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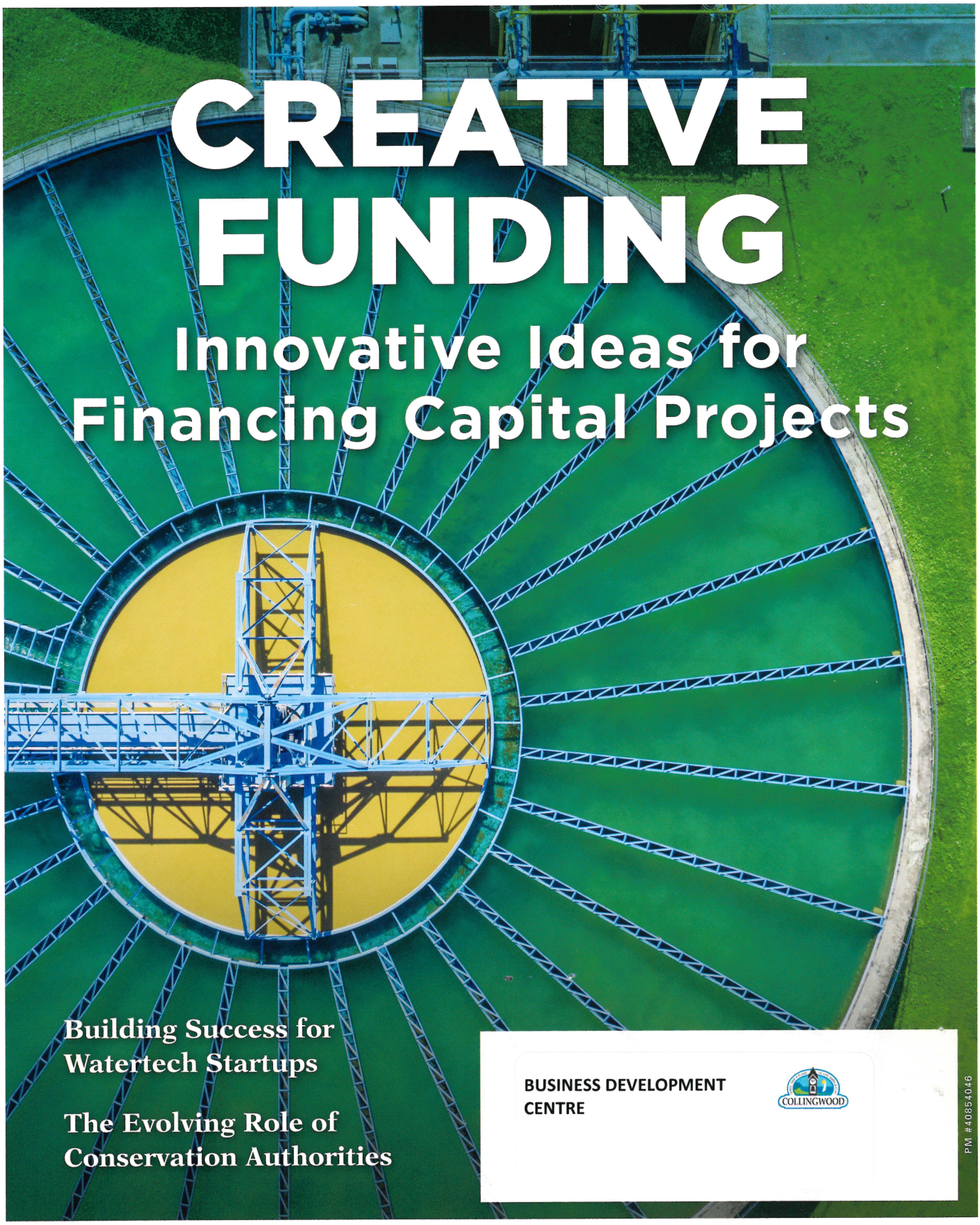
WATER CANADA



CREATIVE FUNDING

Innovative Ideas for Financing Capital Projects

Building Success for Watertech Startups

The Evolving Role of Conservation Authorities

Two permeable pavements were installed as a part of the Collingwood Pilot Project to reduce stormwater runoff.

Photos: Collingwood

Collaboration to Action

How the Town of Collingwood is leveraging local expertise to address stormwater challenges. BY SIMRAN CHATTHA

MUNICIPALITIES IN ONTARIO are taking an interest in addressing stormwater challenges within their communities. One of these municipalities is the Town of Collingwood, which has been exploring how innovative technologies can be used to address local concerns and also help the community adapt to the effects of climate change. Here's an example of how a solution developed by a Collingwood teen is helping the Town of Collingwood achieve its objectives.

The need for reliable sump pumps

Faulty and outdated sump pumps create serious concerns for homeowners in communities where extreme rainfall events occur.

If a sump pump fails, it can lead to water leaks through cracks and gaps in a home's basement, which can in turn lead to flooding and trigger an insurance claim with a hefty price tag. The average insurance claim for a flooded basement was $43,000 in 2018, according to the Insurance Bureau of Canada's data that was cited in a report by the Intact Centre on Climate Adaptation.

This is something that some homeowners in the Town of Collingwood, a municipality located in southern Ontario, have been no stranger to. Daniel Correia, a local teen in Collingwood, knew that something needed to be done about this when he saw his dad and neighbours dealing with these issues time and time again. So he set off to find a solution.

The solution: remote monitoring

With a passion for electronics, Correia set out to create a solution that would provide peace of mind for homeowners in Collingwood and beyond.

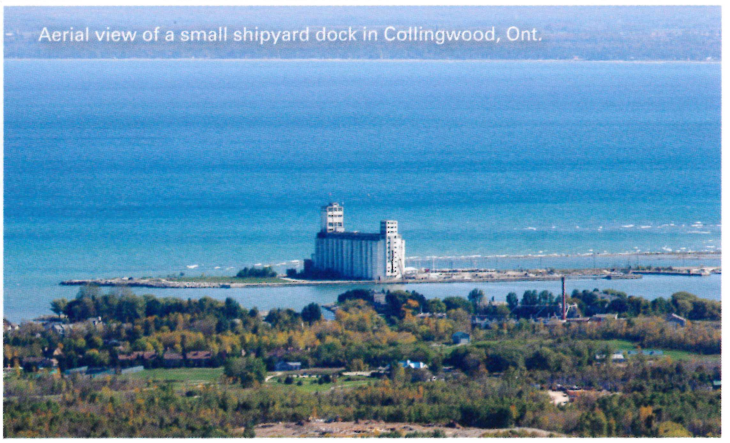
Correia developed Safe Sump, a system that uses Internet of Things (IoT) to keep homeowners updated through an app about how their sump pump is performing. The app provides information about variables like the backup battery, which can continue to provide power to the sump pump in the event of a power failure.

The Safe Sump solution quickly captured the attention of staff at the Town of Collingwood. "One of the main objectives of the Safe Sump technology is to initiate early warnings for homeowners about power outages, backup battery time you have on hand, and the flow rates you are seeing," said Nic Keast, a senior project manager at Greenland Consulting.

"You also want to have the ability to call out to an alarm company or someone who can respond in the absence of the homeowner," Keast said. "[At the outset of the Collingwood Pilot project,] Huronia Alarms, a local alarms company, already had a presence in mobilizing for

Kevin Mercer, the chief executive officer of RainGrid, provided an overview of the app that connects to RainGrid's cisterns during a site tour.

Greenland Consulting hosted a tour during the Canadian Water Summit on May 31, 2019 to showcase some of the sites in Collingwood where permeable pavements and rain cisterns have been installed.



Aerial view of a small shipyard dock in Collingwood, Ont.

emergencies and [undertaking] call outs to homes so when the installations were put into homes that were already clients of Huronia Alarms, they came to benefit from having Huronia Alarms get access to the Safe Sump data and assist in their call outs."

Given that the Safe Sump solution could monitor flow rates, staff at the Town of Collingwood started exploring whether Safe Sump could help address some of the challenges it was facing. In particular, the town knew that wet weather flow was entering the sanitary sewer from a particular subdivision. Before upgrading the wastewater treatment plant, one of the questions that staff had was: how many basement sump pumps are directly connected to the sanitary sewer?

The Town of Collingwood enlisted Greenland Consulting to help determine whether Safe Sump could be used to determine whether sump pumps were contributing to the wet weather flow entering the sanitary sewers during extreme rain events. In an effort to reduce the stress on municipal sewer infrastructure and save costs, the town also wanted to find out what combination of technologies and approaches could be used to reduce stormwater runoff by 50 per cent during 24-hour rainfall events.

The project partners proceeded with scoping out a pilot project that would involve installing 50 sump pumps in homes that were at a high risk of basement flooding. The project also proposed installing two rain gardens, two permeable parking lots, and 10 RainGrid cisterns. With this combination of solutions scoped out to help address stormwater runoff in the community, the Town of Collingwood secured a grant through the' Green Municipal Fund to undertake a pilot project. Once the Town of Collingwood secured the funding, it brought the Environment Network on board to undertake public consultations.

Pilot project enables data-driven decision-making

Thanks to the data gathered through the Collingwood Pilot Project, the Town of Collingwood and Greenland Consulting were "able to see what the dry wet weather flows were in the sanitary sewer," Keast said. "Then based on the sump pumps installed within the subdivision, we were able to begin assess whether sump pumps are contributing to that wet weather flow. Ultimately, we were able to compare the data collected with the sump pumps with the data collected by the sewer main."

Using the data, the Town of Collingwood and Greenland Consulting made inferences that sump pumps weren't contributing to the wet weather flow. Using this information, the Town of Collingwood determined it didn't need to allocate resources towards a sump disconnection campaign to educate homeowners on making sure their sump pumps aren't connected to sanitary services. WC

Simran Chattha is the associate editor of Water Canada.