Canadian Brownfields Network

Canada's Voice for Brownfields Redevelopment

November 2017 Newsletter
Conference Edition

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Welcome

Hello Everyone

Hello CB Networkers:

With fall almost moving into winter it is good to see a thriving CB Network community. There was a good turnout at our recent Brownie awards dinner, celebrating the achievements of those turning brownfields into successful development projects or contributions to our industry. Many thanks to our partners at Actual Media for pulling the dinner together again, and to everyone involved in the nominations and judging process.

This issue is a recap of this year's CBN conference and you will see some of the success stories highlighted. The summaries of the conference speakers provide a valuable introduction to approaches for those in and outside the network to use in their projects.

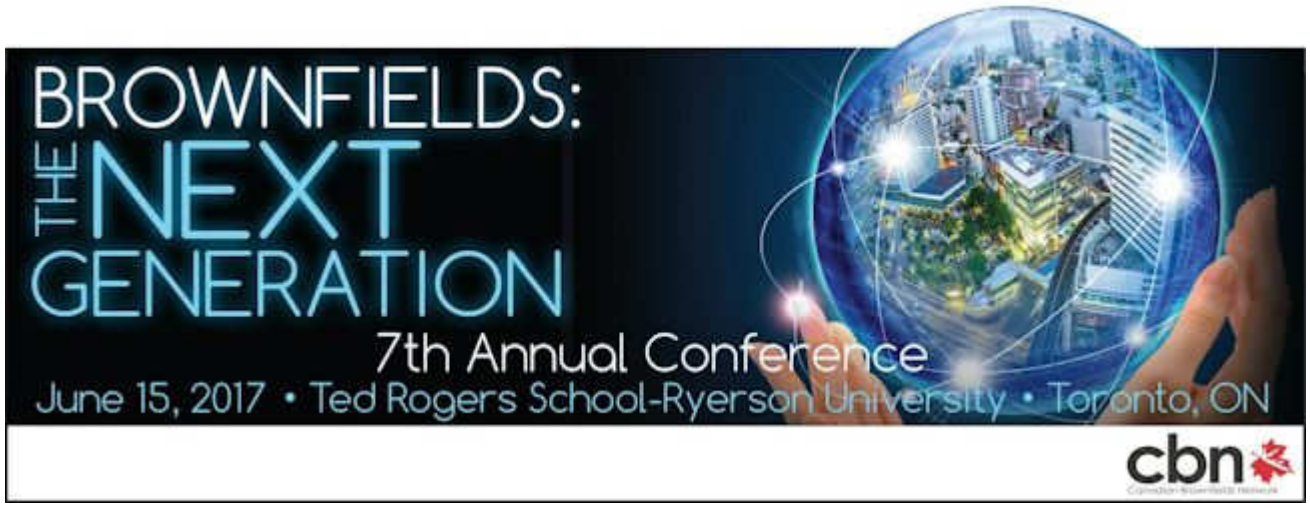
I was reminded this week how valuable this network is in sharing experience and how the knowledge base can help bring a project to success. The expertise in the group is

vast. Many opportunities in the brownfield arena are struggling to be brought to completion without the expertise that exists in the CBN and as such I would like to remind our members of the importance of spreading the news about, and use of, this network. So please continue to spread the news about the good things the members in our network do for brownfields.

In December the CBN communication committee will deliver one more newsletter. If you have an article to share, please contact us.

Warm regards,
Berend Jan Velderman
Communications and Membership Committee Chair

CBN 2017 Conference Recap



Brownfields: The Next Generation
CBN 2017 Conference Recap - Morning Sessions

This year, we tackled the evolution of brownfields with the theme "Brownfields: The Next Generation", celebrating the increasingly mainstream approach of reusing contaminated sites for a wide range of purposes instead of using scarce greenfields. In addition to looking at projects and programs that reflect this change, we examined next generation technologies and heard about research into what the future holds. In this issue of the newsletter, we provide highlights of the Conference sessions.

