City of Burnaby

**Meeting July 8, 2024**
COMMITTEE COVER REPORT

## PLANNING AND DEVELOPMENT COMMITTEE

***TO:*** *MAYOR AND COUNCILLORS*

**SUBJECT: STORMWATER MANAGEMENT REQUIREMENTS FOR SMALL SCALE MULTI-UNIT HOUSING**

## RECOMMENDATION:

**THAT** staff be authorized to develop on-site stormwater management requirements for new developments in R1 SSMUH District, as outlined in the report "Stormwater Management Requirements for Small Scale Multi-Unit Housing", dated June 25, 2024.

## REPORT

The Planning and Development Committee, at its meeting held on June 25, 2024, received and adopted the *attached* report providing support for maintaining the 70% impervious maximum for R1 Small Scale Multi-Unit Housing (SSMUH) zones and seeking Council direction on developing stormwater management requirements for new developments in R1 SSMUH Districts.

On behalf of the Planning and Development Committee,

Mayor Mike Hurley
Chair

Councillor Pietro Calendino
Vice Chair

**TO:** PLANNING AND DEVELOPMENT COMMITTEE (PDC)

**FROM:** GENERAL MANAGER ENGINEERING

**SUBJECT:** **STORMWATER MANAGEMENT REQUIREMENTS FOR SMALL SCALE MULTI-UNIT HOUSING**

**PURPOSE:** To provide support for maintaining the 70% impervious maximum for R1 Small Scale Multi-Unit Housing (SSMUH) zones and seek Council direction on developing stormwater management requirements for new developments in R1 SSMUH Districts.

## RECOMMENDATION

**THAT** staff be authorized to develop on-site stormwater management requirements for new developments in R1 SSMUH District as outlined in the report “Stormwater Management Requirements for Small Scale Multi-Unit Housing”, dated June 25,2024.

## 1.0 POLICY SECTION

Proposed stormwater management requirements for R1 SSMUH district will align with the City’s Integrated Stormwater Management Plans, Environmental Sustainability Strategy and the Corporate Strategic Plan.

## 2.0 BACKGROUND

Historically, urban development has regarded stormwater as a nuisance. However, rainwater is an essential component of an ecosystem’s water cycle.

In the City of Burnaby, where over 140 kms of open, natural waterways exist in the network of creeks and tributaries, maintaining the quality of stormwater is of utmost importance. These waterways provide crucial habitat for various land and aquatic species.

Baseflows in natural creek systems rely on groundwater recharged by rainfall infiltrating into the soil. However, the continued increase in impervious surfaces short circuits this process, resulting in stormwater runoff that reaches receiving waters with degraded quality. This runoff is often discharged with increased peak flows and volumes, leading to erosion and other harmful effects.

The higher peak flows and volumes, coupled with the need for water quality treatment, place increased demands on the storm sewer system. This necessitates additional capital and operating expenditures.

Although stormwater does not usually respect boundaries like property lines, this report focuses on managing stormwater within private properties in the R1 SSMUH District. This area is influenced by Provincial Bill 44, which introduces Small Scale Multi-Unit Housing (SSMUH), and Bill 47, which pertains to Transit Oriented Areas (TOA). On the public side, the City has already implemented rainwater management amenities on public roadways as required by the Town Centre Standards and is now working to extend green infrastructure to areas beyond the Town Centres.

### 2.1 Small Scale Multi-Unit Housing and Transit Oriented Area Impacts

With the expected changes to the residential zones for SSMUH, Planning has proposed in the upcoming Zoning Bylaw update to maintain the existing impervious surfaces regulation of a maximum of 70%. Historically, average total impervious area on single family properties have been approximately 43%. With potential intensified densification on these properties, it is likely that the total impervious area will reach the 70% limit as housing types and sizes increase to meet the legislation objectives. While engineering is supportive of the 70% impervious surfaces limit, success will be driven by effectiveness of stormwater measures on the balance of the lot.

Besides the impervious surfaces regulation, currently, there are no bylaws or policies requiring stormwater management on single family and two-family residential properties as part of the development process. There are only suggested best practices for landscaping and developing near streams, the info is made available to homeowners/builders via printed informational guides. □

## 3.0 GENERAL INFORMATION

Stormwater consists of two main components, quantity of water and quality of water.

Typically, on-lot stormwater management facilities focus on small volume, frequently occurring rainfall events to capture and infiltrate rainwater into the ground at the source. These rainfall events usually have a 5-year return period or less and focus on recharging high quality water back into the soil.

Whereas, engineered collection and drainage systems are designed around the quantity of water to convey minor and major storms (10-year return period and 100-year return period, respectively), to discharge outlets. During these larger, intense rainfall events on-lot stormwater management facilities will be saturated and at capacity, and the minor and major systems will be relied upon to convey stormwater away with public safety as key objective.

### 3.1 Proposed Stormwater Management Requirements

The City has recently retained a consultant to review stormwater management facilities for low density residential lots to inform future policy changes. The consultant’s recommended facilities are summarized below.

*Absorbent Landscaping*

Absorbent soils act as a sponge and retain water from small rainfall events. They contribute to improving the ecological health of a watershed in two main ways:

- Increasing the travel time rainwater takes to reach the receiving water body, reducing the impact of erosion that can occur when urban runoff reaches the stream all at once, and
- Cleaning the water through biological and physical processes in the plants and soil.

*Infiltration Trenches*

Infiltration trenches provide retention capacity for runoff from small rainfall events and using only a small footprint, providing a means of infiltrating this to the ground. They contribute to the improved health of a watershed by:

- Diverting runoff that would otherwise be carried by the storm sewer directly to the nearest creek, and
- Filtering the infiltrated runoff through the soil – thus improving the quality of the water leaving the site.

*Pervious Paving*

While providing a hard surface for parking a vehicle, pervious paving allows rainfall to percolate through it to an underlying reservoir base, where it is stored and from where it is infiltrated to ground or discharged. It contributes to improvement of the health of a watershed by:

- Diverting runoff from impervious surfaces to ground and
- Providing infiltration of runoff if used for a driveway, walkway, or parking area.

*Rain Gardens*

Rain gardens contribute to improving the ecological health of a watershed in two main ways:

- Increasing the travel time rainwater takes to reach the stream, reducing the impact of erosion that can occur when water from a storm reaches the stream all at once, and
- Cleaning the water through biological and physical processes in the plants and soil.

The proposed options prioritize the restoration of the natural water cycle for rainwater, aiming to facilitate its infiltration back into the ground at or as close as possible to where the rain falls. This approach aims to mitigate the increase in

runoff that would otherwise be collected and discharged elsewhere through the minor and major drainage systems.

### 3.2 Stormwater Detention Tanks

Detention tanks are commonly employed in engineered collection systems to attenuate peak flows. While they offer benefits such as providing relief to downstream storm sewer systems and mitigating erosion in creeks, their contribution to water quality improvement is limited as they do not facilitate infiltration, resulting in the discharge of the full volume of collected runoff into receiving waters. To address stormwater quality concerns, pretreatment via separate oil/grit or hydrodynamic separators upstream of the detention tank is often necessary. This combined approach is typically implemented on larger sites across the city in conjunction with other stormwater best management practices. Considering stormwater management in the R1 SSMUH District, the inclusion of a detention tank may be warranted as a supplementary requirement, particularly in areas where the aforementioned benefits are needed or where other options are not feasible.

### 3.3 Next Steps

A new work process must be developed to implement the proposed stormwater management requirements. Given that these requirements pertain to private property, this process will involve collaboration between the Engineering and Planning and Development Departments.

In addition to the proposed options, the following requirements are also critical to the success of stormwater management in the R1 SSMUH District:

1. Disconnection of roof leaders to allow runoff from rooftops to be directed onto pervious areas, as majority of impervious area is due to building rooftops; and
2. Grade impervious areas to pervious areas, with lawn basin or alternative inlet with sump at low point and wye to service connection.

Subject to Council approval, staff will collaborate to establish stormwater management requirements and public-facing materials for new developments in the R1 SSMUH District, in line with the principles and facilities outlined in this report.

## 4.0 COMMUNICATION AND COMMUNITY ENGAGEMENT

A bulletin on the updated stormwater management requirements will be prepared and posted on the City’s website and will be made available in the Building, Engineering and Planning Departments. Information on updated requirements will be provided on the City’s website.

## 5.0 FINANCIAL CONSIDERATIONS

Costs to implement on-site stormwater management facilities within the R1 SSMUH District will be funded through development at the time of building permit issuance.

Respectfully submitted,

May Phang, P. Eng., General Manager Engineering

## ATTACHMENTS

None.

## REPORT CONTRIBUTORS

This report was prepared by David Lee, Senior Drainage Engineer, and reviewed by Simone Rousseau, Senior Manager Infrastructure and Lee-Ann Garnett, Deputy General Manager Planning and Development.