or other document issued under the authority of an Act,
 - i. To be potable, or
 - ii. To meet or exceed the requirements of the prescribed drinking-water quality standards;

“*Drinking-Water System*” means drinking-water system as defined in Subsection 2(1) of the *Safe Drinking Water Act* as follows:

A system of works, excluding *plumbing* that is established for the purpose of providing users of the system with *drinking water* which includes:

- a) Any thing used for the collection, production, treatment, storage, supply or distribution of water,
- b) Any thing related to the management of residue from the treatment process or the management of the discharge of a substance into the natural environment from the treatment system; and
- c) A well or intake that serves as the source of entry point of raw water supply for the system;

“*Information Request Form*” means a report which shall include information regarding *property owner*, primary contact, and tenant and business activities on a *property* on the prescribed *City of Vaughan “Information Request Form”*, as amended from time to time;

“*Minor Hazard*” means any *cross-connection* or potential *cross-connection* that constitutes only a nuisance, with no possibility of any health hazard and which is identified as a *moderate hazard* connection by the *CSA Standards*;

“*Moderate Hazard*” means an existing connection or potential connection between the domestic water pipe and any pipe, vat or tank intended for carrying or holding *potable water*; or a *cross connection* or potential *cross connection* involving any substance or any *minor hazard* which has a low probability of becoming a *severe hazard* and under certain conditions can create a danger to health; and which is identified as a *moderate hazard* connection by the *CSA Standards*;

“*Municipal Act*” means the *Municipal Act, 2001, S.O. 2001, c.25* as amended from time to time;

“*Municipal Drinking Water System*” means *municipal drinking-water system* as defined by Subsection 2(1) of the *Safe Drinking Water Act* as follows:

A *drinking-water system* or part of a *drinking-water system*,

- a) That is owned by a municipality or by a municipal service board established under the *Municipal Act*,
- b) That is owned by a corporation established under Sections 9, 10, 11 of the *Municipal Act* in accordance with Section 203 of the *Municipal Act*;
- c) From which a municipality obtains or will obtain *drinking water* under the terms of a contract between the municipality and the *owner* of the system, or
- d) That is in a prescribed class;

“*Ontario Building Code*” means *O. Reg. 332/12, of the Building Code Act*, or any successor thereof;

“*Order*” means an order to comply that is hand delivered or delivered through prepaid registered mail to the address of the *Owner* shown on the most current “*Tax Assessment Roll*”. Where service of an *Order* is made by registered mail, it shall be deemed to have been received by the *Owner* on the seventh day after the date of mailing.

“*Owner*” means any *person*, firm, or corporation having control over *property* to which this By-law applies and includes the owner registered on the title of the *property* and any occupant of any *building* or *structure* located on such *property*;

“*Person*” includes an individual, association, partnership, corporation, *qualified person* or occupant of any *building* and includes an agent or employee located on such *property*;

“*Plumbing*” means plumbing as defined by the *Safe Drinking Water Act* as follows:

A system of works,

- a) That compromise a “water system” for the purposes of the definition of the *Building Code Act*, other than equipment installed in plumbing to treat water, and
- b) That are connected to a *drinking-water system*;

“*Potable Water*” means water that is safe for human consumption and that complies with Section 10 of the *Safe Drinking Water Act*;

“*Potable Water System*” means the *plumbing* that conveys *potable water*;

“*Premise Isolation*” means preventing backflow into the public water system from a user’s premises by installing a suitable *backflow* preventer at all the user’s *potable water* connections;

“*Property*” means a *building* or *structure* or part of a *building* or *structure*, and includes the lands and premises appurtenant thereto and all mobile homes, mobile *buildings*, mobile *structures*, out buildings, fences and erections thereon whether hereto fore or hereafter erected, and includes vacant property;

“*Qualified Person*” means a *person* with approved qualifications as set out in Section 5 of this By-law, or any successor thereof;

“*Safe Drinking Water Act*” means the *Safe Drinking Water Act*, 2002, S.O. 2002, c.32, as amended from time to time;

“*Service Connection*” means a piping connection between the water purveyor’s main and a user’s system;

“*Severe Hazard*” means any *cross connection* or potential *cross connection* involving any substance that could be a danger to health under any concentration and includes, but is not limited to, *cross connections* for establishments involving chemical usage as defined by the *Building Code* or “high or severe hazard” as defined in the *CSA Standard* and any use where *Backflow Prevention* is deemed required by the *City*;

“*Structure*” means anything that is erected which requires location on the ground or attached to something having a location on the ground, but does not include swimming pools constructed not more than 0.3 metres above finished grade

“*Water Meter*” means all equipment installed under the provisions of the water by-law, for the purpose of measuring the water supplied by the *City* to the *property*;

“*Water Distribution System*” includes all pipes, appurtenances, fixtures and related accessories, used to supply water from the watermain to the *water meter*.

