STAFF REPORT TO COMMITTEE

DATE OF REPORT	April 18, 2024
MEETING TYPE & DATE	Electoral Area Services Committee of May 15, 2024
FROM:	Inspection & Enforcement Division Land Use Services Department
SUBJECT:	2024 *BC Plumbing Code* Update: Non-Potable Water Systems
FILE:	4560-20

PURPOSE/INTRODUCTION

The purpose of this report is to inform the Electoral Area Services Committee (EASC) of recent changes to the *BC Plumbing Code* (*BCPC*) and to further clarify the role of the Inspections Division with respect to Water Distribution, Sewage Disposal and Storm Water Drainage.

RECOMMENDED RESOLUTION

For Information.

BACKGROUND

At the April 17, 2024, EASC meeting, staff delivered a report for information regarding first quarter activity and updates which included information concerning recent *2024 BC Building Code* (*BCBC*) updates. Staff verbally introduced a change respecting the allowability of non-potable water systems, which has been expanded upon in the *2024 BCPC*. The Committee expressed an interest in receiving a more detailed report with regard to non-potable water systems.

ANALYSIS

Non-Potable Rainwater Harvesting Systems

There is a growing interest in Canada in using available non-potable water supplies in the place of potable ones for selected purposes such as flushing water closets and irrigating lawns and gardens. *BCPC* Subsection 2.7.1. now regulates non-potable water systems, regardless of the origin of the water. The non-potable water must meet applicable water quality standards as determined by the authority that has jurisdiction (Chief Building Official).

With respect to the origin of water used for non-potable systems; surface water and ground water are regulated in BC under the *Water Sustainability Act*. Surface water includes streams, rivers, lakes, creeks and springs, while ground water includes wells and dugouts. Rainwater catchment, however, is unregulated in the Province with regard to licensing.

New to the *2024 BCPC* is subsection 2.7.2. “Non-Potable Rainwater Harvesting Systems”

Subsection 2.7.2. does not require that non-potable systems be installed in new construction, but instead offers prescriptive guidelines for those who voluntarily wish to install such a system which may have been previously prohibited.

The *BCPC* defines non-potable water as simply “unsafe for human consumption”, but it could still be used for other purposes, as long as the quality is suited to the intended use. There are many potential sources and end uses of non-potable water available onsite. Non-potable systems can be used to supply water to water closets, clothes washers, irrigation systems and other applications where the harvested rainwater is not expected to be ingested or inhaled. Non-potable systems may contain collection structures, tanks, pumps, distribution lines and other appurtenances, but cannot include a detached rain barrel.

Roofs supplying a non-potable system must be inaccessible to vehicular or foot traffic as surfaces may be contaminated with fertilizer, herbicides, fecal matter, garbage, oil or chemicals. Accordingly, roofing components and conveyance systems that supply rainwater to a rainwater harvesting system should be constructed of materials that resist dissolution in water. Metal or tile roofs would be more appropriate than an asphalt or wood roof.

Storage tanks and harvesting systems shall be designed to screen and settle collected water and shall be provided with an overflow that directs to a designated storm water disposal location.

Rainwater harvesting systems require a means to regulate pressure and shall be isolated from the potable water system by a backflow preventer where water from both systems supplies a singular fixture such as a clothes washer.

With regard to the Cowichan Valley Regional Districts (CVRD) ability to promote rainwater harvesting; ‘water conservation’ falls under the Local Governments’ Land Use and Planning Authority with respect to the *BC Building Act* legislation.

Section 488 of the *Local Government Act* provides the following:

> ***488*** *(1) An official community plan may designate development permit areas for one or more of the following purposes:*
> *(i) establishment of objectives to promote water conservation;*
>
> *(2) With respect to areas designated under subsection (1), the official community plan must*
> *(a) describe the special conditions or objectives that justify the designation, and*
> *(b) specify guidelines respecting the manner by which the special conditions or objectives will be addressed.*

The CVRD has established a development permit area (DPA 13 Energy and Water Conservation; Greenhouse Gas Emissions Reduction) with water conservation guidelines, however, this DPA currently applies to commercial, industrial or multi-family development and does not apply to single-detached dwellings.

The CVRD Drinking Water and Watershed Protection 10-year plan includes a goal for safe source water for domestic supply. In 2024, staff are planning to support this goal by exploring incentive programs for water conservation and rainwater harvesting.

Although the installation of a non-potable water harvesting system is not a mandatory *Code* requirement, the voluntary installation of one would trigger the need for a CVRD plumbing permit.

It is expected that rainwater harvesting will transition from a more voluntary option to a prescriptive requirement over the duration of the next *Code* cycles. This trend aligns with Canada's current domestic reconciliation agreement on construction *Codes* across provinces and territories.

Potable Water Distribution

The *BCPC* takes effect once a plumbing component is connected to a water source such as a well or the private property side of a water meter. The *BCPC* provides prescriptive solutions to ensure sufficient pipe materials, pipe sizes and water pressures. CVRD Building Officials are responsible for inspecting water service lines and interior plumbing distribution systems once they are complete and "loaded" for inspection. "Loaded" means that the system is full of water or compressed air as a means of demonstrating that there are no leaks in the system.

Sewage Disposal

The *BCPC* takes effect once a sanitary drainage system is connected upstream of a public sewer or private sewage disposal system (septic system). Public sewers are maintained by the local government under the *Municipal Wastewater Regulation* within the *Environmental Management Act* whereas septic systems are regulated under the *Sewerage System Regulation* contained within the *Public Health Act* under the administration of the health authority.

