



The Complexity and Solutions of Canadian Brownfields

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RemTech 2021
October 13

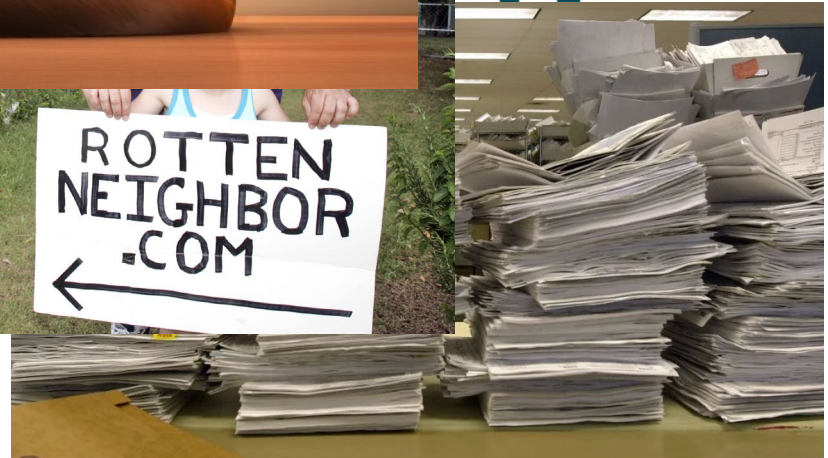
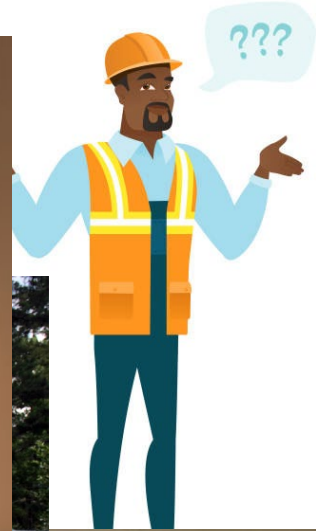
Agenda

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 - Kwikwetlem First Nations Fill Site
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The Brownfield Challenge

Brownfield – a vacant, derelict or underutilized commercial or industrial property that may or may not have been contaminated by historical use; and is suitable for redevelopment for the benefit of the community



Why Bother?

Government

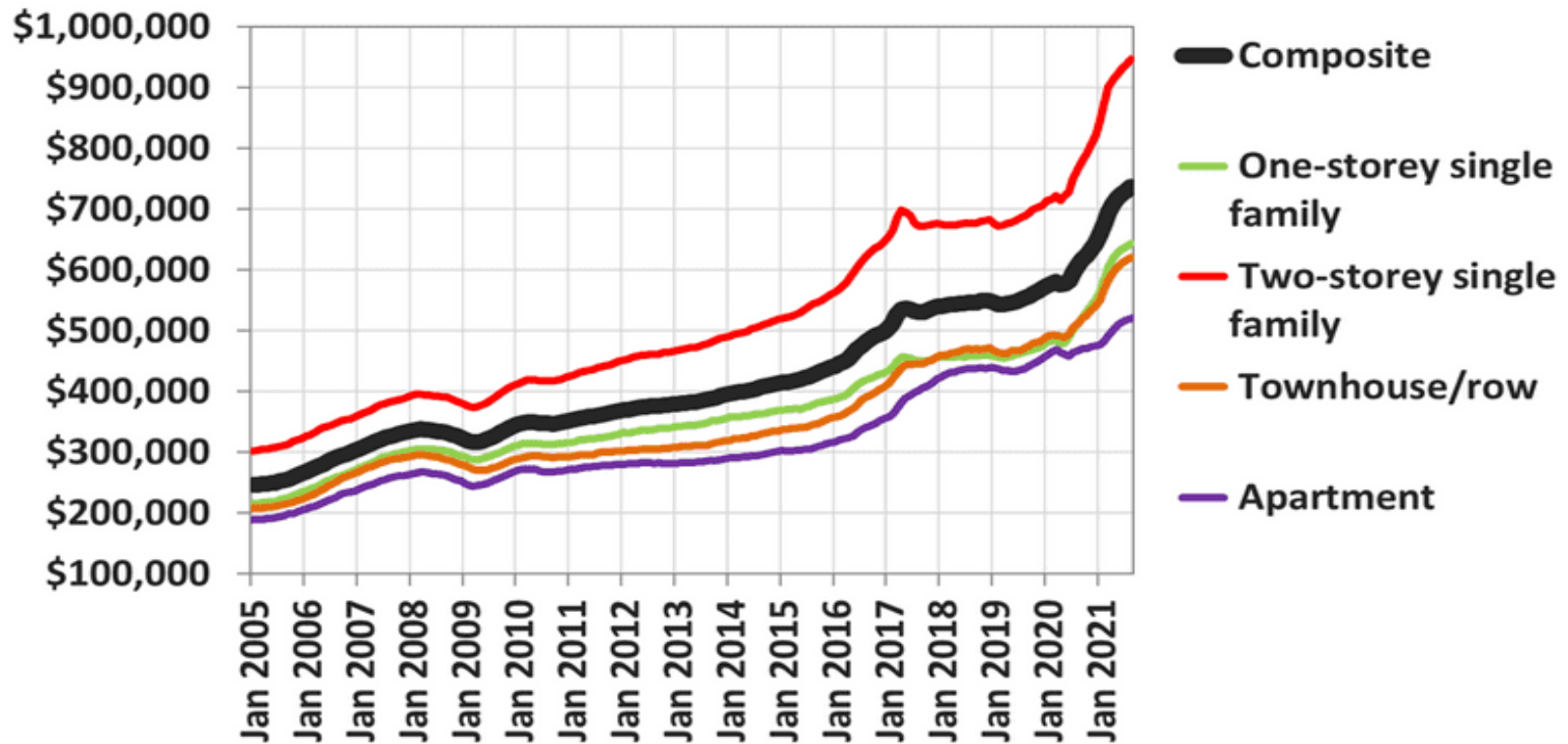
- Protect public health and safety
- Protect the environment by reducing contamination to air, soil & groundwater
- Restore the sites biological functions