2. INTERPRETATION

2.0 In the event of a conflict between the provisions of this By-law and the provisions of any By-law, the provisions that are the most restrictive prevail.

2.1 Where a court of competent jurisdiction declares any section or part of a section of this By-law invalid, the remainder of this By-law shall continue in force unless the court makes an order to the contrary.

2.2 The insertion of headings and the division of this By-law into sections and subsections are for convenience of reference only and shall not affect the interpretation thereof.

2.3 Any reference in this By-law to any statutes, regulations, or by-laws shall be deemed to be a reference to such statutes, regulations or by-laws, as amended, restated or replaced from time to time.

3. APPLICATION OF BY-LAW

3.0 This By-law applies to all and industrial, commercial, and institutional (ICI) properties and mixed-use and multi-use residential properties located within the city that contain a potential hazard resulting in a risk of contamination to the municipal drinking-water system.

3.1 In addition to and notwithstanding Section 3.0 of this by-law, this by-law applies where a condition exists in a *building* or *structure* that may be hazardous or detrimental to the *potable water system*.

4. PROHIBITION OF CROSS CONNECTIONS – OWNER’S RESPONSIBILITY

4.0 No *person* shall directly or indirectly connect, permit or cause to be connected, allow to remain connected to the *municipal drinking-water system* or construct or maintain any piping, fixture, fitting, container, appliance, equipment or any other connection which may or could under any circumstance allow non-*potable water*, wastewater or any other liquid, chemical or substance to enter the *municipal drinking-water system*, that may negatively affect the quality of the water supply.

4.1 No *person* shall connect, cause to be connected, or allow to remain connected, a private well to a *plumbing system* which is supplied by the *City’s municipal drinking-water system*.

4.2 In accordance with the provisions of this By-law, every *Owner* of the *property* to which this By-law applies shall ensure that a *backflow prevention device* is installed with respect to *premise isolation* on every *structure* or building where *municipal drinking water supply* is supplied.

5. PERSONS PERMITTED TO CARRY OUT WORK

- 5.0 Only those *persons* with the required qualifications listed in the *Authorized Functions List* shall carry out the corresponding functions set out therein.
- 5.1 In addition to required qualifications listed in the *Authorized Functions List*, those permitted to perform the *Cross Connection Control Survey Report* or testing of *Backflow Prevention Devices* shall also have and submit proof of the following qualifications in a form satisfactory to the *City*:
- 5.1.1 A current and valid Tester's Certificate issued by AWWA within five years prior to the date of the *Cross Connection Control Survey Report* or *Backflow Prevention Device Test and Inspection Report*; and
 - 5.1.2 A current calibration certificate for the test equipment issued within the twelve months prior to date of submission of a *Backflow Prevention Device Test and Inspection Report*.
 - 5.1.3 Proof of adequate insurance requirements to perform the work.
- 5.2 No *person* listed on the *Authorized Functions List* shall carry out any of the corresponding *authorized functions* unless the *person* has been registered with the *City*.
- 5.3 No documentation shall be submitted to the *City* as part of the registration process that contains inaccurate or false information.

6. APPLICATION OF STANDARDS AND SELECTION OF METHODS

- 6.0 Except as otherwise set out in this By-law, the selection, installation, maintenance, and field testing of *backflow prevention device* required pursuant to this By-law shall be undertaken in accordance with the current *CSA (B64) Standard* and *AWWA Standards*.
- 6.1 Wherever the *CSA Standard* and/or *AWWA Standards* are in conflict with this By-law, the *CSA/AWWA standards* shall prevail.

7. INFORMATION REQUEST FORM REQUIREMENT

- 7.0 Every *owner* of a *property, building or structure* to which this By-law applies shall fill out an *Information Request Form* as prescribed by the *City* and submit a legible copy of this completed form to the *City*.

