

# Environmental & Science & Engineering MAGAZINE

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# Identification and remediation of a Brownfield property

By Chris Cushing, P.Geo.

**B**etween September 2006 and September 2008 an industrial Brownfield property in Mississauga, Ontario, was identified, purchased, remediated, and sold by Kilmer Brownfield Equity Fund (Kilmer), with support from Jacques Whitford Limited.

Prior to the enactment of Ontario Regulation 153/04 in 2004, it is unlikely that this property would have been purchased, remediated and redeveloped due to issues such as uncertainties relating to future environmental liability. In addition to establishing environmental liability protection for Brownfield property owners, Ontario Regulation 153/04 allows flexible remedial and risk management approaches to addressing soil and groundwater contamination.

## Site history

The dormant property was used for industrial purposes from 1964 through to 2004. The primary activity on the site was for the manufacture of PVC gloves and the assembly and distribution of medical supplies. Phase I and II Environmental Site Assessment activities commissioned by the previous owner identified contaminants of concern associated with the manufacturing activities at the property (phthalates), as well as volatile organic compounds (primarily

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trichloroethylene, cis-1,2-dichloroethylene, and vinyl chloride). These originated from an off-site location and had migrated onto the property, primarily through coarse-grained bedding materials associated with a public sanitary sewer main.

Although the completed environmental characterization identified impacts to soil and groundwater from both on-site and off-site activities, Kilmer identified potential opportunities to restore the property to permit future commercial or



*Aerial view of South Sheridan Way Brownfield to the south-east.*

industrial redevelopment within the framework permitted under Ontario Regulation 153/04.

## Site characterization and interpretation

Jacques Whitford was retained by Kilmer in late 2006 during the due diligence phase of the property acquisition. The success of this Brownfield development required an accurate site characterization to permit the development of cost estimates to maximize the value of the property, following site remediation, within an acceptable timeline that would result in site closure and the acknowledgement of the Record of Site Condition (RSC).

A review of existing documentation characterizing environmental conditions associated with the property, while very useful, identified some limitations; specific elements of the site conditions (certain contaminants) required refinement before Kilmer could be comfortable purchasing the property. These limitations were primarily associated with confirmation of the applicable Site Conditions Standards for the property under Ontario Regulation 153/04. These included the

characterization of bedrock groundwater at the property with respect to the contaminants of concern, and the assessment of what influence the numerous shallow-buried public and private services had on the distribution and migration of identified contaminants.

To address these limitations, Jacques Whitford completed a supplemental Phase II ESA in late-2007. The results of the supplemental Phase II ESA and subsequent assessment of potential remedial approaches and associated anticipated costs confirmed that the property could be remediated within an acceptable timeline and at an acceptable cost. Kilmer subsequently purchased the property in February 2007.

## Site remediation/risk assessment

Jacques Whitford then developed a Remedial Action Plan (RAP) to address identified Contaminants of Concern in soil and groundwater. The ultimate goal was to receive an acknowledged O.Reg.153/04 Record of Site Condition with no limitations to future commercial or industrial development associated with a Certificate of Property Use.

Soil and groundwater impacted with phthalates were restored using conventional remedial excavation and off-site disposal to available generic Table 3 Site Condition Standards available under O.Reg.153/04. VOC impact to groundwater was addressed through the completion of a human health and ecological Site Specific Risk Assessment (SSRA), coupled with supplemental *in situ* chemical oxidation.

A second SSRA was completed on a 30 metre portion of the property to address a sensitive water body abutting a site boundary.

Once the property was purchased, Kilmer immediately initiated discussions and provided information regarding the intended remediation approach to the local District Office of the Ontario Ministry of the Environment as well as the City of Mississauga, the Region of Peel, and homeowners adjacent to the property.

*continued overleaf..*

## Brownfields



*Phthalate excavation area.*

Upon the completion of site demolition activities, Jacques Whitford managed the active remediation of soil and groundwater at the property over a period of five months from June to October 2007. Concurrent with the remedial activities, Jacques Whitford was completing the two SSRAs which were submitted to the MOE for review in June and November 2007 respectively. They were ultimately approved by the MOE in January and July 2008 respectively.

A key element to the MOE approval of the SSRAs was the absence of development conditions that could have been included in a Certificate of Property Use for the property. Examples of development conditions that are common in Certificates of Property Use include limitations on the location and depth of building construction on the property, or the requirement that Risk Mitigation measures be included in the building design. These can limit development options for a property and, therefore, can decrease the potential property value.

Acknowledged RSCs for the property were received in September 2008. Kilmer ultimately sold the property to a multi-national development corporation on September 24, 2008 – less than 19 months from the date of purchase. The new owner has initiated site preparation activities. Construction activities for a commercial development will begin in 2009.

### **Elements of success**

The successful completion of this Brownfield project was aided by three

factors which can be applied to, and benefit virtually every Brownfield development initiated in Ontario:

**1. A clear understanding of owners' objectives** – The remedial approach implemented at this Brownfield property was not unique. Jacques Whitford recognized that a number of remedial technologies were available that could have addressed the contaminants of concern. However, their applicability in this case was limited as their success with respect to cost and time could not be guaranteed. Ultimately, the key to the project was an integrated risk assessment and remediation program. Aligned objectives between consultant and owner are essential.

**2. An engaged owner** – The completion of site assessment/remediation and risk assessment under Ontario Regulation 153/04 involves a signifi-

cant amount of liaison with the Ontario Ministry of the Environment. If the owner is proactive in their communications with the MOE, it leads to a better understanding of their issues within the government bureaucracy than can typically be relayed by the consultant.

**3. Transparent communication** – When a SSRA is submitted for MOE review, the review is completed not only by the Standards and Development Branch but also the applicable District Office. It is the responsibility of the District Engineer within the District Office to review the SSRA with respect to the potential requirement for a CPU for the property. Discussions with the MOE District Engineer can establish the expectations of both owner and regulator on issues that can impact the requirement or content of a CPU.

By establishing communication with the District Office of the MOE well in advance of the remediation tasks or the submission of the SSRA, the possibility of delays can be eliminated. For the same reason, early dialogue with the local and upper-tier municipalities can eliminate potential delays for issues such as notification on the intent to apply Table 3 Non-Potable Site Condition Standards at a property.

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*South end of drainage area.*