Why Bother?

Private Interest

MLS® HPI Benchmark Price* Aggregate



Source: The Canadian Real Estate Association

* Seasonally adjusted

How big is this opportunity?

No Brownfield Inventory Exists

Cons:

- **Stigma from registering**
- **Exposure to regulatory orders**
- **Potential liability related to the site**
- **Delays in development due to public interest**

Pros:

- **Public Stakeholders get factual information**
- **Investors can identify opportunities**
- **Governments can plan and make policy to support development**



Federal Contaminated Sites Inventory (FCSI) lists **7,692** suspected or active sites across Canada.

Western Canada breakdown:

- Alberta 1,085 sites, 141 high priority
- BC - 4,500 sites, 581 high priority
- Saskatchewan – 1678 sites, 121 high priority
- Manitoba – 1371 sites, 82 high priority
- Yukon & NWT – 1760 sites, 93 high priority

<https://www.tbs-sct.gc.ca/fcsi-rscf/home-accueil-eng.aspx>



Project Examples

Zibi Development – Gatineau, QC

A project executed by Decontie Milestone Inc, a proud partnership with Milestone and the Algonquin-Anishinabe Community

Project work included:

Abatement and demolition of derelict buildings onsite

Removal and processing of hard surfaces to facilitate remediation and prepare for development

Remediation of over 100,000 tonnes of hydrocarbon contaminated soil, involving excavation, segregation, screening, rock reuse and soil disposal

Remediation within a historic building and protecting the structural integrity





Zibi Development – Gatineau, QC

Challenges:

- Tight timelines
- Limited space onsite
- Archeological impacts
- Public and Private stakeholders
- Multidisciplinary construction including:
 - Abatement
 - Demolition
 - Remediation
- Increasing volume of contamination