8. CROSS CONNECTION CONTROL SURVEY REQUIREMENT

- 8.0 Every *owner* shall provide a *Cross Connection Control Survey Report* at the *Owner's* expense in accordance with the Backflow Prevention Program as determined by the *City* of Vaughan. The *Cross Connection Control Survey Report* shall be completed at a frequency of:
- a) Every five (5) years from the date of the first survey requested;
 - b) Upon change of ownership, operation or use of the *property* or as otherwise required by the *City*;
- 8.0.1 The *Owner* shall ensure that each *cross connection* control survey conducted is carried out on the prescribed *Cross Connection Control Survey Report* form and it shall be

undertaken and completed by a *qualified person* pursuant to the *Authorized Functions List*; and

8.0.2 The *Owner* shall ensure that a completed and legible *Cross Connection Control Survey Report* is provided to the City within 14 days of the survey being conducted.

8.1 Every *Owner* shall ensure that the selection of every *backflow prevention device* shall be determined by using the *Ontario Building Code*, the *CSA Standards* and *AWWA Standards*

8.2 For every *property* to which this By-law applies, when a new water *service connection* to the *municipal drinking-water system* is made, the *owner* shall complete and submit a *Cross Connection Control Survey Report* prior to request for the turning on of the water valve by the Environmental Services Department.

8.3 Within 30 calendar days of notification by the *City*, every *Owner* shall submit a *Cross Connection Control Survey Report*.

8.4 No *person* shall submit a *Cross Connection Control Survey Report* to the *City* that contains inaccurate or false information.

9. TESTING OF BACKFLOW PREVENTION DEVICES

9.0 Every *Owner* who has a *backflow prevention device* installed on their *property* shall ensure that:

9.0.1 Such device is tested by a *qualified person* when it is first installed and annually thereafter or when requested by the *City*, as well as when it is cleaned, repaired, overhauled or relocated; and

9.0.2 When such device is tested, the prescribed *Backflow Prevention Test and Inspection Report* form is completed by a *qualified person* pursuant to the *Authorized Functions List*; and

9.0.3 The completed *Backflow Prevention Test and Inspection Report* is submitted to Environmental Services Department within 14 days of the test being conducted; and

9.0.4 In the event that such a device is malfunctioning or otherwise not in proper working order, cause the device to be repaired or replaced forthwith by a *qualified person*; and

9.0.5 When a new connection to the *municipal drinking-water system* is made, a *qualified person* shall complete and submit a *Backflow Prevention Device Test and Inspection Report* prior to the request for the turning on of the water valve by the Environmental Services Department

9.1 Every *qualified person* who tests a *backflow prevention device* shall carry out such testing in accordance with this By-law, and the *CSA Standards* or the *AWWA Standards*.

9.2 The testing methods set out in Section 6 of the *CSA Standard B64*, as well as test procedures established by the *CSA Standards* or *AWWA* for testing *backflow prevention devices* may be employed.

9.3 Every *qualified person* who tests a *Backflow Prevention Devices* shall:

- 9.3.1 Within fourteen (14) days of carrying out such test, provide a *Backflow Prevention Device Test and Inspection Report* to the Environmental Services Department.
- 9.3.2 Upon completing such test, complete and affix a *Backflow Prevention Device Test Tag* to the device or immediately adjacent to the device on the piping connected thereto; and
- 9.3.3 Upon finding that a *backflow prevention device* is malfunctioning, or otherwise not in proper working order, immediately notify the occupant of the premises and the *City* of such condition.
- 9.3.4 When a *Backflow Prevention Device* is found to be malfunctioning or not in proper working order, then the owner and/or occupant of the premises, as the case may be, shall immediately cease all activities that may result in backflow. Such activities shall not be recommenced until written notification from the *City* is received.

10. CORRECTIVE ACTIONS ON CROSS CONNECTION CONTROL DEFICIENCIES

- 10.0 Every *Owner* shall take corrective actions on those deficiencies identified either on the *Cross Connection Control Survey Report* or on the *Backflow Prevention Device Test and Inspection Reports* for their *property*;
- 10.1 Upon the implementation of those corrective actions, complete and submit to the *City*, the *Device Upgrade Implementation Report* within fourteen (14) days of the implementation being conducted.

