



Above: Naturalized stormwater pond designed and constructed by Ducks Unlimited Canada for Qualico Homes (Winnipeg, MB)

# CALL FOR EXPRESSIONS OF INTEREST

Ducks Unlimited Canada seeks to partner with a **municipality and real-estate developer** within or adjacent to Ontario’s Greenbelt region on a demonstration project to design a naturalized stormwater management pond (SWMP) for a new development. The intent of this project is to demonstrate a properly functioning naturalized SWMP and the value of incorporating natural infrastructure as a component of a comprehensive stormwater management plan.

## 1. Purpose

Investing in naturalized stormwater management is a viable alternative to costlier grey solutions that are no longer working for our communities. Increased challenges with stormwater management, such as urban floods, nutrient loading and rising infrastructure and maintenance costs are major issues that require new ways of thinking and approaches to how we manage stormwater.

This document is intended to solicit non-binding expressions of interest from municipalities and real-estate developers in constructing a naturalized SWMP located within or adjacent to the Greenbelt and assisting in the identification of an appropriate development to locate the demonstration site.

Ducks Unlimited Canada will work directly with the real-estate developer to advance a comprehensive blueprint for a naturalized stormwater site plan, fully in compliance with municipal policies and regulations.

## 2. Background

In Ontario, there is opportunity for municipalities and real-estate developers willing to take a leadership role in providing sustainable and attractive communities that improve the quality of our water resources while providing recreational experiences for residents. Ducks Unlimited Canada is looking to identify a site to construct a properly functioning, naturalized SWMP that can act as a new standard for “end-of-pipe” stormwater management in Ontario.

Traditionally, stormwater management in urban areas has involved collecting and diverting water into either conventional wet or dry ponds prior to it being released into downstream receiving waterways. There are a multitude of problems involved with conventional end-of-pipe facilities including poor water quality, excess algae growth, over-use by urban geese, proliferation of invasive species, mosquitoes, poor aesthetics and high maintenance costs.

A properly designed and constructed naturalized SWMP is a cost-effective and sustainable end-of-pipe solution for addressing increased concern at the municipal level about water quality and rising financial expenditures. Naturalizing SWMPs will support and enhance within-pond and downstream water quality, deter urban geese, improve aesthetics and property values, and reduce maintenance costs. Other jurisdictions have seen annual maintenance costs drop by as much as 70% compared to maintaining conventional wet ponds.

In the past there have been examples of naturalized stormwater ponds constructed in Ontario that have failed due to a lack of experience by the design team in establishing and managing wetland vegetation.

### **Our expertise and experience**

Restoration Services is a consulting branch of Ducks Unlimited Canada operating in Ontario. We draw on more than 80 years of environmental knowledge and restoration experience in Canada. Our environmental solutions are based on natural processes and techniques and informed by in-house expertise in hydrology, biology, agronomy, engineering and research. It is our fundamental understanding of how wetlands function and the relationship between hydrology and wetland productivity that ensures our naturalized SWMPs function effectively.

Ducks Unlimited Canada has been consulting in this area since 2001 in conjunction with our Manitoba consulting team. We have designed and commissioned *more than 90 naturalized SWMPs across Canada* in a variety of conditions and landscape settings. We employ cost-effective techniques that customize the appropriate habitat to suit the site's environmental conditions and provide both functionality and ecological benefits.

### **What is a “naturalized” SWMP?**

Naturalized stormwater ponds are not wetlands, rather they are stormwater basins that contain naturalized (wetland and upland plants) elements that improve water quality both within, upslope, and downstream of the pond. These living ecosystems incorporate natural biological processes designed to improve watershed health.

Naturalization includes wetland vegetation establishment within the pond, as well as native grasses in the upland area. The construction involves incorporating “benches” and various depths below “normal water level” that will support the growth of aquatic vegetation interspersed with open water pools. Designing naturalized SWMPs should occur during the planning stage for a new pond (e.g., location, layout and footprint) or as a retrofit for an existing pond. Forebays designed to fit into the naturalized look can be incorporated into the pond if sedimentation is a concern.

### **Uptake of natural infrastructure by Canadian municipalities and real-estate developers**

After experiencing the benefits of naturalized SWMPs, the City of Winnipeg mandated that all new stormwater ponds be naturalized, and they are developing a business case to retrofit existing wet ponds with naturalized features. In other urban centres, including Moncton, Edmonton, Saskatoon, Brandon and Calgary, developers are beginning to naturalize their stormwater ponds. In 2016, the City of Moncton received an environmental award from the Canadian Association of Municipal Administrators (CAMA) for implementing their new naturalized stormwater management guidelines.

