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CSA W211:21
National Standard of Canada

Management standard for stormwater systems

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CSA W211:21
December 2021

Title: *Management standard for stormwater systems*

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Ottawa, Ontario, K1P 6L5
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National Standard of Canada

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Published in December 2021 by CSA Group
A not-for-profit private sector organization
178 Rexdale Boulevard, Toronto, Ontario, Canada M9W 1R3

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ICS 91.020
ISBN 978-1-4883-3926-4

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Preface

This is the first edition of CSA W211, *Management standard for stormwater systems*.

The purpose of this Standard is to provide requirements and recommendations for management of stormwater systems. It defines a risk-based process for decision makers responsible for the operation, maintenance, and management of stormwater systems.

Users of this Standard are reminded that this Standard should not be considered a replacement for the requirements contained in any

a) applicable federal/territorial or provincial statute;
b) regulation, licence, or permit issued pursuant to an applicable statute; or
c) contract that an owner has with a contractor.

CSA Group gratefully acknowledges the generous support of Standards Council of Canada through their *Standards to Support Resilience in Infrastructure* Program. It was inspired by the report "Developing a Stormwater Quality Management Standard (QMS) in Light of a Changing Climate" (Engineers Canada et al., 2018).

This Standard was prepared by the Subcommittee on W211, Management Standard for Stormwater Systems, under the jurisdiction of the Technical Committee on Management Standards for Stormwater Systems and the Strategic Steering Committee on Natural Resources, and has been formally approved by the Technical Committee.

This Standard has been developed in compliance with Standards Council of Canada requirements for National Standards of Canada. It has been published as a National Standard of Canada by CSA Group.

Notes:

1) *Use of the singular does not exclude the plural (and vice versa) when the sense allows.*
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    d) *rationale for the change.*

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Management standard for stormwater systems

0 Introduction

Standards offer a way to reduce risk due to infrastructure failure, help protect against liability, and improve efficiencies within their own internal processes and procedures. This is especially true for stormwater systems. There are limited standards or methodologies across Canada for municipal staff and decision makers to determine acceptable levels of risk associated with the management of stormwater systems or to set appropriate levels of service. This Standard provides a methodical approach, exercising due diligence, to manage a stormwater system, particularly in light of potential impacts on water and supply and climate change with its effect on service level requirements. Moreover, climate change is posing increasing risks to the systems and stakeholders and potentially new liabilities for those who manage them.

In Canada, responsibility for stormwater management, ranging from design to maintenance and monitoring, has been split between municipal, regional, provincial, territorial and national authorities, and associated regulatory agencies, often with no clear lead, resulting in confusion and inefficiencies. Challenges in stormwater management include:

- varying levels of services;
- unpredictable inputs to system;
- managing stormwater across jurisdictional boundaries;
- aging and inadequate infrastructure;
- increasing flows, volumes, and pollutant loadings through urbanization and intensification;
- politics and lack of understanding of challenges and constraints;
- environmental impacts to receiving water bodies and potential spills of hazardous materials;
- landscape modification upstream of the municipal boundaries (e.g., wetland draining, deforestation, etc.);
- impact on emergency management;
- competing funding priorities;
- lack of long-term system-wide planning; and
- consideration of climate change impacts.

The long-term intention of this Standard is to provide an encapsulation of best practices to ensure municipalities across Canada have common, consistent requirements for the management of a stormwater system.

This Standard addresses these gaps by outlining a risk-based framework for the operation, maintenance, and management of a stormwater system. It is intended as a flexible tool that can be simple to apply and effective at reducing environmental, social, legal, and economic risks. This Standard does not address life-cycle cost analysis in any detail, as the topic area is too big to be included in this Standard; however, it is still an important consideration in the management of a stormwater system.

Management, in the context of this Standard, is the repeatable steps that organizations consciously implement to achieve their social, environmental, and economic goals and objectives in the context of climate resiliency and to create an organizational culture that reflexively engages in a continuous cycle