11. INSTALLATION OF BACKFLOW PREVENTION DEVICES

- 11.0 Every *person* installing a *backflow prevention device* or causing a *backflow prevention device* to be installed, replaced or relocated shall ensure that:
 - 11.0.1 it is installed in accordance with the *City's* criteria, good engineering and construction practices and the requirements of the *Ontario Building Code*, the *CSA Standards*, the *Cross Connection Control Manual*, and the *AWWA Standards* as amended or any successor thereof;
 - 11.0.2 the device is located in a such a manner so that in the event of *backflow* the device prevents contamination of the *municipal drinking-water system*; and
 - 11.0.3 A building permit is obtained in accordance with the provisions of the *Building Code Act*;
- 11.1 Where a *backflow prevention device* is installed, every *Owner* shall ensure that it is in proper working order at all times;
- 11.2 Where, in the sole opinion of the *City*, a risk of possible contamination of the *municipal drinking-water system* exists, an owner, upon notice from the *City*, shall install a *backflow prevention device*;

- 11.3 Every owner must ensure that where a *backflow prevention device* is installed in respect of *premise isolation*, all piping between the *water meter* and such device is clearly and permanently labelled “no connections permitted”;

12. REMOVAL OF BACKFLOW PREVENTION DEVICES PROHIBITED

- 12.0 Where a *backflow prevention device* is installed, the *Owner* shall not remove, or cause, or permit the removal of the *backflow prevention device* or part thereof unless the removal is to replace the *backflow prevention device* with another that meets or exceeds the provisions of this By-law, or such removal is required to change *building* functions;
- 12.1 Where a *backflow prevention device* needs removal, the *Owner* shall obtain a Plumbing Permit under the provisions of the *Building Code Act*.

13. IMPLEMENTATION AND COMPLIANCE

- 13.0 Every Owner shall install a backflow prevention device:
- (1) within the timeframe specified on an *Order*, but no later than 30 calendar days from the date of identification of a hazard that is deemed by the *City* to be severe; or
 - (2) no later than 90 calendar days from the date of identification of a hazard that is deemed by the *City* to be moderate or minor.
 - (3) With each new water service connection.

14. ADMINISTRATION AND ENFORCEMENT

- 14.0 The *City* may enter on a property at any reasonable time for the purpose of carrying out an inspection to determine whether or not the following are being complied with:

- a) The provisions of this By-law;
- b) An *Order* issued under this By-law; or
- c) An *Order* made under Section 431 of the *Municipal Act*.

Where an inspection is conducted by the *City*, the *person* conducting the inspection may:

- a) Require the production for inspection of documents relevant to the inspection;
- b) Inspect and remove documents relevant to the inspection for the purpose of making copies or extracts
- c) Require information from any *person* concerning a matter related to the inspection including their name, address, phone number and identification;
- d) Alone or in conjunction with a *person* possessing special or expert knowledge, make examination or take tests, samples or photographs necessary for the purposes of the inspection, and.
- e) Undertake an inspection pursuant to an *Order* issued under Section 438 of the *Municipal Act*.

- 14.1 Where the requirements of this By-law are not met or a condition exists on any *property, building or structure* that may allow contamination of the *City's municipal drinking-water system* or *City's* water supply or the contamination of any other *potable water system* on such *property*, then the *City* may:
- 14.1.1 Issue and serve an *Order* to the *Owner* requiring compliance with the requirements of this By-law and to eliminate the condition which may allow contamination and in so doing may prescribe the time period for compliance with such *Order*; the work to be completed which may include but is not limited to:
- a) An *Information Request Form* be completed and submitted to the *City*;
 - b) A *Cross Connection Control Survey Report* be completed and submitted to the *City*
 - c) A *Backflow Prevention Device Test and Inspection Report* be completed and submitted to the *City*
 - d) Taking corrective actions on deficiencies identified either on the *Cross Connection Control Survey Report* or on the *Backflow Prevention Device Test and Inspection Report* form for the *property*
 - e) A *Backflow Prevention Device* be tested annually;
 - f) A *Backflow Prevention Device Test Tag* be installed to a *Backflow Prevention Device*
 - g) A Plumbing permit be applied for and obtained prior to installation, replacement or removal of a *Backflow Prevention Device*
 - h) Installation, repair, and/or replacement of a *Backflow Prevention Device*
 - i) *Authorized functions*;
- 14.1.2 If a condition exists on a *property* which may result in the contamination of the *City's municipal drinking-water system*, the *City* may, in addition to issuing an *Order*, shut off the water supply to the *property* or any portion thereof until the condition is eliminated to the satisfaction of the *City*.
- 14.2 Wherever this By-law directs or requires any work to be done, in default of it being done by the *person* directed to do it, such work may be done by the *City* or its agents at the expense of the *person* and the *City* may recover all expenses incurred in doing the work by action or by adding the costs to the tax roll and collecting them in the same manner as taxes. Unpaid outstanding court fines will also be added to the tax roll and be collected in the same manner as taxes.
- 14.3 In addition to any other provision of this By-law, the *City* may at any time issue an *Order* to a *Owner* to conduct tests, provide reports and undertake any other measure required for the elimination of a *cross connection* and the prevention of *backflow*.
- 14.4 No *person* shall hinder or obstruct, or attempt to hinder or obstruct, a *City's Water/Wastewater Enforcement Officer* or other *person* so authorized who is performing a duty or exercising a power under this By-law pursuant to Section 426 of the *Municipal Act*.