The future of the Zibi Site



Kwkwetlem First Nation Fill Site – Port Coquitlam BC

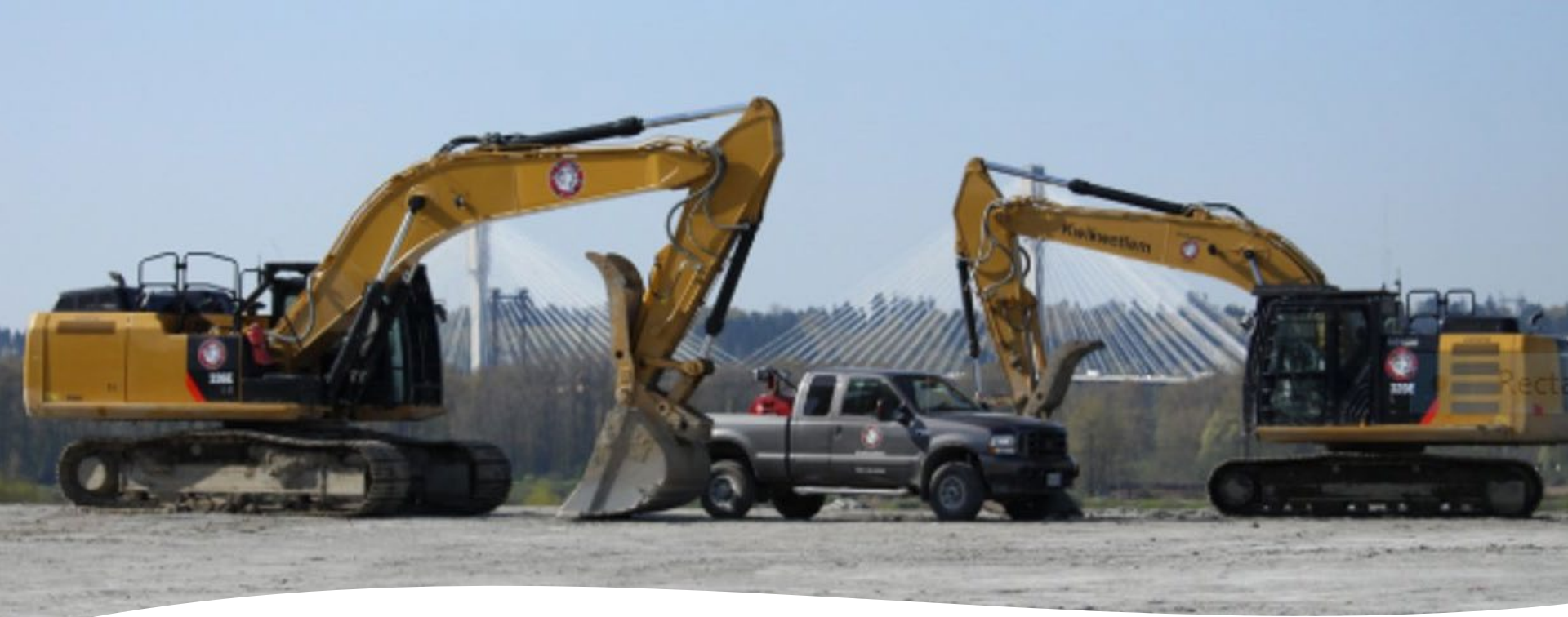
The Kwkwetlem First Nation (KFN) has operated the fill site for over 20 years.

A prime location in the middle of Metro Vancouver.

Milestone developed a transfer facility under a joint venture with KFN

Milestone helps vet incoming material and supports fill activity and site development





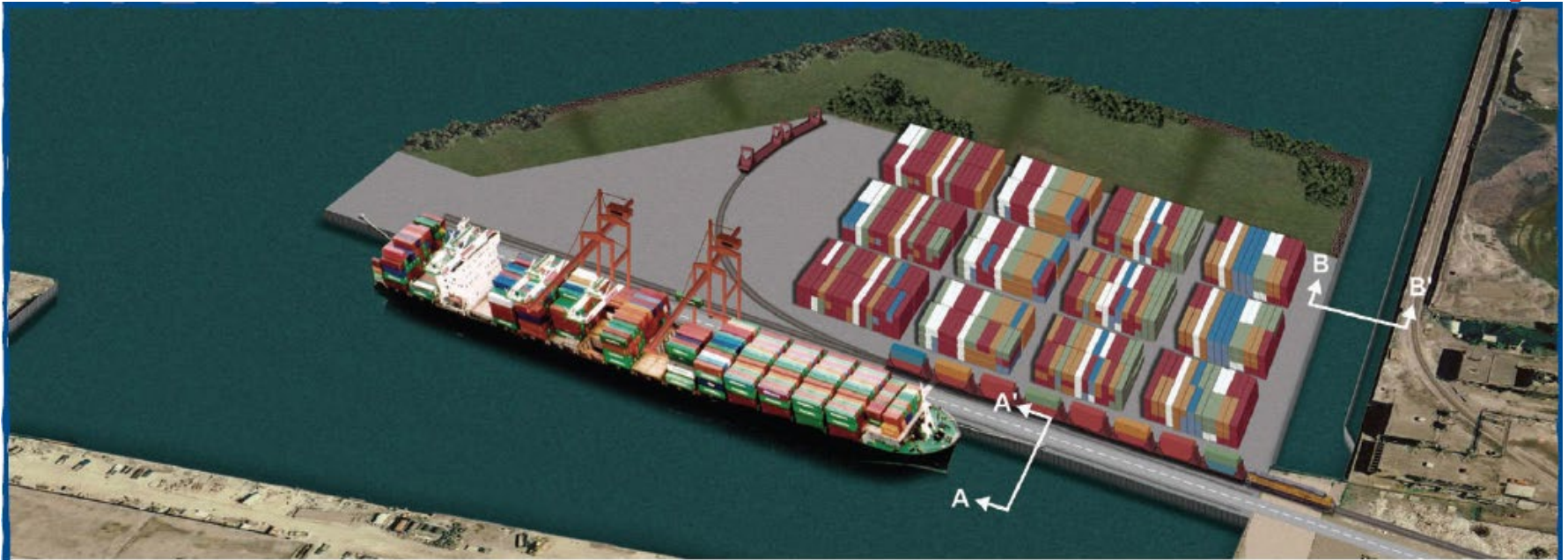
KFN Fill Site

- Stigma of unregulated fill operations
- Unknow costs to remediate
- Perception of complicated Indigenous Relationship

