

# Ditch Alteration Policy

## Public Works and Services Department

Approved by City Council

July 9, 2008

### 1. Policy statement

This policy documents the circumstances and general process requirements for the City to permit filling or alteration of drainage ditches and drainage courses within City road rights-of-way and those in registered and unregistered easements that convey stormwater from public lands.

### 2. Purpose

The intent of this policy is to create an established process in order for the City to be better able to meet its obligations and expectations of property owners with respect to managing potential storm drainage conveyance issues associated with ditch alteration. Respecting an established process will allow ditch alteration in a controlled and consistent manner.

### 3. Application

Subject to this policy are requests received regularly by the City from property owners for roadside ditch systems in both the urban and rural areas and ditches located in registered and unregistered easements conveying stormwater from public lands.

### 4. Policy description

Whether in an urban area or a rural area, ditches and drainage courses were installed and continue to be constructed as a viable means of conveying storm water from both public and private properties. These drainage courses provide a critical outlet for public and private surface drainage, roadway sub-grade drainage as well as foundation drainage from private property. Ditches also provide several storm water management functions and other benefits like a reduction in downstream peak flow rates, improved water quality in surface water bodies, storage of surface run-off that promotes infiltration replenishing the groundwater table and contributing to the protection of fish habitat. While new greenfield developments have a number of opportunities to address stormwater quality obligations, ditch drainage systems often provide the only opportunity to improve stormwater quality in established areas without significant re-engineering. When a ditch is filled or altered, or replaced with a pipe, most of the storm water management benefits are compromised to some degree. The cumulative impact of many ditch filling projects within the same drainage area is likely to increase downstream peak flows and degrade the quality of run-off reaching surface water bodies. If implemented without appropriate technical analysis or design guidelines, ditch alteration can result in upstream flooding or local infrastructure maintenance problems. A disruption in the flow of water from a single property can impact the integrity of a drainage system for many others.

The former municipalities that comprise the existing City of Ottawa had various rules and approaches for dealing with requests to fill or alter ditches. These rules were inconsistent and problematic. The intent of this policy is to establish a process for considering ditch alteration requests using a managed and engineered approach that will ensure uninterrupted and consistent levels of service. By respecting an established process, the City will be better able to meet its obligations to property owners by managing potential storm drainage conveyance issues associated with random and ad-hoc ditch alteration.

In the absence of this proposed engineered approach, the implication of random alteration of roadside ditches can present a significant detrimental affect to both public property and private property through reduced infrastructure life expectancies, uncontrolled surface flooding, basement flooding, overall network conveyance and capacity issues, missed water quality improvement opportunities or aggravated water quality issues.

### 5. Exceptions to the Policy

Some candidate sites may not be suitable for consideration due to a variety of technical, economical and administrative factors including, but not limited to,

- site topography;
- frontage on and drainage to Municipal Drains;
- locations considered as having fish habitat;
- locations in or near Provincially Significant Wetlands; and
- physical limitations of the site, that could include,
  - the availability of an adequate outlet for a piped sewer system,
  - constraints related to cover and space available to install a piped sewer system,
  - potential interference of the ditch alteration related to accommodating drainage from the road sub-grade, and
  - adequate measures to address storm water quality and quantity.

To address technical feasibility issues, the project limits for any alteration request, regardless of how it was initiated, may go beyond the route that will immediately benefit the affected property owner(s). Additional or connecting works may be necessary to provide the facility requested, such as an external sewer outlet, and the cost for such works will be part of the total project cost.

For any request, the City will determine the logical project limits based on system design requirements and/or overall cost benefits (e.g. entire street, completion of a sector, completion of a drainage basin, etc.).

## 6. Policy coverage

### Infrastructure Covered by the Policy

The following infrastructure is covered by this policy:

1. Roadside ditch systems located in both the urban and rural areas in the City
2. Ditches located in registered and unregistered easements and conveying storm water from City lands.

### Infrastructure not covered by the Policy

The following infrastructure is not covered by this policy:

1. Municipal Drains, or any other proposed works, which are governed by the Drainage Act.
2. Ditches that have permanent water and are considered having fish habitat using criteria regulated by the local Conservation Authorities and the Department of Fisheries and Oceans.
3. Ditches located in or near Provincially Significant Wetlands, or any other areas regulated by the local Conservation Authorities.

## 7. Ditch alteration principles and processes

### 7.1 Key principles

Key to defining this policy and the associated processes for permitting ditch alteration are the following key principles:

- ditches and swales are a critical and integral component of the city's overall drainage network.
- ditches and swales are viable and acceptable surface conveyance systems that perform beneficial storm water management functions. Preservation of these functions and mitigation of potential cumulative detrimental effects brought about by discontinuous or ad-hoc practices define the overall objectives to be addressed.
- ditches and swales manage storm water from a quality and quantity perspective by filtering, by attenuating peak flows and by providing groundwater recharge and storage. In established areas with existing designs and infrastructure in place, ditch and swale drainage systems often provide the only opportunity to provide some storm water quality, quantity and groundwater recharge benefits without significant re-engineering.
- ditch and swale conveyance is an integral part of a broad catchment-wide integrated surface drainage system. Ditch alteration effectively creates or adds to the extent of storm sewers along private property frontages changing the fundamental characteristics and functions of the integrated system. Understanding how the characteristics and functions of the overall catchment area can be affected by ditch alteration is critical to the process of preserving existing levels of service.
- in the absence of a catchment-wide engineering approach, the implication of random ditch alteration can significantly reduce or eliminate beneficial functions of the system which can translate to significant detrimental effects to both public property and private property through reduced infrastructure life expectancies, uncontrolled surface flooding, basement flooding, and overall network conveyance and capacity issues.
- approval of one-off installations in the absence of considering a systematic engineered assessment have the potential to prevent approval of subsequent requests and can generally not be converted to continuous pipe networks in the future.
- provincial requirements are such that ditch alteration (piping in excess of private approach extents) must comply with the Ministry of the Environment's Certificate of Approval (C of A) process

### 7.2 General process requirements

General requirements relevant to a ditch alteration request received by the City, follow:

- a project will only be undertaken if supported by an engineering assessment of the local drainage area, with consideration of the receiving system.
- the City will undertake the engineering assessment.
- if the engineering assessment does not support ditch alteration for an area, then any application to undertake such a project in the area will be denied.
- if the engineering assessment supports ditch alteration, the assessment will define the scope of ditch alteration works to be permitted and/or required for successful drainage system operation. The design of works will be based on criteria further listed in this section and the City's Sewer Design Guidelines.
- within urban areas, villages and estate lot subdivisions,
  - a non-binding survey-of-interest (50% interest or greater), circulated among local property owners, will be required to gauge the level of interest in altering the ditch system and to justify the application of City resources to undertake the engineering assessment.
  - ditch alteration will only be considered as a Local Improvement initiative, initiated by a Local Improvement Petition process. This approach will capitalize on economies of scale, minimize disruption, and provide consistent levels of service to adjacent properties.
  - cost recovery for a Local Improvement project would be from all benefiting property owners.
- in areas outside urban areas, villages and estate lot subdivisions,
  - consideration of ditch alteration on a property-by-property basis could be considered on an exception basis. However, in all cases, a request will only be permitted if supported by an adequate technical assessment.
  - cost of any ditch alteration project which benefits a single property in a rural area, will be at the proponent's expense.

### 7.3 Engineering assessments

Proceeding with ditch alteration requests will be on the basis of the outcome and recommendation of engineering assessments on the following basis:

- the City will determine the logical project limits on a network wide basis, on system design requirements and on overall cost benefits (e.g. entire street, completion of a sector, completion of a drainage basin, etc.)
- to address technical feasibility issues, the project limits for any ditch alteration request, regardless of how it was initiated, may go beyond the route that will immediately benefit the proponent property owner(s). Additional or connecting works may be necessary to provide the facility requested, such as an external sewer outlet, and the cost for such works will be part of the total project cost.
- if the engineering assessment indicates that ditch alteration is not recommended for a drainage area, then ditch alteration will not be considered further for the particular area.

In order to facilitate considering requests, the investigation and design process will progress according to the following general criteria:

- the City will proactively undertake engineering assessments of specific areas serviced by ditches on an annual basis in order to determine the potential impacts of ditch alteration and to document the technical requirements necessary to allow expedited review and approval of such proposals as they come forward.
- if a request is received from a local community or a property owner regarding ditch alteration for an area in advance of the City's engineering assessment program, subject to receipt of a successful survey of interest the request will be held pending completion of the analysis, and budget considerations permitting, that area may be considered for review sooner.

Although some engineering assessments will vary in extent regardless of the complexity of the study, the content of the assessment is to include as a minimum, but not be limited to, the following:

- confirm the ditch system is not a Municipal Drain,
- determine the impact of ditch alteration on wetlands and fish habitat,
- determine the feasibility of altering the ditch system,
- identify the drainage basin or catchment area and tributary,
- identify outlets, routing and grade requirements
- identify allowable and design flows,
- confirm outlet capacity
- determine the impact on the outlet,
- determine storm water quantity & quality requirements,
- determine erosion control requirements
- assess ditch alteration impacts for major storm event system response and performance
- address the impact of backwater on the proper operation of septic systems and sump pump discharges from foundation drainage
- maintain, or improve, existing levels of service
- provide design calculations and recommendations based on City of Ottawa Sewer Design Guidelines
- provide design submissions necessary to meet Ministry of the Environment Certificate of Approval (C of A) requirements

#### **7.4 Ditch alteration project implementation**

Ditch alteration may proceed once the following criteria have been satisfied:

- There is an approved engineering assessment for the drainage area addressing the required content and recommending that ditch filling can proceed without detrimentally impacting the area.
- For a project in the urban area or village, the City has received a sufficient Local Improvement Petition from the requesting area, the petition has fulfilled the provincial legislative criteria and has been certified by the City Clerk, and the ditch filling project has received approval from Committee and Council to proceed.
- For a project in the rural area, the City has received written confirmation from the proponent(s) agreeing to pay all costs associated with the ditch filling project.
- The City has determined that the ditch alteration will not interfere with utilities, any other City capital works or maintenance work planned for the area.
- Designs for the ditch alterations will be in conformance to City of Ottawa Sewer Design Guidelines, construction standards and specifications.

The City will undertake all designs, design circulations, coordination with other agencies and required approvals, including a Ministry of the Environment C of A as may be required. Project tendering and construction processes required to install the ditch alteration will be managed and administered by the City.

### **8. Financing principles**

Cost apportionment for work undertaken under the provisions of this policy will be shared between all property owners benefiting from the work following the process described in the City's Local Improvement Policy.

### **9. Responsibilities**

This section identifies the principal roles and responsibilities assigned to City staff for the policy. More detailed roles and responsibilities may be captured in a separate procedures document.

1. Water and Wastewater Services Branch – Wastewater & Drainage Services will:

- be the initial point of contact for drainage related enquiries;
- triage the requests between private property grading and drainage issues and ditch alteration project candidates;
- manage private property drainage issues;
- dispatch ditch alteration project candidates to Infrastructure Services Branch.

## 2. Infrastructure Services Branch – Infrastructure Management will :

- be the main liaison for ditch alteration requests between property owners;
- be responsible for undertaking engineering assessments of ditch systems as part of the Capital Works Program identified under the approved City Budget;
- be responsible for the technical aspects of investigation and assessment of the request;
- be responsible for project scope definition;
- be responsible for managing surveys-of-interest, and Local Improvement Petitions, as required;
- be responsible to address the assessment of existing non-compliant ditch alteration in order to direct the enforcement requirements

## 3. Infrastructure Services Branch – Construction Services will:

- process the Ministry of Environment C of A applications, under delegated authority to the City;
- provide project management services through the detail design, construction and final inspection of the ditch alteration

## 4. Various Operational Divisions will:

- provide supporting information in determining technical requirements.

## 5. Legal Services will:

- provide supporting advice regarding determining sufficiency of Local Improvement Petitions
- provide supporting advice regarding enforcement of by-law

## 6. Enforcement and Inspections will:

- enforce by-laws, as required, in the event of non-compliance of a property owner to remove ditch alteration.

## 7. Financial Services will:

- recover non-payment of fines assessed by Enforcement and Inspections through property taxes, as required.
- through property taxes, recover costs incurred by the City to remove a non-compliant ditch alteration, as required.

## 10. Contraventions

Provincial legislation states that “no person shall interfere with a municipal public utility without municipal consent” and “no person shall establish, alter, extend or replace new or existing sewage works except under and in accordance with an approval granted by a Director”. Similarly, municipal by-laws do not permit the alteration, filling or building on any watercourse constructed as a public storm sewer without first obtaining approval from the Deputy City Manager.

Following adoption by the City of a Ditch Alteration Policy and By-law Amendments, altering or unauthorized filling of a ditch or swale will be subject to enforcement, respecting of circumstance. With the adoption of a Ditch Alteration Policy, it is not the intention of the City to retroactively enforce non-compliant ditch alterations. Rather the approach for enforcement would change with the implementation of the Ditch Alteration Policy, as follows:

### 10.1 Ditch alteration – Before adoption of the Policy

Non-compliant or unauthorized ditch filling that was installed before adoption of the Ditch Alteration Policy will be managed through a progressive approach starting with written notice to the property owner that the installation will need to be removed upon the City identifying at its discretion; i) a potential detrimental effect to City owned infrastructure, ii) unsafe or failed conditions, or iii) the installation as a contributing cause to drainage issues, followed by removal by the City at that time without recourse.

