Ditch Alteration Policy Consistency Review

Technical Memo #2

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FINAL

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1.0 INTRODUCTION

1.1 Project Overview

Roadside ditches are critical infrastructure of the City of Ottawa's overall engineered drainage network along many municipal streets. They exist throughout the City in various urban, village, and rural contexts. Ditches provide an important stormwater management function within the drainage network via quantity collection and conveyance controls and in-line quality treatment. In addition to assisting in the collection and conveyance of run-off from adjacent lands, roadside ditches provide a roadway subbase drainage role which assists in preserving the longevity and integrity of the adjacent roadways, which are themselves vitally important municipal infrastructure. However, the purpose and multiple benefits derived from a well-maintained, functioning municipal roadside ditch network is not widely understood by residents.

The City of Ottawa, through staff across a wide variety of services including Roads, Right of Way, Development Review and Asset Management, receive regular requests from property owners to alter or fill in the ditch within the municipal right-of-way adjacent to their property. The rationale for such requests is typically either to reduce maintenance or to improve aesthetics along the street lot line. In many cases, improper ditch filling or alteration activities are completed by property owners without municipal review and authorization. Improper ditch filling or alteration may cause an array of detrimental effects to private property or to City infrastructure, both locally as well as to the extended drainage system, and at times requiring remedial action by the City.

The City of Ottawa has retained Parsons to review the city research information and provide a professional and objective third-party review of the matter of ditch filling and alterations. The work includes preparing a series of memorandums focused on ditch function and impacts of ditch alterations, a ditch alteration policy consistency review, and a City of Ottawa ditch alteration business process review.

Following the completion of research and dialogue held via working group meetings of key City of Ottawa staff, it was recognized that the City's approach to Local Improvement and Ditch Alteration could be improved. There is an opportunity to increase consistency and transparency, and to better educate property owners about the importance of ditches in protecting public and private property from damage and degradation.

1.2 Objective of this Technical Memorandum

The objective of this technical memorandum is to identify the alignments and consistency of the City of Ottawa's current Ditch Alteration Policy with other City Plans, Policies and Objectives. This will also include consistencies within the context of current municipal and local Conservation Authority practices, and relevant Provincial and Federal Policies and Regulations.

1.3 City of Ottawa Ditch Alteration Policy Overview

The City of Ottawa Ditch Alteration Policy (the "Policy") was approved by City Council on July 9, 2008 and is included within **Appendix A** of this Memorandum.

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."*

Purpose of the Policy:

> *"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."

The Policy describes that ditches are constructed as viable means for conveyance of stormwater and that they provide stormwater management (SWM) functions and benefits such as reduction of downstream peak flow rates, improved water quality in existing water bodies, stormwater storage for infiltration to replenish the groundwater table, and protection of fish habitat. Ditch alteration projects, such as ditch in-filling, compromise the function of the SWM system and the benefits the ditches provide. Many ditch in-fills within the same drainage area will also impact both the quantity and quality benefits provided by the SWM system, without appropriate technical analysis or design. Local infrastructure problems and upstream flooding may result, and there may be negative impacts to the drainage system of other properties. It should also be noted that stormwater management facilities (ponds) are designed as the end treatment function within the SWM system. The quality and quantity storage required within a drainage system is shared between the ditch system and the SWM pond. If ditches are in-filled, the drainage system is altered, requiring a review of the entire system including the SWM pond. The alteration of a SWM pond may be required if ditch in-filling is completed. SWM ponds are expensive because they require large amounts of land and regular monitoring and maintenance.

The Policy does include exceptions when the site is not suitable due to technical, economical and administrative factors. The Policy details infrastructure that is covered – urban and rural roadside ditches and ditches located in registered and unregistered easements – and infrastructure that is not covered, including municipal drains, ditches with permanent water, and ditches located in or near Provincially Significant Wetlands.

The Policy details the alteration principles and processes with key principles, general process requirements, engineering assessments, and ditch alteration project implementation. These principles are listed to define the Policy and associated process for permitting ditch alterations. The general process requirements when determining how to proceed with the ditch alteration will be based upon the outcome and recommendation from an engineering assessment founded upon the items listed within the Policy. The ditch alteration may proceed when the ditch alteration project implementation criteria listed within the Policy have been satisfied.

The financial principle of the Policy is that all costs will be shared between all property owners benefiting from the work. The process to be followed is described within the City's Local Improvement Policy.

2.0 CITY OF OTTAWA PLANS & STRATEGIES

2.1 Stormwater Asset Management Plan

The Stormwater Asset Management Plan (SWAMP) is currently under development. The Ditch Alteration Policy is in alignment and consistent with the Asset Management Plan (AMP). However, it should be noted that the current information provided within the AMP is focused on presenting an overview of the City's current asset inventory and the costs of maintaining the current level of service from these assets, as well as highlighting challenges (including the anticipated impacts of climate change on existing assets and service levels) and opportunities associated with integrated renewal and its alternatives.

2.2 Climate Change Master Plan

The City of Ottawa Climate Change Master Plan (CCMP) is a framework for how the City will mitigate and adapt to the changing climate of the next three decades. On April 24, 2019, City Council declared a Climate Emergency for the purposes of naming, framing, and deepening the City's commitment to protecting the economy, eco-systems, and community from climate change.

2.2.1 Document Summary

In April 2019, Environment and Climate Change Canada released a report stating that Canada is warming at a rate that is twice as fast as the rest of the world, and the effects of warming will only intensify. The City of Ottawa

will begin to experience wetter springs and winters, warmer winters, and an increase in summer days where temperatures are above 30°C. These changes will have a significant impact on City infrastructure, the local economy, and the environment. The City of Ottawa is taking unprecedented collective action to transition to a clean, renewable, resilient City by 2050.

The CCMP highlights two items applicable to ditch alteration: the City will adapt to climate change, protecting people and property by "*increase[ing] infrastructure resiliency*" and *"protecting and enhancing the natural environment".*

2.2.2 Alignment and Consistency

The current version of the Ditch Alteration Policy does not directly relate ditch alteration to the effects and impacts of climate change. The Policy details the importance of ditches and what they provide the City in terms of stormwater management and environmental benefits, and the adverse effects that ditch alteration can cause. A strong relationship needs to be made stating that climate change will increase the adverse effects caused by ditch alterations completed without the appropriate technical analysis or adherence to the City's Design Guidelines.

The CCMP states that Ottawa is experiencing warmer, wetter, and unpredictable weather. These changes affect precipitation. **Figure 1** shows the predicted climate changes for Ottawa.

Change	1976-2005	2051-2080		
	Mean	Low	Mean	High
Typical hottest summer day	33.7 °C	35.6 °C	38.6 °C	42.4 °C
Typical coldest winter day	-29.5 °C	-26.1 °C	-21.0 °C	-15.6 °C
Number of +30 °C days per year	14	33	57	81
Number of +20 °C nights per year	5	18	35	55
Number of below-zero days per year	152	89	111	131
Annual precipitation	886 mm	811 mm	978 mm	1166 mm
Frost-free season (days)	160	173	203	235

Source: Climate Atlas of Canada March 2019

Figure 1: Climate Predictions for Ottawa

The City needs to ensure that the Policy requirement of an engineering assessment includes a focus on climate change. The updated floodplain mapping and community flood risk profiles currently being completed by the City as part of the CCMP will need to be reviewed and incorporated as part of the assessment to prepare for and respond to increasing flooding.

One of the City priorities over the next five year (2020-2025) includes "*Apply a climate lens to asset management and capital projects*" (**Table 1**).

Table 1: CCMP Priority #4: Apply a Climate Lens to Asset Management and Capital Projects

Priority #4	**Apply a climate lens to asset management and capital projects**
Description:	Development and application of a climate lens to embed climate change considerations into the management of existing assets, the design of new capital projects and current City asset management policies and practices. The Comprehensive Asset Management (CAM) program guides the management of the City's $42 billion worth of assets including buildings, roads and pathways, fleet, water and wastewater infrastructure, and parks and greenspace. Recent provincial regulations (O. Reg 588/17) require municipalities to commit to considering climate change – both greenhouse gas mitigation and adaptation - in asset management planning. The project will also better position the City to respond to external funding opportunities and meet eligibility requirements for infrastructure funding (e.g., federal Climate Lens). A safe, liveable city needs well-functioning infrastructure that supports community services for decades. Applying a climate lens lets us address key questions: How vulnerable are the City's existing assets to a changing climate? How can we ensure that current and future infrastructure performs in projected climate conditions? From a mitigation perspective, a key question that we can address is: How can we retrofit our existing infrastructure and design future capital projects to meet our greenhouse gas emission targets? Risk management and asset resiliency are core principles of asset management. Further integrating climate considerations into CAM will enable climate change to be considered alongside additional challenges such as aging infrastructure, growth and limited resources. Parallel Climate Change Master Plan projects in *Energy Evolution* and *Climate Resiliency Strategy* will provide key inputs in terms of actions to meet our greenhouse gas targets and key vulnerabilities to projected climate conditions.
Measures of Success:	• Comprehensive Asset Management Policy reflects commitment to consider climate change in its asset management systems and processes • Asset Management Plans in 2021 for core infrastructure and in 2023 for other infrastructure • Staff with capacity to assess GHG emissions and climate impacts and develop mitigation and adaptation strategies
Responsible Department(s):	• Led by Planning, Infrastructure and Economic Development Department

Key Community Partners:	• Ministry of Infrastructure
Estimated Project Milestones:	• 2021: Update Comprehensive Asset Management Policy • 2021: Asset Management Plans for core infrastructure services • 2021/2022: Identify practical ways to integrate climate resilience into the suite of asset management tools • 2022/2023: Identify practical ways to integrate GHG emissions reductions into the suite of asset management tools • 2023: Integrate climate change considerations in Asset Management Plans for other infrastructure services.
Resources:	• Infrastructure Services will lead the development of the Service Based Asset Management Plans and will commit to consider climate change as part of their overall development • Priority projects will continue to be identified through *Energy Evolution* • The climate projections, vulnerability assessment and climate resiliency strategy will be used to inform detailed risk assessments and identification of gaps • A dedicated Standing Offer list for expertise in climate change mitigation and adaptation for major service areas to be developed

Source: Climate Change Master Plan 2020

It should be noted that the target dates for the above-referenced Core Asset Management Plans (AMPs) and non-core AMPs have been extended by 1 year: 'Core' assets (water, wastewater, stormwater, roads and bridges) will have an AMP documenting current levels of service by July 1, 2022; all City infrastructure assets will have an AMP documenting current levels of service by July 1, 2024; and AMPs will be developed to a stage of maturity that they document proposed levels of service and financial strategies to fund these expenditures by July 1, 2025. The City Ditch Alteration Policy should be incorporated during the development and application of climate change asset management and its impact on infrastructure construction projects.

2.3 Climate Change and Resiliency Plan (still under development)

2.3.1 Climate Resiliency

Climate resiliency is *how we adapt* in response to the change in climate conditions which could include extreme weather such as heavy rains/windstorms, rain and snow, and shifts in temperature. Climate changes impact our health and safety, infrastructure, economy, and the environment. Climate changes also affect people differently, and the City has taken steps to protect the community and the City's infrastructure against climate change, including undertaking a vulnerability assessment to build resiliency to the impacts of climate change.

2.3.2 Alignment and Consistency

The Ditch Alteration Policy is indirectly aligned with the Climate Change and Resiliency Plan (CCRP) as well as Section 2.2.3 of the new 2021 City of Ottawa Official Plan which states, "*Ottawa shall be a city that is energy conscious, reduces emissions and is more resilient to the impacts of climate change*". The CCRP document states that the City's next steps are to examine how the City is adapting to climate change and identify the City's vulnerability in relation to climate change, including exploring ways to reduce the climate change impacts to protect the communities, infrastructure, economy, and environment. The Ditch Alteration Policy does not directly

reference climate change and the impacts on ditch alteration, and the climate resiliency document does not reference ditch alterations as a method of protecting private property from flooding.

2.4 Low Impact Development and Stormwater Retrofit Initiatives

The City of Ottawa completed a stormwater management (SWM) retrofit implementation plan to reduce the impacts of uncontrolled stormwater runoff, and one of the control measures was to utilize Low Impact Development (LID) in municipal right of ways (ROWs). A screening tool was used to identify the most suitable sites for the implementation of LID within the municipal ROW.

The City of Ottawa Low Impact Development Screening Tool for Municipal Right-of-Ways Report, prepared in April of 2020, is a detailed and technical report summarizing the screening tool used to complete the ROW retrofit for the City.

The LID study reviewed the subwatershed health metrics such as terrestrial subwatershed health, stormwater management, water quality, stream channel and riparian health, and aquatic ecology. These are all items that are to be reviewed and accounted for as part of the ditch alteration policy engineering assessment requirement, and these items should be consistently applied across the City.

The LID study reviewed the existing SWM practices within the City in relation to SWM quality and quantity controls and the report provides an existing conditions evaluation score for the SWM metrics on a subwatershed basis.

This report also details the local opportunities and constraints that must be considered when prioritizing and/or implementing LIDs in municipal ROWs. Without going into a high level of technical detail this report provides information that will aid in completing the Policy review and engineering assessment requirements.

The Ditch Alteration Policy is in alignment and consistent with the City of Ottawa Low Impact Development Screening Tool for Municipal Right-of-Ways report, and this report will provide a good resource for the engineering assessment requirement.

2.5 Urban Intensification per Official Plan

City Council adopted a new Official Plan in fall 2021. Council has approved Big Policy Move 1, "*Achieve, by the end of the planning period, more growth by intensification than by greenfield development*", and this theme is prevalent throughout the OP. Section 2.2.3 establishes the goal to "*build resilience to future flood risks and increased stormwater runoff*". Section 4.7, Drinking Water, Wastewater and Stormwater Infrastructure includes specific policy direction to, "*provide adequate, cost-effective drinking water, wastewater and stormwater infrastructure, and assist in meeting growth targets in the urban area*". The Official Plan does not directly reference ditches or ditch in-fill alterations -- although the City's current Ditch Alteration Policy does overall OP objectives as detailed below.

The Ditch Alteration Policy addresses the implications of uncontrolled stormwater runoff, such as impact upon aquatic habitat, increased erosion, decreased quality of the receiving watercourse, and increased flooding. The Ditch Alteration Policy is also in alignment with the importance of SWM to mitigate the land use impacts to the receiving watercourses.

The Ditch Alteration Policy is consistent with the needs for coordination with land use planning, engineering assessment of the receiving watercourse, and review of the environmental features and natural hazards.

The City's SWM policies cover established practices and new direction for SWM planning, such as planning for SWM retrofit and requiring increased efforts to reduce runoff volumes. The retrofit planning addresses the cumulative impacts of infill/redevelopment in areas that do not have SWM practices. The Ditch Alteration Policy would not be applicable within these situations although policies do exist within the IMP that require the implementation and protection of existing SWM measures.

2.6 City of Ottawa Infrastructure Master Plan

As introduced in Section 4.7 of the new OP, "*The Infrastructure Master Plan provides comprehensive documentation of the development and evaluation of water, wastewater and stormwater servicing strategies and projects in the City*". The existing Council-approved 2013 City of Ottawa Infrastructure Master Plan (IMP) supports the City's 2008 OP, and is in the process of being updated to support the new 2021 OP. The IMP provides support by ensuring there is sufficient infrastructure capacity in the needed areas of the city and the correct level of infrastructure is provided to accommodate development and redevelopment within the city. Section 5.4 of the IMP details the Stormwater Systems, Section 5.5 is Responding to Intensification, and Section 5.6 is Servicing in the Rural Area and Urban Area Enclaves.

The City Ditch Alteration Policy is in alignment and consistent with the message being conveyed by the existing IMP and will be consistent with the IMP update which is anticipated to place a higher emphasis on the needs and benefits of managing stormwater quality and quantity in urban areas. This includes the importance of the City's drainage systems, and watercourse health which includes water quality, LID approaches, and capacity reviews. The IMP also serves as a reference document when engineering assessments are required as part of the Ditch Alteration Policy.

2.7 City of Ottawa Request for Ditch Alteration Fact Sheet

The City of Ottawa Request for Ditch Alteration Fact Sheet provides an excellent background on the City's ditch system and details the purpose of a roadside drainage system. It also discusses how the public can help to maintain the ditch system, how the City would consider replacing the roadside ditch system with a pipe storm system, what the implications are for ditch alterations, what a ditch alteration involves, and the procedure for a property owner to request an alteration to the existing ditch system.

The City Ditch Alteration Policy is in direct alignment and consistency with the Ditch Alteration Fact Sheet.

The Fact Sheet highlights that a ditch alteration is not a simple matter, and that accurate sizing and assessment of the drainage system is required to mitigate adverse effects of a ditch alteration.

In addition, the Fact Sheet references the Ditch Alteration Policy and the City's ditch alteration strategic goals and key principles.

3.0 ALIGNMENT WITH OTHER MUNICIPALITIES

After the City completed a ditch alteration policy web scan of other municipalities, it was concluded that many municipalities do not have a public ditch alteration policy, although some may have non-public policies, or ditch alteration may be invoked within other local By-laws. It was also noted that AECOM, in 2018, issued a stormwater survey through which participants learned more about ditch infill policies, best practices and experiences.

The web scan concluded that the City of Ottawa has a more formalized process compared to other municipalities when it comes to ditch alteration policies and regulations. Many other Canadian municipalities follow a process as identified within the Water Resources Act, whereby a Director receives permit applications that are reviewed and approved using engineering considerations. This approach requires other municipalities to place reliance on By-laws. Because of this, the City also completed a review of other municipalities' By-laws to see how other municipalities managed ditch alterations.

It was concluded that there is no single approach to ditch alteration management, and yet most municipalities reported having issues with unapproved ditch in-filling alterations.

This section of the memorandum provides a review of the City of Ottawa's Ditch Alteration Policy and the extent of alignment with Policies and By-laws governing ditch alterations from other Canadian municipalities including:

- Outcome from the AECOM Survey of other Canadian municipalities;
- City of Markham Ditch Alteration Program;
- City of Abbotsford Good Neighbourhood By-law;
- Town of Whitby Site Alteration By-law;
- Township of North Frontenac Roadside Ditch Alteration Policy;
- Town of Fort Erie Roadside Ditch Alteration Policy; and
- City of Burlington Site Alteration Permit process.

3.1 AECOM (Section 6, Annex #3)

The City engaged AECOM in 2018 to review existing practices and provide recommendations to improve the effectiveness of the City's stormwater operations and maintenance program, including the development of the Levels of Service (LOS) Framework for the City's stormwater collection, facility, and roadside ditch system.

AECOM also defined the desired LOS by incorporating industry best practices and regulatory requirements. Section 6 Annex #3 provides the LOS framework for ditches.

3.1.1 Ditch Alteration Policy Review

Section 6.2 of the technical memorandum provides a very detailed review of the City's Ditch Alteration Policy, completed with an understanding of the policy statement, scope, principles, approach, engineering assessment, implementation, responsibilities, and contraventions.

3.1.2 Comments from City Staff

AECOM obtained feedback from City staff in relation to the alteration policy review. **Table 2** was taken from the report summarizing the key feedback received.

Table 2: Key Staff Feedback on City Site Alteration Policy

1. Ditch enclosures were not installed with consistent approaches, and design criteria between the City and the amalgamated municipalities were not the same. This makes it challenging to apply a consistent and "fair" approach to enforcing the policy since each customer has a different situation. This is typically augmented by political influence and pressure to concede or satisfy the land owner.
2. Rural owners show an interest in roadside ditches, but also submit complaints in areas where there are no functional or maintained outlets. Rural owners wish to use the rural road allowance in calculating the designs for septic beds, but expect the City to maintain ownership.
3. A strong outreach and education campaign is needed to clarify the purpose of ditches, both internally and externally.
4. Ownership of culverts needs to be properly defined as either the City or the land owner.
5. Maintenance Quality Standards for ditches are not being met.
6. A lack of asset data is a key limitation for managing the policy.

Source: Technical Memorandum #1, Stormwater Maintenance Reviews, Levels of Service Framework, February 2019

3.1.3 Review of Other Policies

A review of other municipalities' ditch alteration policies was completed to determine what the practices were in other Ontario jurisdictions.

Town of Whitby Policy and By-law of Ditch and Site Alterations

The Town of Whitby published a policy document (*Guidelines to Site Alteration*) revised May 28, 2019, that is to be read in conjunction with a By-law for ditch and site alterations (the Site Alteration By-law 7425-18). This system is the best comparison to the City of Ottawa's Ditch Alteration Policy, although it cannot be seen as a direct comparison. The Town of Whitby's *Guidelines to Site Alteration* provides guidance on how to interpret the

By-law and complete the application process, although most of the document is written with a high level of technical detail and limits the understanding of the reader. The application for site alteration is on a site-by-site basis and is a two-step process: first, a pre-screening questionnaire, followed by the formal site alteration permit application. An engineering assessment is not required, although engineering drawings are required and a list of details to include on the drawings is located within the Policy. The key take-away from this review was the importance of having a Policy and clear communication to provide the reader with easily understood rules and procedures. Table 3 details the key functions of the two documents.

Table 3: Town of Whitby Policy and By-law Key Functions

Town of Whitby Site Alteration By-Law 7425-18	***Guideline to Site Alteration in the Town of Whitby***
✖ Provides permit conditions, outline of enforcement approach, and specific details. Regulates altering the grading, use/removal of fill, and encroachment of site alterations on to public lands through five key concerns: 1. Drainage impacts 2. Environmental concerns 3. Nuisance impacts 4. Damage to public infrastructure 5. Land use compliance	✖ Provides guidance for applicant on how to complete the permitting process including a pre-screening questionnaire, a complete application, support documents, and provision of an application fee.

Source: Technical Memorandum #1, Stormwater Maintenance Reviews, Levels of Service Framework, February 2019

City of Abbotsford (near Vancouver) Successful Controls

The Town of Abbotsford relies on a combination of By-laws related to site alterations, drainage, development, and land use. In addition, they have a Good Neighbour By-law (2003) that established the requirements for maintaining the frontage of properties and preventing obstruction of drainage facilities. The AECOM report summarizes the Abbotsford ditch alteration practices within Section 6, Annex 3 Table 20 found under separate cover.

3.1.4 Results of City of Ottawa Ditch Alteration Policy Review

Section 6 Annex 3, section 6.2.7 of the AECOM memorandum summarizes the strengths, gaps, additions, risks, proposed approach, conclusions, and recommendations of their review of the Ditch Alteration Policy. The summary provides a thorough and in-depth review of the City's current Policy.

3.1.5 Jurisdictional By-law Review

The AECOM technical memorandum also provides a comparison review of the Policies and By-laws from different municipalities which is summarized in Table 4.

Table 4: Jurisdictional Site Alteration By-law Review

Criteria	Ottawa	Markham	Kitchener	Guelph	Kingston	Hamilton	Whitby	Abbotsford (Good Neighbour By-Law)
Invokes a policy/guidance document to be read in conjunction with the By-Law	✓	X	X	X	X	X	✓	X
Prohibits Site Alterations without approval	✓	✓	✓	✓	✓	✓	✓	X
Defines ditches, water courses, outlets, etc.	✓	✓	✓	✓	✓	✓	X	X
Requires resident to maintain the ditch	✓	X	X	X	X	X	X	✓
Provides criteria for drainage	✓	✓	✓	✓	✓	✓	X	X
Establishes riparian setbacks	✓	✓	X	✓	✓	X	X	X
Prohibits drainage alteration	✓	✓	✓	✓	✓	✓	✓	X
Establishes a permit process for site alteration	✓	✓	✓	✓	✓	✓	✓	X
Penalties for non-compliance	✓	✓	✓	✓	✓	✓	✓	✓
Compels resident to provide corrective action	✓	✓	✓	✓	✓	✓	✓	✓

Source: Technical Memorandum #1, Stormwater Maintenance Reviews, Levels of Service Framework, February 2019

3.1.6 Conclusion

The AECOM technical memorandum concluded that the City Ditch Alteration Policy is more advanced than most other municipalities when it comes to guidance documents or policies regarding ditch alteration, and the City of Abbotsford is a leading example of a regulatory framework for in-filling prevention.

3.2 City of Markham

The City of Markham has a *roadside ditch alteration within the public road allowance* Policy that should be read in conjunction with the related road occupancy By-law 2018-109.

3.2.1 Purpose

The City of Ottawa Ditch Alteration Policy was created and established for the City to better meet its obligations and expectations of property owners, with respect to managing storm drainage conveyance issues. This differs from the Markham Policy, where the Policy's purpose is to document the general requirements for the City to permit filling or alterations of drainage ditches and to remove existing unauthorized ditch in-filling within the road allowance.

The City Ditch Alteration Policy is written in a manner that states the Policy is to establish a process that will allow ditch alterations. In contrast, the City of Markham policy clearly states that alteration will only be permitted for driveway/entrances or if it has been determined to be beneficial to the operations and maintenance of the City roads.

3.2.2 Background and Policy Description

Both Policies highlight the major functions and benefits of ditch systems and the impacts associated with infill alterations. The Markham Policy does differ slightly in that it places an importance on snow storage to reduce potential for snow drifting over the road and providing a snow stockpile area. In addition, the Markham Policy also speaks of ditch infill increasing the susceptibility of culverts to blockage from branches, foliage, debris and sedimentation.

3.2.3 Exception to the Policy including Infrastructure Covered and not Covered

The City of Ottawa Ditch Alteration Policy provides exceptions to the policy which the Markham policy does not. The City Policy acknowledges that some sites may not be suitable for alteration due to technical, economical, and administrative factors. The City Policy also highlights infrastructure that is and is not covered by the Policy. This information is helpful when applying the Policy to ditch alterations and in knowing the application of the Policy.

3.2.4 Ditch Alteration Principles and Processes

When reviewing the ditch alteration principles and process the City Ditch Alteration Policy defines key principles and associated processes for permitting ditch alteration, including general process requirements and

engineering assessment requirements to allow for the alteration. The Markham Policy is clearer cut in the fact that ditch alteration will not be allowed, and the decision is at the sole discretion of the Director. The Markham Policy also speaks to design processes such as partially burying culverts, culvert sizing, slope of culvert, etc. This type of design information is located within the City's Sewer Design Guidelines and should only be referenced within the City Ditch Alteration Policy.

The engineering assessment is a requirement of both Policies and includes a list of minimum items that assessment should include. The items are similar in both Policies, and it appears that some of the items are copies from the Ottawa Policy.

The City of Ottawa Policy briefly addresses existing ditch infill situations. A more detailed process for how the City will address existing altered ditches should be reviewed and implemented.

3.3 The Township of North Frontenac

The Township of North Frontenac By-law 104-13 was passed on November 25, 2013, and it authorized the mayor or deputy mayor, and the clerk or deputy clerk to sign a Roadside Ditch Alteration Policy. The Policy is to regulate and control any alterations, pipe and/or filling of a municipal roadside ditch including the connection of any pipe installed to drain a foundation or, sump pump from a private residence.

3.3.1 Purpose

The North Frontenac Policy establishes criteria to be applied when evaluating ditch alteration requests from public and private landowners abutting a Township Road. In contrast to the City of Ottawa Ditch Alteration Policy, the North Frontenac Policy states that there must be evidence to demonstrate that the ditch alteration is beneficial to the operations and maintenance of the Township Road system.

3.3.2 Background and Policy Description

Both the City's Policy and the North Frontenac Policy detail the functions of roadside ditches. The North Frontenac Policy does differ slightly in that it details the three primary functions of roadside ditches, which are road drainage, collecting and channeling roadway surface runoff, and to provide roadway snow storage. It also clearly states that ditch alteration (in-filling) is generally not recommended but the Policy will apply for consideration of ditch alteration.

The North Frontenac Policy does not require an engineering assessment, but it states that a hydraulic assessment may be required and is to be completed by a professional engineer at the expense of the proponent.

3.3.3 Associated Costs

Different from the City's Policy, the North Frontenac Policy clearly states that alteration (installation and material) cost, hydraulic assessment cost, additional work determined by the Manager, and existing utility (gas, bell, hydro) will be at the expense of the proponent.

The North Frontenac Policy requires the proponent to pay a $100 application fee and $500 security deposit. The security deposit is returned if the application is denied. If the permit is approved and the work is completed to the satisfaction of the Manager, the $500 security deposit is returned.

Any unauthorized alteration is considered trespassing, and the alteration may be removed, and the abutting property owner will be invoiced for the restoration work.

3.3.4 Ditch Alteration Process

The application and approval process between the two Policies is slightly different. The City of Ottawa Policy undertakes an engineering assessment, where the North Frontenac Policy requires the proponent to prepare and submit a design and plan along with the Ditch Alteration Permit Form. Only after a review of the application

permit is an engineering study required if deemed needed by the Manager. The alteration process within the North Frontenac Policy also details the cost implications regarding individual items which the City's Policy does not.

The City of Ottawa's Policy is more detailed in the listed exceptions to the Policy, considering and providing information regarding technical, economical, and administrative factors affecting the alteration.

3.4 Town of Fort Erie

The Town of Fort Erie passed By-law 93-10 on August 9, 2010, to adopt a Roadside Ditch Alteration Policy for the Town. This Policy is very similar to the City of Ottawa's Policy with the formatting of the document being almost the same. It can be concluded that the Town of Fort Erie used the City of Ottawa Policy and re-worded most items so that their Policy did not appear to be a direct copy of the City of Ottawa's Ditch Alteration Policy.

The Town of Fort Erie Policy does differ with the City's Policy within the financial principles of the Policy. The Town of Fort Erie will assume the cost for the labour, materials, equipment, and disposal related to the ditch alteration removal and reinstatement of an open ditch system. In additional there will be no compensation for the Owners who incurred costs to infill their ditch that is being reinstated.

3.5 City of Burlington

The City of Burlington has a Site Alteration Permit screening application authorized under By-law 64-2014 and amended by By-law 093-2020. This is a prescreening application for works being proposed. The application poses questions regarding the work being proposed to determine if a Site Alteration Permit is required. This is a good example of a prescreening form that the City of Ottawa could implement when receiving ditch alteration requests. When it has been determined that a Site Alteration is permitted, the requirements of By-law 64-2014 are followed.

4.0 ALIGNMENT WITH PROVINCE OF ONTARIO / FEDERAL REGULATIONS

4.1 Ministry of the Environment, Conservation and Parks; Environmental Compliance Approval

The Ontario Ministry of the Environment, Conservation and Parks information presented within this memorandum is based on the current approval process as of December 2021.

Activities regulated under the Environmental Protection Act, R.S.O 1990, Chapter E.19, and the Ontario Water Resources Act, R.S.O 1990, Chapter 0.40, must be carried out in accordance with those Acts, and the applicable Regulations and Guidelines administered by the Ministry. When completing a Permit for Sewage Works in the Province of Ontario, a Ministry of the Environment, Conservation and Parks (MECP) Environmental Compliance Approval (ECA) may be required and an ECA is an approval issued by the MECP under Part II.1 of the Environmental Protection Act.

> ***Approval, Sewage Works 53*** *(1) Subject to section 47.3 of the Environmental Protection Act, no person shall use, operate, establish, alter, extend, or replace new or existing sewage works except under and in accordance with an environmental compliance approval. 2010, c. 16, Sched. 7, s. 3 (9).*

Most ditches within the City of Ottawa do not have an ECA. Therefore, if the owner (City) does not hold an existing ECA, a new ECA will be required. ECAs will be in the City's name and identify conditions that the City must fulfill for standard maintenance. The proponent would apply for the ECA under the City's name.

A ditch infill alteration could be classified as a non-standard case within the MECP ECA application guide. Non-standard cases may fall under a Transfer of Review Program where the designated municipality has been provided the authority to review ECA applications and supporting documents on behalf of the Ministry.

Per Schedule A: Sewage Works allowed under the Transfer of Review Program, allowed stormwater works include new or modified municipal or private storm sewers, ditches, culverts and grass swales as listed in **Figure 2**.

a. New or modified municipal or private storm sewers, ditches, culverts and grassed swales that:

i. are designed in accordance with the Ministry document *Stormwater Management Planning and Design Manual, 2003* (PIBS 4329e) as amended from time to time;
ii. are designed primarily for the collection and transmission of stormwater;
iii. discharge to existing storm sewers, other existing stormwater conveyance works, an approved stormwater management facility, or a Municipal Drain;
iv. for drainage works under the *Drainage Act,* approval of a petition for the modifications must be obtained under the *Drainage Act* prior to submitting an application for an ECA;
v. are not combined sewers or superpipes and does not connect to a combined sewer;
vi. are not located on industrial land or designed to service industrial land;
vii. do not propose to collect, store or discharge stormwater containing substances or pollutants (other than Total Suspended Solids, or oil and grease) detrimental to the environment or human health; and
viii. do not require the establishment and monitoring of effluent quality criteria.

Source: City of Ottawa Schedule A: Sewage works allowed under the transfer of review program

Figure 2: Allowed Stormwater Works

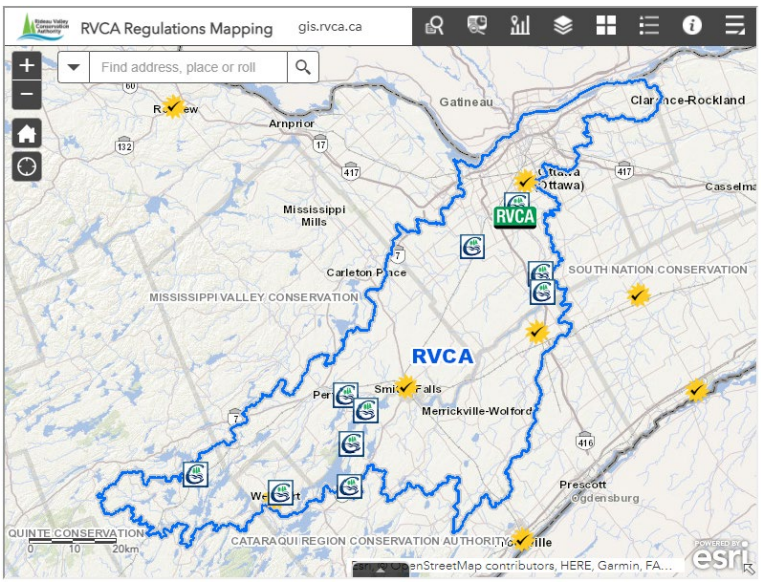
A full-width ditch infill alteration will need to be designed per the Ministry *Stormwater Management Planning and Design Manual* to meet the MECP ECA requirements.

An ECA for an individual ditch alteration can be made, although the impacts to the watershed and full drainage system will need to be assessed to ensure the alteration is designed per the Ministry *Stormwater Management Planning and Design Manual* and the full system continues to function as designed.

4.2 Rideau Valley Conservation Authority

The Rideau Valley Conservation Authority (RVCA) administers a Regulation under Section 28 of the Conservation Authorities Act known as Development, Interference with Wetlands and Alteration to Shoreline and Water Courses Regulation (Ontario Regulation 174/06).

The location of the site will determine if a Permit from the RVCA is needed. If the ditch alteration work is near a lake, river, stream, floodplain, steep slope, or wetland, an RVCA permit may be required. **Figure 3** below is a screen shot of the RVCA interactive map depicting the RVCA regulations mapping zone.



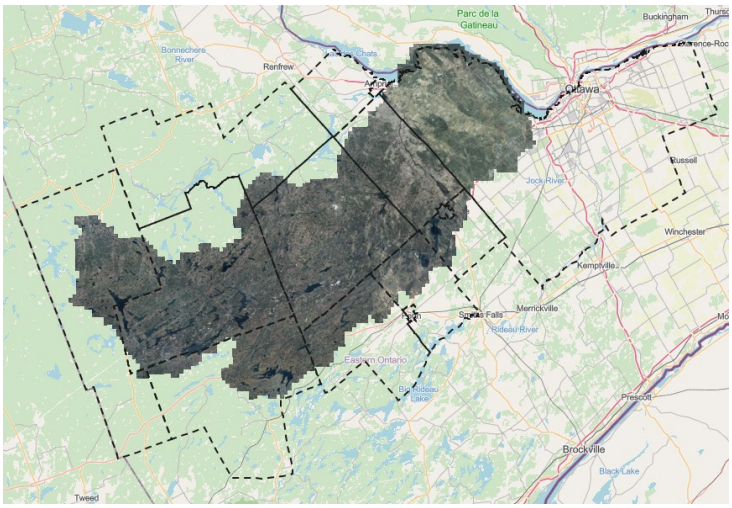
Source: Rideau Valley Conservation Authority web page

Figure 3: RVCA Regulations Mapping Area

4.3 Mississippi Valley Conservation Authority

The Mississippi Valley Conservation Authority (MVCA) administers a Regulation under Section 28 of the Conservation Authorities Act known as MVCA's Development, Interference with Wetlands and Alteration to Shoreline and Water Courses Regulation (Ontario Regulation 153/06).

The object of this regulation program that is related to ditch alteration is the prevention of filling and or draining of storage areas that may limit the flood plain storage capacity and increase flood elevations. **Figure 4** below is a screen shot of the MVCA interactive map depicting the MVCA regulations mapping zone.



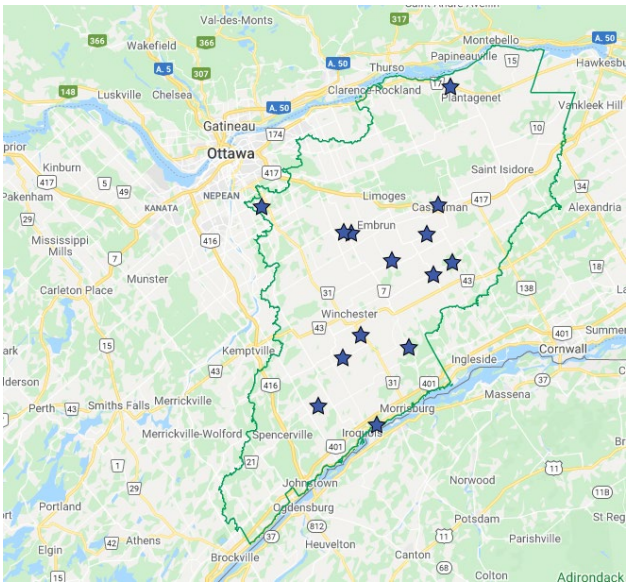
Source: Mississippi Valley Conservation Authority web page

Figure 4: MVCA Regulations Mapping Area

4.5 South Nation Conservation Authority

The South Nation Conservation Authority (SNCA) administers a Regulation under Section 28 of the Conservation Authorities Act known as Ontario Regulation 170/06, Development, Interference with Wetlands and Alteration to Shoreline and Water Courses Regulation.

The object of this regulation program is to ensure public safety and protection of property from natural hazards. Communication with and permission from the SNCA is required for areas of development where there is interference to the hydrological function of a wetland, including developments within 120 meters from a Provincially Significant Wetland. **Figure 5** below is a screen shot of the SNCA interactive map depicting the SNCA regulations mapping zone.



Source: South Nation Conservation Authority web page

Figure 5: SNCA Regulations Mapping Area

4.6 Canadian Fisheries Act

The Canadian Fisheries Act empowers Fisheries and Oceans Canada (DFO) to conserve and protect fish and fish habitat across Canada. The Act was amended on June 21, 2019.

It should be noted that not all ditches fall under the supervision of the Fisheries Act. The only ditches that do are the ones connected to a fish bearing watercourse or providing indirect fish habitat (SWM ponds), meaning the ditch is dry most of the time. If the ditch is connected to a fish habitat, additional steps will be required for the works to be completed. This is something that would be determined during the engineering assessment required within the City's Ditch Alteration Policy.

5.0 ALIGNMENT WITH OTHER RESOURCES

The Federation of Canadian Municipalities (FCM) published a report on *Sustainable Land Use Practices in Canadian Municipalities* in March 2019. The research was conducted to understand land uses as related to sustainability. Strategic direction includes enhancing green infrastructure and natural features in and near communities, and green infrastructure includes ditches and LIDs. The Government of Canada, through Infrastructure Canada, has committed to investing to ensure Canada's communities are healthy and productive places to live. Since 2016 the National Research Council Canada (NRC) has undertaken ground-breaking work to integrate climate resilience into building and infrastructure design, guides, and codes.

The City's Policy focuses more on information required to allow ditch infill alterations which is not in alignment with the FCM findings, which focuses on promoting green infrastructure including vegetation, LIDs, roadside plantings, ditches, etc.

6.0 ENFORCED BEST PRACTICE MANAGEMENT

The City of Ottawa has a Use and Care of Roads By-law 2003-498 to regulate the use and care of city roads. The City's By-law Department uses this By-law to enforce property owners to return altered roadside ditches to their original state (sod). This By-law also requires the owner of the land abutting the city lands zoned residential (boulevard) to complete the maintenance on the city land. Maintenance includes cutting the grass and weeds and clearing away any garbage or other debris within the boulevard (ditch).

A second City By-law that enforces site alteration is the Site Alteration By-law 2018-164. **Figure 6** is a clip taken from the By-law detailing the general prohibitions.

PROHIBITIONS – GENERAL

5. No Person shall perform, permit, or cause to be performed or permitted any Site Alteration except in accordance with the provisions of this by-law, including the standard practices listed in Schedule "A".

6. No Person shall carry out any Site Alteration unless it is done by, at the request of, or with the consent of the Owner of the Property on which the Site Alteration takes place.

Source: City of Ottawa Site Alteration By-law 2018-164

Figure 6: Site Alteration Prohibitions - General

It should also be noted that site alteration is defined within the By-law as an activity such as the removal of topsoil, placement or dumping of fill on land, alteration of grade of land, or excavation by any means which includes clearing or stripping of vegetation, compaction of soils or creation of impervious surfaces, or any combination of these.

7.0 CONCLUSION

The objective of this Technical Memorandum was to identify the degree of alignment and consistency between the City of Ottawa's current Ditch Alteration Policy and other City Plans, Policies and Objectives, and to offer a comparison of Ottawa's Policy with approaches used by other municipalities.

The City's Policy is in direct alignment and consistency with the message being conveyed by the City Infrastructure Master Plan, and the City of Ottawa Low Impact Development Screening Tool for Municipal Right-of-Ways report. Given that the Infrastructure Master Plan is being updated, there is an opportunity to reinforce new policies pertaining to ditch alterations. The City's Official Plan does not directly reference ditches or ditch in-fill alterations however, the Policy is consistent with the needs for coordination with land use planning, engineering assessment of receiving watercourse, reviewing environmental features and natural hazards, and building resilience to future flood risks and increased stormwater runoff. The Ditch Alteration Policy is indirectly aligned with the Climate Change and Resiliency Plan (CCRP), however the Policy does not currently directly relate ditch alteration to the effects and impacts of climate change. There is a need to establish a link via a strong statement that climate change will increase the adverse effects caused by ditch alterations. The Policy should be incorporated during the development and application of climate change asset management practices and the impact on infrastructure construction projects.

In many respects, Ottawa's Ditch Alteration Policy is relatively robust compared to some other municipalities when it comes to guidance documents or policies regarding ditch alteration. The key aspects of the ditch

alteration framework which vary among municipalities are purpose, exceptions to the scope, engineering assessment requirements, financial principles, and cost allocations.

8.0 GLOSSARY

The following definitions have been gathered from many sources as related to the City's Plans, Policies and Strategies, and relevant Provincial and Federal Policies, Acts and Regulations governing the impact of storm water (open channel drainage) and preservation of the natural environment.

"Canadian Fisheries Act" - One of Canada's oldest and most important environmental laws, the Fisheries Act was enacted in 1868 – a year after Confederation. In the late 1970s habitat protection provisions were added to the Act, including a prohibition (unless authorized) against the "harmful alteration, disruption or destruction of fish habitat" (HADD).

"Climate Change Master Plan" - The Climate Change Master Plan is the City's overarching framework for how Ottawa will mitigate and adapt to climate change over the next three decades to reduce greenhouse gas emissions and respond to the current and future effects of climate change**.** The plan aims to take unprecedented collective action to transition Ottawa into a clean, renewable, and resilient city by 2050.

"Climate Change Resiliency" - Resiliency is the ability to cope with change. Climate resiliency is how well the City adapts in response to climate conditions now and in the future. These conditions may include extreme weather such as heavy rains or windstorms and gradual shifts in temperature, rain, and snow. It is different from climate change mitigation which refers to the City's efforts to limit climate change by reducing greenhouse gas emissions.

"Ditch Alteration Policy" - 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 Policy documents the circumstances and general process requirements for the City to permit filling or alteration of drainage ditches and drainage courses within the City Road rights-of-ways and those in registered and unregistered easements that convey stormwater from public lands.

"Drainage Act" - The Province of Ontario developed the Drainage Act to provide a process to solve drainage problems while recognizing that the solution requires the participation and input of the entire drainage community. The Drainage Act provides a mechanism to construct a new drainage solution on private and/or public property and includes further provisions for managing that drainage system into the future.

"Environmental Protection Act" - Ontario Environmental Protection Act, 1990**.** The aim of the Environmental Protection Act is to protect and conserve our natural environment. The act includes provisions on vehicles, waste management, renewable energy, spills, and it covers the prohibition, reporting, and handling of contamination.

"Infrastructure Master Plan" - The Infrastructure Master Plan (IMP) is a strategic document that sets growth-related goals, objectives, and priorities for municipal infrastructure related to water purification and distribution, wastewater collection and treatment, and stormwater management, supporting the City's New Official Plan project.

"Integrated Stormwater Management" – An approach to stormwater management that integrates the land use planning, engineering, and environmental science functions with the goal of protecting property and wildlife habitat while accommodating land development.

"Levels of Service" – The purposes of Levels of Service (LOS) are to define and measure service delivery performance to customers and stakeholders, and then asset strategies are designed to achieve those LOS, which closely align to overall City goals in the Official Plan and other strategic planning documents.

"Low Impact Development" – Low Impact Development (LID) refers to systems and practices that use or mimic natural processes that result in the infiltration, evapotranspiration or use of stormwater to protect water quality and associated aquatic habitat.

"Stormwater Asset Management Plan" – This Plan is a strategic document (currently under development) with a 10-year view of the strategies that will be applied to infrastructure assets (such as Stormwater Management) to

achieve service-delivery expectations, aligning with the City's financial status. Other Assets in the SWM AMP include the collection, transmission, treatment, retention, infiltration, control, and disposal of stormwater (rainwater and snowmelt).

"Intensification" - The City of Ottawa is growing toward the future — a future in which we will be known as a city with pedestrian-friendly streets and neighbourhoods, where people don't have to rely on their car, and were moving around the city is fast and easy. This also means intensification. Although the idea can be controversial, intensification is part of a bigger picture: it is the way to grow for any major city.

9.0 REFERENCES

1. City of Ottawa Stormwater Asset Management Plan (Still under development).
2. City of Ottawa Climate Change Master Plan amended December 2020.
3. City of Ottawa Climate Resiliency, 2001-2010 (Still under development).
4. City of Ottawa, Low Impact Development Screening Tool for Municipal Right-of-Ways, April 2020.
5. City of Ottawa Official Plan, Volume 1, Section 2, Strategic Direction, 2.3 Providing Infrastructure, 2.3.3 Drainage and Stormwater Management Services.
6. City of Ottawa Infrastructure Master Plan, Section 5.4 Stormwater Systems, November 2013.
7. AECOM Technical Memorandum #1 – Stormwater Maintenance Reviews and Levels of Service Framework, February 2019.
8. Town of Whitby Site Alteration By-law – June 2018 (By-law #7425-18) and amended in May 2019 by (By-law #7511-19).
9. City of Abbotsford Good Neighbour By-law – last amended August 2020 (By-law #1256-2003).
10. City of Markham By-law 2018-109, A By-law to regulate the use, alteration, and Occupancy of Highways within the City of Markham. January 2019.
11. City of Markham Roadside Ditch Alteration within the Public Road Allowance, Policy No. 2018-109-01, Feb 3, 2020. (Related Policy: Road Occupancy By-law 2018-109).
12. Township of North Frontenac Roadside Ditch Alteration Policy – November 2013 (By-law #104-13).
13. Town of Fort Erie Roadside Ditch Alteration Policy – August 2010 (By-law #93-10).
14. City of Burlington Site Alteration Permit – May 2014 (By-law #64-2014).
15. Ontario Guide to applying for an environmental compliance approval, September 10, 2021 (web based).
16. Ontario Guide to applying for an environmental compliance approval (pdf version), Version 1, Publication Date December 2012.
17. Ontario Water Resources Act, R.S.O. 1990, c. O.40, June 1, 2021.
18. Government of Canada, Introducing Canada's Modernized *Fisheries Act*, (web based), date modified: 2021-04-14.
19. The Federation of Canadian Municipalities published a report on Sustainable land use practices in Canadian municipalities, March 2019.
20. City of Ottawa Site Alteration By-law No. 2018-164.
21. City of Ottawa Use and Care of Roads By-law No. 2003-498.

Appendix A:

City of Ottawa Ditch Alteration Policy

(Approved by City Council July 9, 2008)

CITY OF OTTAWA

DITCH ALTERATION POLICY

PUBLIC WORKS AND SERVICES DEPARTMENT
CITY OF OTTAWA

Approved by City Council
July 9, 2008

TABLE OF CONTENTS

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

6.1 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.

6.2 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 & 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:

Manager, Infrastructure Management Division
Infrastructure Services Branch
Department of Public Works and Services
City of Ottawa
Tel: (613) 580-2424 ext. 21197

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.