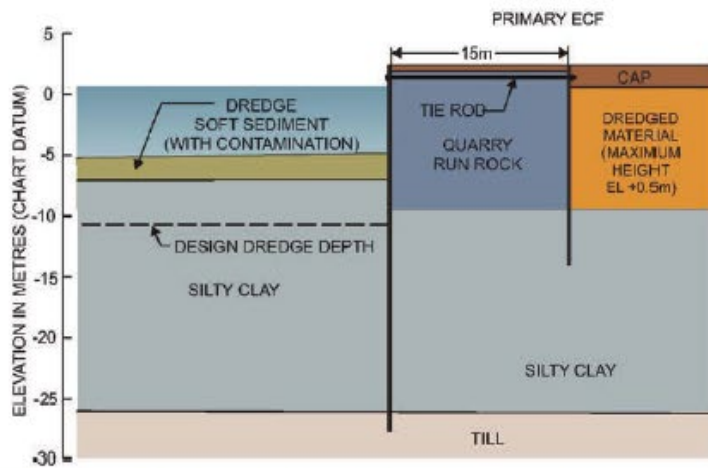


Randle Reef – Hamilton, ON

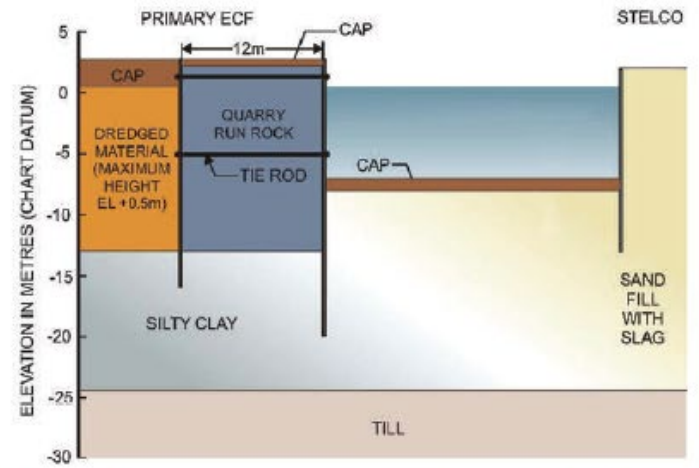
A waterfront revitalization project to deal with the largest PAH-contaminated site on the Canadian Great Lakes, while simultaneously creating 18.5 acres for future port expansion and green space



Section A-A'



Section B-B'



Randle Reef Ready for Redevelopment



Marwell Tar Pit Remediation

Approximately 36,000 tonnes of impacted soils excavated, thermally treated and backfilled on site

Soil treatment operations took place over roughly 11 months

The ETC process was operated through all seasons including extreme northern winter conditions

Site setting (topography, urban environment, high visibility) created many unique challenges to overcome for successful project completion



ETC Results

- Site specific remediation targets were originally developed for the site
- ETC process resulted in meeting SSRT's and were well below required levels
- Thermal treatment had improved results allowing revision of target criteria to Yukon CSR Commercial/Industrial limits
- Post-treatment soil analysis confirmed all treated soil met the required criteria with many of the results approaching analytical detection limits



Marwell Tar Pit Ready for Redevelopment



Sydenham Pearl Brownfield Remediation

The Sydenham Pearl Brownfield Site consists of two properties: 17 Sydenham Street, the former Crown Electric manufacturing and 22 Sydenham Street, the former Domtar (Northern Globe) manufacturing site.

A multidiscipline site that required the excavation and offsite disposal of hydrocarbon contaminated soil and the insitu treatment of Trichloroethylene impacted soil

Insitu treatment consisted of utilizing Zero Valent Iron (ZVI) to amend contaminants. Mechanical soil mixing was used to ensure effective distribution of the ZVI





Shipyard Lot 5

- Remediation of a former industrial site in North Vancouver
- Excavation of 50,000mt of metals and hydrocarbon contaminated soils, with much of the excavation below sea level
- Stabilization of hazardous waste lead contaminated soil

Keep it Clean!



Shipyards Lot 5 Concept Design



Resources

- **Canadian Brownfields Network (CBN)** – Founded in 2004, it is an advocacy group for the development of brownfield sites across Canada and can be considered a key resource for information on brownfield development
- **Federation of Canadian Municipalities (FCM)** – created the Leadership in Brownfield Renewal (LiBRe) program to provide municipal governments and their private sector partners assistance in dealing with brownfield development, including providing funding through the Green Municipal Fund for site investigation, studies and loans for remediation
- **Alberta Urban Municipalities Association (AUMA)** – representing 85% of Alberta's population







Thanks!

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