

# ENGINEERING NEW COMMUNITIES

A science and an art

By Shauna Dudding, Geranium



**M**any years before a new home is built, and often decades depending on the scale, location and complexity of a community, engineers are involved. Bringing our critical problem-solving abilities to bear, engineers play an important role in determining the functionality of a master plan and the details of making it work from below the ground up. Alongside our urban planning colleagues, we drive the timeline for selling and building the homes.

Once a property is secured, the team is pulled together to prepare the Concept Plan. Engineering technical support personnel help determine the constraints and opportunities of the property. The best way to explain our role is by sharing two of Geranium's recent experiences, in Aurora and in Innisfil.

One redevelopment, now named Allegro, involves former golf course lands in Aurora. Here we are studying the geotechnical and hydrogeological components to understand how the soils and ground water function so that Allegro will not affect the existing built community. As this is considered

an infill development, it must fit into existing servicing and transportation infrastructure and with its surroundings, which include more than 400 adjacent homes.

An infill property poses both constraints and creative opportunities for engineering. For example, bisecting the property are two creeks that were modified over the years in ways that caused temperatures to rise and a decrease in their functioning habitats. Today, we are re-engineering the Tannery Creek system to reinstate it to its original natural state with a healthier ecosystem. To help us with the realignment, we are working expert consultants fluent in fluvial geomorphology, who are studying and designing the form and function of the creeks and their surrounding landscape.

Our team is also interacting with consultants in municipal infrastructure, landscape architecture and civil engineering, as well as the Town of Aurora, Region of York, Lake Simcoe Region Conservation Authority, Ministry of Natural Resources and Department of Fisheries and Oceans. This is all occurring before a single home is started.

In Innisfil, Friday Harbour is a

major new resort community on 600 acres on Lake Simcoe, and has been referred to as a feat of engineering because of the complexities of lakeside development.

The 40-acre marina development presented new and challenging opportunities; 1.8 million-cubic-metres of material was excavated, transported and reused in the golf course construction. To widen the lake entrance from 30 to 100 feet and develop marina, 9,000 fish were individually catalogued and safely relocated to Lake Simcoe.

When the 4.5 kilometre-long marina wall was complete, we slowly refilled the basin using a siphon system. Over one month, the water level rose daily without the use of power, the production of emissions or noise.

Over the past 15 years, Friday Harbour has engaged experts in design, storm water, hydrogeological, geotechnical, environmental, civil and marine engineering disciplines. We've also involved the Town of Innisfil, County of Simcoe, Lake Simcoe Region Conservation Authority, federal and provincial Ministries of Environment and Climate Change and Natural Resources, Department of Fisheries and Oceans, Transport Canada and First Nations groups.

So you can see that it takes a village to raise a community! Engineers make a valuable contribution when it comes to creating attractive, livable, environmentally sensitive and sustainable places to live. I am proud to be part of it all.



Friday Harbour, Innisfil

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*Shauna Dudding is an engineer and senior vice president, development for Geranium. Since 1977, the company has built more than 8,000 homes in fine neighbourhoods and communities throughout Ontario. Geranium.com.*