### 10.2 Ditch alteration – After adoption of the Policy

Non-compliant or unauthorized ditch filling that is installed after adoption of the Ditch Alteration Policy will be enforced in accordance with the Drainage By-law.

## 11. References

Local Improvement Policy (Approved by Ottawa City Council May 10, 2006)

## 12. Delegated authority of Deputy City Manager and Director

The Deputy City Manager of Public Works and Services (PWS) Department and the Director of Infrastructure Services Branch (and their designates) have delegated authority to:

- interpret the procedures identified in this policy to their satisfaction
- make revisions, additions and amendments of a technical or administrative nature to this policy.

## 13. Legislated and administrative authorities

This corporate policy is governed by Provincial and Municipal legislation and regulations, as follows:

### **13.1 Provincial**

- Municipal Act, 2001
  - Section 91 of the Act addresses public utilities in easements
- Ontario Water Resources Act
  - Section 53 of the Act prohibits the altering, extension or replacement of existing sewage works without Director approval

### **13.2 Municipal**

- Official Plan
  - Section 2.3, Providing Infrastructure
  - Section 2.3.3 Drainage and Stormwater Management Services
- Infrastructure Master Plan
  - Section 6.0, Existing Systems
- Storm Water Management Strategy
- By-laws
  - Private Approach By-law No. 2003-447
  - Sewer Connections and Sewage Works By-law No. 2003-513
  - Drainage By-law No. 2007-398
- Policies
  - Local Improvement
- City of Ottawa Sewer Design Guidelines

## **14. Key word search**

Relevant keywords in this document that are to be added to the Policy Manual Subject Index are:

- catchment area
- ditch
- ditch alteration
- drainage area
- easement
- roadside ditch
- local improvement
- logical limits
- storm water quality
- storm water quantity

## **15. Contact**

For more information on this policy, contact the City of Ottawa by calling 3-1-1.

## **16. Definitions**

These definitions are included solely for the purpose of understanding the Ditch Alteration Policy.

“City” means the City of Ottawa.

“City forces” means employees of the City of Ottawa or its designated representatives.

“Deputy City Manager” means the Deputy City Manager of the Department of Public Works and Services or an authorized representative.

“catchment area” means the extent of the area served by a ditch drainage system.

“Certificate of Approval (C of A)” means the Ministry of Environment document indicating the Ministry’s approval, under delegated authority to the City, to construct a storm sewer system.

“conveyance” means the positive grade, connectivity and capacity requirements to transmit storm water from one area to another.

“ditch” means a natural or artificial watercourse ranging from a depression, or swale, to an open channel that conveys storm water runoff from both public and private properties and has the same conveyance function as a piped sewer system.

“ditch alteration” means the addition of earthworks, landscaping works and pipes to a ditch system to eliminate a defined ditch conveyance system for storm water.

“drainage basin” means the extent of the area served by a ditch drainage system.

“easement” means the legal right for City staff to enter onto private property to maintain and operate storm water infrastructure as defined under

provisions of Municipal Act 2001.

“foundation drainage” means groundwater collected by the weeping tiles installed around the footings of a dwelling, collected in an internal sump pit and discharged to the surface by a sump pumps. The water subsequently drains overland to be collected in the ditch system.

“logical limits” means the extent of a pipe system necessary to achieve the best economic or physical benefit to the area.

“network” means the entire linked system, whether road, sewer or water, that identifies the connection of one part of the system to another.

“right-of-way” means the publicly owned property typically used for the location of roads, sewers, watermains, sidewalks and walkways.

“roadside ditch” means the open storm water system located on both sides of the roadway and which is used for the collection and conveyance of storm water.

“rural area” means the area outside the Public Service Area as defined by the City of Ottawa’s Official Plan.

“storm drainage system” means a storm water conveyance system of ditches and storm sewers.

“storm water quality” means the condition of the surface water from a sediment or pollutant loading perspective that requires addressing prior to discharge to a receiving watercourse.

“storm water quantity” means the volume of surface water required to be collected and conveyed by a ditch system or a piped sewer system.

“sub-grade drainage” means the groundwater collected by the granular roadbed structure.

“urban area” means the area public service area defined in the City of Ottawa’s Official Plan, and it also refers to development density as found in estate lot subdivisions and rural Villages.

“work” means the installation of the ditch filling project.