15. PENALTY PROVISION

15.0 Every *person* who contravenes any of the provisions of this By-law including an *Order* is guilty of an offence and upon conviction is liable to a maximum fine as established pursuant to the provisions of the *Municipal Act, 2001*, as amended, as follows:

15.0.1 If any provision of this By-law and the contravention has not been corrected, the contravention of the provision shall be deemed to be a continuing offence for each day or part of a day that the contravention remains uncorrected.

15.0.2 If an *Order* has been issued under this By-law, and the *Order* has not been complied with, the contravention of the *Order* shall be deemed to be a continuing offence for each day or part of a day that the *Order* is not complied with.

15.0.3 Every *person* who is guilty of an offence under this By-law shall be subject to the following penalties:

a) Upon first conviction, or subsequent convictions of the same offense, to a fine of not less than \$2,500.00 for each offence;

b) Upon conviction of multiple offences and for each offence included in the multiple offence, to a fine of not less than \$2,500.00 for each offence and not more than \$100,000.00. The total of all fines for each included offence is limited to \$100,000.00.

15.0.4 For purposes of this By-law, an offence is a second or subsequent offence if the act giving rise to the offence occurred after a conviction had been entered at an earlier date for the same offence.

15.0.5 For the purposes of this By-law, “multiple offence” means an offence in respect of two or more acts or omissions each of which separately constitutes an offence and is a contravention of the same provision of this By-law.

15.1 Distress for Unpaid Fines:

Pursuant to the Subsection 441 (3) of the *Municipal Act*, where a fine remains unpaid after the final date on which it is payable as specified in the notice, the fine shall be deemed to be unpaid taxes and, pursuant to Subsection 351 (1) of the *Municipal Act*, the Treasurer of the *City*, or agent may seize the following to recover the taxes and costs of seizure, subject to the exemptions provided for in Subsections 351 (3) and (4) of the *Municipal Act*:

- 1) The personal *property* belonging to or in the possession of the *person* fined;
- 2) The interest of the *person* fined in any personal *property* including such *person's* right to the possession of any personal *property* under a contract for purchase or a contract to which the *person* fined becomes the *Owner* of the *property* upon performance of any condition;
- 3) The personal *property* on the land and any interest therein as described in this By-law of the *Owner* of the land, even if the *Owner's* name does not appear on the tax roll; and/or
- 4) Any personal *property* on the land, title to which is claimed under any assignment or transfer made for the purpose of defeating the seizure.

16. FEES

- 16.0 Any fees and administrative costs associated with this By-law are non-refundable and are indicated in the *City's Fees and Charges By-law 171-2013*, as amended.

17. GENERAL PROVISIONS

- 17.0 Where a timeframe is set out in this By-law for carrying out any action, the *City*, may extend the time for compliance beyond the established timeframe provided such extension is approved by the *City*
- 17.1 The *Authorized Functions List*, the *CSA Standard*, and the *AWWA Standards* shall form part of this By-law.
- 17.2 All schedules/forms/appendices referred to in this By-law and attached to this By-law shall be deemed to be a part of the By-law
- 17.3 Every *person* required to submit a report or form to the *City*, shall do it truthfully and accurately.

18. SEVERABILITY

- 18.0 If a court of competent jurisdiction declares any section or part of a section of this By-law invalid or unenforceable, the remainder of this By-law shall continue to be in force unless the court of competent jurisdiction makes an order to the contrary.

19. SHORT TITLE

This By-law shall be known as the Backflow Prevention By-law.

20. EFFECTIVE DATE

- 20.0 This By-law comes into force on the day it is passed.