Keynote Speaker Ken Greenberg (Greenberg Consultants) - Retreat of the Industrial Glacier: a New Terrain of Availability

Ken started by noting that city use is changing post World War II, from car-centric suburban development in the 50s and 60s to transit/pedestrian-centric residential and commercial development in the heart of the city today; this has driven brownfield re-use in cities such as Toronto, and engagement of multiple players - government, designers, developers - has proven key. This takes advantage of the shift in industry away from city cores - what Ken calls "the retreat of the industrial glacier" - leaving behind large swathes of vacant, often brownfield, land. The Toronto Waterfront revitalization is an excellent example of how this happens, with the public and private sectors collaborating to produce transformation that's changing the face of the city. Ken spoke about his involvement with the Bentway (formerly Project: Under the Gardiner), which is knitting together 77,000 residents in 7 emerging neighbourhoods and which has

spawned a number of additional independent projects through what Ken calls "chain reactions and synergies" (The Bentway has the distinction of being the only non-US project in the High Line Network). The Toronto Portlands redevelopment is another example of land that had serious contamination issues being used as an opportunity for a new kind of city building. Ken finished his presentation by discussing similar redevelopments in Buenos Aires, Argentina; St. Paul, MN; Hammarby Sjostad (Stockholm), Sweden) and New York City's harbour area.

Legislative Updates (Cross-Country Check-Up) - Alan McCammon (BC), Lisa Fairweather (AB), Dean Therrien (ON) and Guillaume Couillard (QC)

Our always-popular cross-country legislative panel provided updates from the four provinces most active in brownfields regulation:

- Alan reported that BC has been updating the generic remediation standard and associated documentation; this is the first comprehensive update in 20 years, and changes will be in place November 1, 2017. The Ministry has undertaken 2 legislative review projects - identification of contaminated sites and handling of excess soils - and has hardwired a 5-year update cycle for the Contaminated Sites Regulation into the legislation. Finally, the Ministry is decoupling the Hazardous Waste Regulation and the Contaminated Sites Regulation.
- Lisa, Alberta's first Director, Brownfield Redevelopment, briefly summarized the key recommendations of the 2012 stakeholder working group and provided an overview of their implementation. At present, Alberta does not have a brownfield grant program but has made progress on enabling a tax exemption/deferral program. The province has also updated Tier 1 and Tier 2 risk assessment regulations and is working on changes to the Remediation Certificate Regulation.
- Dean provided an update on the Ministry's proposed excess soil regulation, which will clarify when excess soils are waste and when an excess soils management plan is required. He also summarized key modernization initiatives of OReg 153/04 (among them: when relief can be granted from vertical delineation requirements in a Phase II ESA; waiver of exceedance standards for substances used for traffic/pedestrian safety in conditions of snow and ice; and waiving the requirement for an RSC in the conversion of the upper floors of a low-rise commercial building to residential use)
- Guillaume reported that Quebec has replaced its brownfield policy document (which dates to 1998) with a new one that: sets a target of $125 million of remediation work to be completed by the province every 5 years; mandating that 80% of excavated soils be treated and put to better use; ensuring that a minimum of 75 sites be addressed through in-situ remediation; anticipates remediation of 100 gas stations owned by small business people; and anticipates remediation of 200 residential properties contaminated by heating oil. He also noted the government has launched ClimatSol-plus, which is mandated to invest $30 million over 3 years from the Quebec Green Fund and a further $25 million over 5 years for redevelopment of contaminated sites; since polluter pays is very much alive in Quebec, a funding applicant cannot be the contaminator of the property.

Research You Can Use - Chris de Sousa (Ryerson), Reanne Ridsdale (Ryerson), Brent Sleep (University of Toronto) and Paul Furbacher (University of Toronto)

Trying to Smart "in-up" and Cleanup our act - Chris De Sousa

Chris reviewed brownfield redevelopment outcomes in Ontario using Records of Site Condition (RSCs) issued between 2004 and 2015 as a metric. Over this period, some 4,500 RSCs were issued (almost 1/3 of them for Toronto sites). In Toronto, the RSC process in the period 2004 to 2011 resulted in about 87,000 total new units, of which just over 83,000 were residential. Redevelopment added almost $15 billion to assessed property values. Across the province, land that has gone through the RSC province covers an area the size of the city of Boston.

Does Social Justice Fit into Brownfield Revitalization? - Reanne Ridsdale

Reanne noted that research has shown that, among its other purposes, sustainability addresses social justice. