




CITY OF HAMILTON
PLANNING AND ECONOMIC DEVELOPMENT DEPARTMENT
Growth Management Division

TO:	Chair and Members Planning Committee
COMMITTEE DATE:	October 1, 2024
SUBJECT/REPORT NO:	Green Standards and Guidelines for Site Servicing (PED24102) (City Wide)
WARD(S) AFFECTED:	City Wide
PREPARED BY:	Mark Hartley (905) 546-2424 Ext. 7661
SUBMITTED BY:	Tony Sergi Director and Senior Advisor – Strategic Growth Planning and Economic Development Department
SIGNATURE:	

RECOMMENDATIONS

- (a) That Appendix “A” to Report PED24102 entitled City of Hamilton Green Standards and Guidelines for Site Servicing be adopted and be incorporated into the Comprehensive Development Guidelines and Financial Policy Manual;
- (b) That the General Manager of Planning and Economic Development, or designate, be authorized to revise and update the Green Standards and Guidelines for Site Servicing as may be required from time to time, as technical initiatives, standards, design criteria, and guidelines are developed and completed across other City departments and both Federally, and Provincially;
- (c) That the Green Standards and Guidelines for Site Servicing included in Appendix “A” of Report PED24102 be applied to all new Site Plan applications received after January 1, 2025;
- (d) That the General Manager of Planning and Economic Development, or designate, be authorized to approve exceptions to requirements of the Green Standards and Guidelines for Site Servicing if an Applicant can demonstrate that said requirements cannot be achieved due to physical and/or technical constraints.

EXECUTIVE SUMMARY

Stormwater management in Ontario has continually progressed over the last few decades with the most recent development in 2022 with the release of the Province's Draft Low Impact Development Stormwater Management Guidance Manual which emphasizes the importance of controlling stormwater runoff at the source using better site design, retention practices, and filtration practices.

Referred to as source controls, their importance and benefit to the community is echoed by Council's desire to improve the local environment while supporting development and to further advance its goals with respect to initiatives such as improved watershed management, climate change adaptation, and biodiversity.

To address how the City could emphasize the use of source controls as a means to achieve its goals, Growth Management staff retained a consultant to report on the current "state of the stormwater industry" with respect to source controls and to prepare a framework for a set of City-focused source-control stormwater guidelines which would complement the recently published Provincial guidance manual.

The consultant assignment resulted in preparation of the Green Standards and Guidelines Report from which staff has prepared a stand-alone document entitled "Green Standards and Guidelines for Site Servicing" included as Appendix "A" to Report PED24102, intended to be used by the development community and Growth Management staff in conjunction with the City's existing standards for assessing requirements for quantity and quality treatment of stormwater at the source for new development subject to Site Plan control.

The proposed City of Hamilton Green Standards and Guidelines for Site Servicing builds on both City of Hamilton best practices for stormwater management and the Province's Draft Low Impact Development Stormwater Management Guidance Manual, while providing an additional water quality design criterion. They are also consistent with the City of Hamilton Storm Drainage Policy as well as with the Province's Stormwater Management Planning and Design Manual (Ministry of the Environment, 2003).

The recommendations provided through the Green Standards and Guidelines Report and to be implemented through the Green Standards and Guidelines for Site Servicing are supportive of growth and development in the City of Hamilton as well as providing consistent expectation, resiliency, and a best management practices approach for stormwater management on private and publicly-owned lands.

The Green Standards and Guidelines are recommended to form part of the City's Comprehensive Development Guidelines for Site Servicing and will be implemented

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through the review of Site Plan applications received on or after January 1, 2025 to provide for a four month transition period.

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FINANCIAL – STAFFING – LEGAL IMPLICATIONS

Financial: At the proponent’s cost, private and public developments will be required to complete a full technical evaluation to assess and implement opportunities for the appropriate use of Low Impact Development features including green infrastructure as part of the overall site design including construction and maintenance.

Staffing: As part of the implementation of the proposed standards and guidelines, Development Engineering Approval staff in Growth Management Division will receive the appropriate training to manage requirements of the new standards applicable to Site Plan applications.

Legal: Not Applicable

HISTORICAL BACKGROUND

Stormwater management in Ontario has continually progressed in the last few decades in an effort to protect public health and safety, prevent property damage and improve the water quality of Ontario’s lakes and rivers. Recent Provincial guidance has directed efforts to focus on managing stormwater at the source with the release of the Provincial Policy Statement in 2020 and in 2022 with the Draft Low Impact Development Stormwater Management Guidance Manual.

City of Hamilton staff have been providing technical review on development applications involving stormwater management since the introduction of Provincial planning and design guidance documents, and the City published its own “Storm Drainage Policy” in 2004, the “Eco-Industrial Design Guidelines – Airport Employment Growth District” in 2010, and “Innovative Stormwater Source Control Policy for Industrial, Commercial and Institutional Land Uses Policy” in 2013.

In keeping with Council’s desire to improve the local environment while supporting development, the following key initiatives are either underway or have been completed including:

- Climate Change Impact Adaptation Plan – 2022;
- Watershed Action Plan (PW19008(u)) – to be completed in 2024;

- Chedoke Creek Remediation – 2023;
- Biodiversity Action Plan (PED21065(d)/PW24040) – 2024; and,
- Hamilton Green Building Standards (PED24114) – 2024.

POLICY IMPLICATIONS AND LEGISLATED REQUIREMENTS

The proposed Green Standards and Guidelines for Site Servicing supports various Provincial guidelines: Stormwater Management Planning and Design Manual (Ministry of the Environment, 2003), Low Impact Development Stormwater Management Guidance Manual – Draft (Ministry of the Environment, Conservation and Parks, 2022) as well as the City’s own stormwater policy (Stormwater Drainage Policy, 2004).

RELEVANT CONSULTATION

The proposed guidelines have been created with the input and collaboration of internal staff from Growth Management, Planning, Environmental Services, Transportation, and Hamilton Water divisions and external agencies including area conservation authorities, the Royal Botanical Gardens and the West End Home Builder’s Association. Consultation included meetings in the form of presentations and open Questions and Answer Periods followed by email correspondence. Comments and responses from the consultant are provided in Appendix “D” of the Green Standards and Guidelines Report.

ANALYSIS AND RATIONALE FOR RECOMMENDATION

Provincial Stormwater Management Guidance

The primary provincial guidance document for stormwater management planning and design was published in 2003 and is entitled “Stormwater Management Planning and Design Manual (Ministry of the Environment, 2003)”. Despite the evolution of stormwater management over the last few decades, it remains the industry standard. Recently, the Province initiated an effort to update part of the 2003 manual, namely the design criteria for lot level controls, otherwise known as source-controls. This work culminated with the publication of a second guidance manual entitled “Low Impact Development Stormwater Management Guidance Manual – Draft (Ministry of the Environment, Conservation and Parks, 2022)”.

The Ministry’s draft guidance manual stipulates a single source-control criteria referred to as the Runoff Volume Control Target. This target is based upon the local 90th percentile rain event², measured in millimetres and its magnitude varies across the

¹ The 90th percentile event refers to the volume of rainfall that is not exceeded in 90% of all runoff-producing rainfall events. In other words, in 90% of rainfall events, the runoff volume will be less than that of the 90th percentile event.

province, ranging from 23 to 32 millimetres of rainfall. Specifically for the City of Hamilton the target is 29 millimetres. This means that from the Province’s perspective, individual development sites would be expected to manage the 29 millimetre rain event by using Better Site Design, retention practices, and filtration practices and conventional treatment. While currently there is not a legislative requirement to meet the 90th percentile target, the Provincial guidance manuals (2003 and 2022) will be used as a baseline reference in the review of stormwater management applications for approval under Section 53 of the Ontario Water Resources Act as administered by the Ministry of the Environment, Conservation and Parks.

The Runoff Volume Control Target does not change water quantity control requirements related to flood control or erosion control identified through watershed, subwatershed, stormwater management / master drainage plans completed following the Municipal Class Environmental Assessment Master Planning process.

Refer to Appendix “B” to Report PED24102 for Provincial guidance for applying the Runoff Volume Control Target hierarchy.

For comparison, based on Hamilton’s current practice for stormwater management, the Province’s proposed Runoff Volume Control Target of 29 millimetres is conservative and reflect Hamilton’s rainfall intensity data given that the smallest rainfall event used for stormwater management designs in the City as recorded at the Hamilton Airport ranges from 34 millimetres (short duration event) to 51 millimetres (long duration event).

Better Site Design comprises land use practices that preserve natural areas, implement site reforestation/landscape efforts, adopt open space design principles and incorporate innovative best practices that aim to improve management of rainfall at the source. Retention practices reduce runoff volume at the source and include practices that infiltrate, evapotranspire or harvest and reuse stormwater runoff where practicable. Filtration practices may reduce some runoff volume and provide full or partial water quality treatment at the site by allowing the stormwater runoff to pass through various types of filtration media.

City of Hamilton Current Practice and Future Needs

The City of Hamilton continues to develop at a rapid pace, with projections to 2051 exceeding 820,000 people³. This amount of development (new greenfield and re-development) requires careful management of stormwater runoff from the impacts of

² Growing Hamilton – Planning for New Communities (Engage Hamilton)

urbanization (impervious / hard surfaces) on the natural environment and public safety. Further, climate change is predicted to exacerbate these impacts.

The City's current standard stormwater management requirements in relation to flooding, water quality, erosion and water balance for development applications relies on the City's Stormwater Drainage Policy (2004) and Comprehensive Development Guidelines (2019), and the Provincial Stormwater Management Planning and Design Manual (2003).

Considerable effort is invested by developers, consultants and City staff in designing, reviewing, approving, constructing and maintaining stormwater management systems. These systems are complex and comprise many elements including, but not limited to, major and minor systems, source-controls, catch basins, curbs, gutters and storm sewers (conveyance) and stormwater ponds (end-of-pipe). These features are designed and built to function in such a way as to reduce flooding, to minimize water quality and erosion impacts to local rivers and streams (final receivers of stormwater runoff) and to restore the natural water balance. One aspect of this design process is to evaluate the runoff generated by specified rainfall events (measured in millimetres) from a site under pre-development and post-development conditions. Given the change in land use associated with development the post-development peak flows are most often, if not always, higher than the pre-development peak flows. Stormwater design standards requires that the post-development peak flows must be controlled to match the pre-development peak flows.

Notwithstanding these current practices and in light of the Province's most recent guidance, staff has identified a need to manage source-controls more comprehensively and systematically, while also acknowledging the need for the continued use of traditional end-of-pipe solutions.

In order to address this need, staff in Growth Management – Infrastructure Planning engaged a consultant to prepare a comprehensive assessment of the current "state of the stormwater industry" with respect to source controls and a proposed set of City focused guidelines (herein referred to as the Green Standards and Guidelines for Site Servicing).

Consultant's Report

The Green Standards and Guidelines Report prepared by the consultant included the following content:

1. **Review of Legislation & Industry Best Practices:** This section provided the legislative framework for Stormwater Management Guidelines preparation and outlines the Best Practices being implemented across various municipalities (i.e., Ontario, Canada, globally). Through this review of international resources, it was

found that several government agencies have robust Low Impact Development Guidance material, including but not limited to:

- a. Details regarding permitting / City review processes;
 - b. Flow charts / guidance related to applicable stormwater management criteria and how proponents can determine their respective site requirements;
 - c. Description and check-list of hierarchical approach required for stormwater management;
 - d. Long-list of stormwater management practices and Low Impact Development Best Management Practices for review and screening;
 - e. Detailed screening processes for the selection and implementation of Low Impact Development Best Management Practices;
 - f. Fact sheets, design templates, drafting standards, etc. for each respective Low Impact Development Best Management Practice;
 - g. Operations, Maintenance and Monitoring guidebooks for each respective Low Impact Development Best Management Practice, and information related to compliance reporting;
 - h. Life-cycle costing and activity details to be implemented under private ownership; and,
 - i. Live websites to provides updates to latest information.
2. **On-Site Retention Criteria:** In addition to the elements of Low Impact Development Best Management Practices design highlighted above, a summary was prepared identifying jurisdictions (Ontario, Nova Scotia, British Columbia, Alberta, Quebec, United States) which have minimum on-site retention criteria requirements. These values ranged from, in Ontario, 5 millimetres (Niagara Region, Barrie, Mississauga and Brampton) to 12.5 millimetres (Kitchener).
3. **Hamilton Today:** This section provided an overview of the watershed systems across the City of Hamilton and outlines the Stormwater Management criteria currently being applied based upon existing guidelines / study findings.
4. **Development of Green Standards and Guidelines Goals & Objectives:** This section described the process followed for envisioning the Green Standards and Guidelines, and the associated Goals and Objectives being achieved through this process.
5. **Hamilton Retention Criteria Framework:** This section established the framework for following a hierarchical approach and outlines the specific targets developed for the City of Hamilton. This section also outlines case studies which demonstrate the application of this criteria.
6. **Review of Low Impact Development Best Management Practices:** This section summarized a long-list of Low Impact Development Best Management Practices and

describes functional / land use considerations and outlined preliminary design guidance for each practice.

The following goals were developed, after detailed review of the background information summarized above, to prepare the Green Standards and Guidelines for Site Servicing:

- Goal 1: Protect, improve or restore the quality and quantity of water;
- Goal 2: Create sustainable and resilient communities;
- Goal 3: Build liveable, attractive and economically prosperous communities; and,
- Goal 4: Support effective implementation of the Green Standards and Guidelines for Site Servicing.

City of Hamilton Proposed Criteria

In consideration of the Province's guidance concerning source-controls and better site design, retention practices, and filtration practices, the City is proposing the Green Standards and Guidelines for Site Servicing to establish minimum retention requirements, herein referred to as the Water Quality Retention Target in order to help achieve Council's goals with respect to improving water quality, climate change adaptation, and biodiversity. The minimum Water Quality Retention Target enhances Hamilton's current standard stormwater management requirements for source controls by introducing a minimum target to be retained at source using acceptable Best Management Practices. Additional detail with respect to Low Impact Development practices related to the Water Quality Retention Target can be found in the Green Standards and Guidelines Report prepared by the consultant.

Applying a Water Quality Retention Target builds on the Ministry's draft guidance manual and is consistent with the approaches taken by other neighbouring municipalities in southern Ontario. It is expected that the proponent prioritizes the minimum Water Quality Retention Target followed by addressing the Runoff Volume Control Target using the flowchart included in the Draft 2022 Guidance Manual and attached to this report as Appendix B. The stormwater management design shall achieve the targets in Table 1 (below) to the maximum extent possible. If the design is not able to achieve these targets due, for example, to physical and/or technical constraints then an exception may be considered. Accordingly, any exception must be supported by detailed documentation submitted by a professional engineer to the satisfaction of technical review staff.

The proposed Water Quality Retention Target included in this report as Table 1 below considers three factors when deciding the magnitude of the retention target, namely: i) is local drainage serviced by a combined or separate sewer system; ii) is the site within an area for which a subwatershed study or master drainage plan has been prepared; and, iii) is the size greater than or less than 0.5 hectares. Depending on the responses to these factors the Water Quality Retention Target will be either 2.5 millimetres, 5.0 millimetres or 10.0 millimetres. Developments subject to Site Plan control will be

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required to achieve this target by using Low Impact Development Best Management Practices that are surface-based and incorporate filtration.

The Green Standards and Guidelines Report was used by City staff to prepare a stand-alone document entitled the “Green Standards and Guidelines for Site Servicing” included as Appendix “A” to Report PED24102. The latter being considered a more concise and functional document to be used by land development consultants and Development Engineering staff when preparing and reviewing Site Plan applications. The proposed guidelines are intended to be used by the development community and Growth Management staff in conjunction with the City’s existing standards for assessing requirements for quantity and quality treatment of stormwater at the source for new development subject to Site Plan control.

The recommendations provided through the Green Standards and Guidelines Report are supportive of growth and development in the City of Hamilton as well as providing a consistent approach to the challenges of stormwater management for private developers. The proposed Green Standards and Guidelines for Site Servicing are consistent with the City of Hamilton Stormwater Drainage Policy (2004) as well as the Province’s Stormwater Management Guidelines (Ministry of the Environment, 2003, Ministry of the Environment, Conservation and Parks, 2022).

Table 1: Summary of Hamilton Specific Criteria (Water Quality Retention Target)

City of Hamilton Criteria					Provincial Criteria
Sewershed Type	Subwatershed Study?	Site Size (ha)	Better Site Design	Water Quality Retention Target (mm)	Runoff Control Volume Target (mm)
Combined	Yes	> 0.5	Yes	5.0 ¹	29 ^{2,3}
		< 0.5	Yes	2.5 ¹	
	No	> 0.5	Yes	5.0	
		< 0.5	Yes	2.5	
Separated	Yes	> 0.5	Yes	10.0 ¹	
		< 0.5	Yes	5.0 ¹	
	No	> 0.5	Yes	10.0	
		< 0.5	Yes	5.0	

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Note 1 If the Subwatershed Study source control criteria does not incorporate a water quality component and is less than the Water Quality Retention Target, then the Water Quality Retention Target is to be achieved.

Note 2 The 29 millimetres Runoff Control Volume Target is to be achieved by using better site design, retention practices, filtration practices and conventional treatment to the maximum extent possible.

Note 3 The Runoff Volume Control Target includes the Water Quality Retention Target.

Other related City of Hamilton green initiatives directly related to this report include:

- Climate Change Impact Adaptation Plan – 2022;
- Watershed Action Plan (PW19008(u)) – to be complete in 2024;
- Chedoke Creek Remediation – 2023;
- Biodiversity Action Plan (PED21065(d)/PW24040) – 2024; and,
- Hamilton Green Building Standards (PED24114) – 2024.

ALTERNATIVES FOR CONSIDERATION

Should Council not support implementation of the Green Standards and Guidelines for Site Servicing then Site Plan applications will be reviewed by staff using currently approved Provincial and City of Hamilton stormwater guidelines. Accordingly, the stormwater management plans associated with these development applications may not meet desired source-control design criteria and further, not support Council's priority to protect the City's unique natural landscape and waterways and to mitigate the impacts of climate change

APPENDICES AND SCHEDULES ATTACHED

Appendix "A" to Report PED24102 – Draft City of Hamilton Green Standards and Guidelines for Site Servicing

Appendix "B" to Report PED24102 – Province's Guidance for Applying the Runoff Volume Control Target Hierarchy