CVRD Building Officials are responsible for inspecting sanitary drainage systems once they are complete and "loaded" for inspection.

Storm Water Drainage

Requirements regarding the drainage of water captured by buildings (roofs, gutters, solid decks etc.) are prescribed in the *BCPC*, however, perforated foundation drainage pipes are required through the *BCBC*. Separate "two-pipe" systems are typically installed on most dwelling units in order to simultaneously satisfy both requirements. Either *Code* suggests that the discharge of drainage water, from either roof drains or foundation drains, can be directed to a public storm utility, a drainage ditch, a dry well, or other designated storm water disposal areas.

Although "drainage ditch" is an option, most ditches in the CVRD are either *watercourses* or are owned by the Ministry of Transportation (MOTI). MOTI has communicated to Inspections staff on a number of occasions that their ditches are not designed to accept water other than what accumulates on the road and that they do not endorse discharge pipes trespassing on to their right of way.

"Dry well" is a term that can used synonymously with "rock-pit", "infiltrator" or "seepage pit". It is the role of CVRD Building Officials to respond to subdivision referrals from the Development Services Division to assist in ensuring adequate drainage planning for development beyond subdivision, and to then monitor implementation at the Building Permit stages. Infiltration systems are a beneficial way to "recharge" aquifers and offset the impact of new construction.

It is common for a Development Permit under DPA 4 Aquifer Protection (or other applicable DPAs depending on the location and scale of development) to be required at subdivision stage, securing onsite stormwater management conditions for future development of subdivided parcels. An engineer will then review systems to be adapted to lot specific details at Building Permit stage once individual dwellings or structures are proposed.

A common design includes a perforated drainage pipe that is encased in drain rock and filter cloth ("burrito" or "sushi roll") located downstream of a catch basin or sump pit. These systems are

also typically equipped with an emergency overflow to ensure relief from failure during rare or overwhelming events.

Conclusion

CVRD OCP Bylaw No. 4270 contains several goals and objectives; Goal number 4 is to *Protect Water Quality and Quantity*. Objective number 1 of Goal 4 is to *Protect the region's water resources and promote sustainable water use,* and objective number 3 is to *Promote and support water conservation and storage measures with residents, business owners and industry.*

Bylaw changes are not required with regard to the implementation of non-potable water systems, but when bylaws are undergoing review (i.e. Works and Services, DPA Guidelines, Comprehensive Zoning Bylaw) there can be consideration of non-potable water system requirements.

Staff anticipate that allowances now permitted by the *BC Plumbing Code* will give rise to rain water harvesting and non-potable water systems becoming more prevalent and mainstream in our region and throughout the province.

FINANCIAL CONSIDERATIONS

Costs to construct a non-potable rain water harvesting system will vary depending on the complexity and size of the system. A non-potable water system will resemble some of what would be required to install the rough works of a typical potable water system plus the inclusion of tanks, pressure controls and other appurtenances. Roofing and other components are also influential on the system.

Any incentive or discounts provided to those who install non-potable systems on a voluntary basis would reduce overall building permit revenue.

COMMUNICATION CONSIDERATIONS

CVRD Environmental Services are establishing a Drinking Water and Watershed Protection (DWWP) Technical Advisory Team which will include participation from government agencies and partnering community groups. As rainwater harvesting supports the goals of the DWWP program, non-potable water *BCBC* and *BCPC* updates will be communicated to the partnering agencies through the Technical Advisory Team once it is established. The updates will also be communicated to the public as a news item through the New Normal website which is currently being refreshed as a new Cowichan Adapts site.

STRATEGIC/BUSINESS PLAN CONSIDERATIONS

Rainwater harvesting systems support the CVRD's strategic plan objective to manage current and future demand for water resources in ways that recognize and respect resource limits and the needs of our natural environment. Further, rainwater harvesting supports the strategic plan action to implement the Drinking Water and Watershed Protection program which includes a goal for safe source water for domestic supply.

GENERAL MANAGER COMMENTS

Land Use Services staff have been directed by the Board to review development permit areas and associated guidelines for water conservation. This work may result in the expansion of

DPA 13 to include additional lands, particularly areas of high aquifer vulnerability and areas with significant water challenges such as the Koksilah Watershed.

Referred to (upon completion):

- ☐ Community Services *(Cowichan Community Centre, Cowichan Lake Recreation, South Cowichan Recreation, Arts & Culture, Facilities & Transit)*
- ☐ Corporate Services *(Finance, Human Resources, Information Technology, Legislative Services)*
- ☐ Operations *(Utilities, Parks & Trails, Recycling & Waste Management)*
- ☒ Land Use Services *(Community Planning, Strategic Initiatives, **Development Services**, Building Inspection & Bylaw Enforcement)*
- ☒ Strategic Services *(Communications & Engagement, Economic Development, Emergency Management, **Environmental Services***

Prepared by:

Sonny Bryski, RBO, RSE
Chief Building Official

Reviewed by:

Ian MacDonald, RBO
Senior Manager

Ann Kjerulf, MCP, MCIP, RPP
General Manager

Reviewed for form and content and approved for submission to the Committee:

Resolution:

☒ Corporate Officer

Financial Considerations:

☒ Chief Financial Officer

ATTACHMENTS:
Attachment A – Section 2.7 BC Plumbing Code 2024
Attachment B – Section 2.7 *BC Plumbing Code 2018*
Attachment C – Non-Potable System Illustration