



**Legislative push to drive new soil management practices:** Ontario's new regulations on excess soil, such as that removed from high-rise residential sites, point to ways municipalities help can change a waste product into a resource. *Photo courtesy of Golder Associates Inc.*

# Regulate, reduce, reuse

## The three Rs of excess soil



Denise Lacchin, M.Sc., P.Eng., is Senior Environmental Engineer at Golder Associates with more than 28 years of experience providing brownfield redevelopment strategies and solutions in Ontario, including soil management plans, soil management best practices, and tracking systems. Lacchin can be reached at Denise.Lacchin@Golder.com or 905-567-4444 ext. 2278.



Carl Schroeder, M.A.Sc., P.Eng., is a professional environmental engineer at Golder Associates with more than 20 years of experience in all aspects of environmental site assessment (ESA), including Phase I and II ESAs and site remediation for general due diligence. Schroeder can be reached at Carl\_Schroeder@Golder.com or 519-652-0099.

The urban cores and waterfront areas of many municipalities around the globe have experienced more than a century of intensive commercial and industrial development. This history, coupled with more recent policies favouring urban intensification and constraining available land supply, has resulted in the extensive redevelopment of former brownfield properties in many jurisdictions.

However, a legislative push may be required to drive this new trend, through providing economic incentives to change soil management practices or increasing the penalties for misusing this non-renewable resource. Municipalities may be able to ride this wave to reduce their own soil management costs, conserve landfill space, manage fill placement within their jurisdiction, and improve outcomes for all stakeholders.

One example is Ontario Regulation 406/19 (O.Reg. 406/19), which covers how “excess soil” – soil leaving construction or development projects (i.e., generating sites) – will be managed going forward. This legislation contains lessons that can be applied by other orders of government, including municipalities across the country. The management of excess soil in Ontario now demands more attention, but also creates opportunity for those looking to get ahead of the curve.

### Understanding the Legislative Trend

Traditionally, much of the excess soil generated during construction on brownfield properties, even if they were not significantly impacted by previous commercial or industrial use, would end up in a landfill. Unfortunately, inconsistent definitions of “waste,” and previously inconsistent regulatory requirements for reuse sites, discouraged appropriate reuse of excess soil. It was not always the most cost-effective option, but in many cases it was the most straightforward and required the least amount of pre-planning. Further, without clear regulatory guidance and oversight, including mechanisms to protect the receivers of the excess soil, many impacted soils were mismanaged and disposed of in ways that were not protective of the environment or property value.

At its core, O.Reg. 406/19 is intended to help keep “contaminated” soil away from otherwise “clean” sites, ensuring that recipients of excess soil are fully informed and reducing the strain on landfill capacity. This regulation seeks to provide clarity around how soil must be characterized for appropriate reuse. It also offers new opportunities to reduce soil disposal costs and reduce the generating site’s overall environmental

footprint by facilitating the beneficial reuse of excess soil to keep it out of landfills.

To protect receivers, under O.Reg. 406/19, before any soil is removed from a generating site, a pre-approved destination must have agreed to accept that specific quantity and quality of soil. The regulation also provides options for better staging of projects. Sometimes, excess soil from one building site can be trucked directly to its new home as fill on another project.

Usually, it is not that straightforward, so O.Reg. 406/19 has offered provisions around the temporary storage of soil. There may also be need for treatment such as dewatering or removal of stones and woody debris, right through to remediating chemical impacts. The regulation provides for “Class 1” soil sites, some of which are permitted to store soil before its next use, and others that can carry out soil processing to remove contaminants. “Class 2” sites require less permitting but are limited as to the amount of processing (namely sorting and no chemical treatment) and the volume of soil to be stored on them.

The regulation also acknowledges that not all projects generate contaminated soil, and so some projects may be subject to fewer rules. O.Reg. 406/19 has provisions that apply specifically to excess soil originating from “brownfield” and “greenfield” sites, stormwater management ponds, and infrastructure projects such as sewer or watermain line replacement.

## **Five Key Lessons from O.Reg. 406/19**

Municipalities that develop ways to support waste-to-resource opportunities and enact their own by-laws may find lower solid waste management costs on their own projects, better management of the movement of “contaminated” soil within their jurisdiction, a slower rate of landfill space depletion, and a better reputation as a place to build a business.

### **1. Start thinking of beneficial use early**

To effectively apply a “waste-to-beneficial-resource” model, it’s important to start planning early so you can understand how that material can best be reused. In the case of excess soil, it simply takes time to discover what other

construction projects may be underway or are being planned that may need suitable fill. If no beneficial reuse site comes to mind immediately, or if the respective projects’ schedules do not align, it may be possible to use a temporary storage site for the soil (e.g., Class 1 or Class 2 site) before it can be beneficially reused elsewhere.

Understanding the characteristics of the waste are key to finding a viable reuse. In the case of excess soil, are there contaminants in it that will need to be mitigated? Will there be a need to dewater the soil (either passively or actively) before it can be transported? Does the material have the physical properties required for the intended reuse? Is the material geotechnically suitable for use as engineered fill? Having a qualified third-party entity do the assessment will give the receiver greater confidence for acceptance.

### **2. Find non-landfill disposal options**

While landfill disposal may be the best resting place for some types of waste, particularly materials that cannot be recycled or upcycled, it is increasingly being considered as a last resort. Over the past few decades, material recycling and organic-waste processing have diverted countless tonnes of waste that would, in previous generations, have been landfilled. We can expect this trend to continue.

For excess soil, O.Reg. 406/19 is an example of legislative powers being used to accelerate the trend of landfill diversion. But this legislation would not be productive without also permitting practical, cost-effective alternatives to landfill for disposal of excess soil. Under the regulation, appropriate characterization and documentation allow excess soil to be managed not as waste but as a reusable resource.

The Class 1 and Class 2 temporary storage sites are examples of tools that can be used to help ensure otherwise suitable soil has a temporary home until a beneficial reuse can be found rather than shipping the soil to a landfill due to project scheduling constraints.

Municipalities can help promote this landfill diversion trend by encouraging the reuse of excess soils from their own infrastructure projects, and by

facilitating the development and use of temporary storage sites within their jurisdictions.

### **3. Segregate problematic waste from the rest**

Across Canada, householders have learned a new skill in recent decades, better known as “which waste goes where.” What recyclable materials go in the blue bin, what compostable wastes go into the green bin, and what goes to landfill.

Similar challenges apply to the management of excess soil, particularly when dealing with soils from brownfield redevelopment sites. Brownfields have the potential to generate excess soil that is highly variable in quality. Some may be suitable for reuse as clean, engineered fill, some may require treatment prior to reuse, and some contaminated soils may still require landfill disposal.

To maximize the reuse potential of a waste stream, understanding the composition of the materials is key.

For excess soil, this comes down to comprehensive characterization of the quality and quantity of the soil that will require management. O.Reg. 406/19 provides a process for soil characterization, including an information review to understand what problems may be present at the site followed by thorough sampling and analysis of the soil material itself.

With municipal recycling and composting programs, maximizing the reuse value of the end product, and minimizing the burden on landfills, requires time and effort to segregate the higher-quality materials from the rest. The same is true for excess soil. Project owners that are willing to invest early and appropriately to characterize excess soil will be able to successfully segregate problematic soils, thus minimizing the amount of soil requiring disposal and maximizing the beneficial reuse options.

### **4. Manage data and tracking**

With excess soil, one load may look just like another, with very different environmental and/or geotechnical characteristics. The investment in waste sorting and segregation does little good if the end user of that recycled material does not have confidence that the quality of that material meets their specifications. The segregation program needs to

offer the ability to prove the characteristics, provenance, and other details about the waste.

In addition to the regulation's sampling and analysis requirements, O.Reg. 406/19 calls for the development and implementation of a robust data management program to track truck loads and provide assurances to the reuse site that they are only receiving what was previously agreed to. The data can be managed digitally using Electronic Document Delivery files uploaded to data management systems. The movement of the soil can be tracked using either commercially available digital applications or through the development of customized platforms for more complex projects.

## 5. Stay current on storage and reuse options

Private industry has previously stepped in to meet the need when a waste product can be profitably turned into a resource. O.Reg. 406/19 has already resulted in the development of Class 1 and Class 2 storage sites that meet the requirements of the legislation, which include prescriptive handling and storage practices intended to be protective of both the local environment and the integrity of the excess soil.

### Excess Soil: Non-Renewable Resource

The benefits of treating excavated soil as a non-renewable resource instead of as

a waste product are numerous: the costs of solid-waste management are lowered and the life-span of landfills are lengthened; by providing more clarity and options for excavated soils it becomes easier to identify, track, and manage the contaminated soil rather than having this material slip through the cracks; and finally, it supports municipalities and their resident's goal of improving the overall sustainability of their redevelopment projects.

O.Reg 406/19 is a legislative tool that promotes better management of this non-renewable resource, specifically in Ontario; however, as demonstrated, local leadership can accomplish the same results anywhere. **MW**

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