The initial movement towards stormwater pond naturalization in Winnipeg came from an innovative developer (Ladco Homes) who after years of witnessing how conventional ponds failed with respect to water quality and performance decided there needed to be a different approach to pond design. The payback for the developer has been national recognition as an environmental leader, a reduction in their pond construction costs, in addition to a reduction in long term maintenance costs. In Ontario, there is an opportunity for developers willing to take on a leadership role in providing sustainable and attractive communities that will also protect our water resources.

### **3. What's in it for municipalities and developers?**

Municipalities and developers interested in this project will show leadership by hosting a demonstration site that will showcase techniques for improved stormwater management. **For this project, the design of the pond is provided free of charge to the developer. Ducks Unlimited Canada has gratefully received a grant to cover this cost from the Friends of the Greenbelt Foundation. (See below.)**

Other benefits of incorporating naturalized SWMPs in developments include:

- **It's good for the local community**
  - Creates attractive and inviting places that enhance local biodiversity
  - Deters urban geese
  - Provides natural mosquito control
- **It's good for the environment**
  - Improves water quality through bio- and phyto-remediation, while still providing water storage
  - Increases carbon sequestration and produces less greenhouse-gas emissions
  - Eliminates nuisance algae or submergent vegetation in your pond
- **It's good for the bottom line**
  - Construction costs can be lower compared to traditional wet ponds
  - Lower maintenance costs (e.g., no mowing of turfgrass, weed or algae control, or replacement of engineered structures). Some jurisdictions have reduced annual maintenance costs by 70%!
  - Increases property tax revenue for the municipality

*NOTE: Low Impact Development (LID) features, such as permeable pavement, green roofs and bioswales, utilize "green-infrastructure" technology to increase infiltration at the source; however, it is doubtful that LID alone can handle the extreme precipitation events now more common as a result of climate change. Additionally, there is so much existing developed area lacking LID features that a solution is required to reduce nutrient loading from stormwater runoff in these areas.*

### **4. Submission considerations**

Ducks Unlimited Canada is seeking to identify progressive municipalities and developers within the Greenbelt that would consider hosting a naturalized SWMP. We specifically require a developer at the Plan of Subdivision stage where the pond footprint can still be modified to allow for the addition of aquatic benches below the normal water level (NWL). Ideally, the site should be going to construction sometime in 2020 to fit within our project timelines.

**All interested parties should submit the following information:**

- Development site plans
- Location of development

- Type of development (residential/industrial/commercial/park)
- Project status
- Anticipated stormwater pond size (if known)
- Partners (single developer, multiple developers, municipality...)

Once the naturalized features are incorporated into the pond design, it is then handed back to the engineer for construction. A key component of a successful naturalized SWMP is establishing the native and wetland vegetation below the high-water level (HWL). In order to guarantee a healthy functioning pond, it is recommended that DUC be contracted in a supervisory role during the construction phase to ensure the appropriate seeding techniques are applied and water levels managed in the early years of pond commissioning to encourage the growth of robust plant communities both below and above NWL. Aquatic and upland vegetation can take up to three years to establish so the site must be carefully managed for this period. Once the vegetation is established, our experience shows that very little upkeep is required, other than mowing or burning the native grasses planted above NWL every 4-5 years. As part of the construction supervision services, a hand-off manual will be provided to assist the municipality with any maintenance needs once the commissioning period is over.

## **5. About the funding for this project**

Ducks Unlimited Canada is the successful applicant for grant proceeds to enable the design of this demonstration project, received from the Friends of the Greenbelt Foundation.

The Greenbelt Foundation is the only organization solely dedicated to ensuring the Greenbelt remains permanent, protected and prosperous. By making the right investments in the interconnected natural, agricultural and economic systems that Ontario's Greenbelt protects, the Foundation fosters a working, thriving Greenbelt for all. Ontario's Greenbelt is the world's largest, with over 2 million acres of farmland, forests, wetland and watersheds working together to give us clean air, fresh water and a reliable, local food source.

## **6. Contact information**

**If you are interested in this opportunity or would like to learn more:**

***PROJECT MAIN CONTACT:***

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***DEADLINE:***

***June 28th 2019***

***ADDITIONAL SUPPORT CONTACT:***

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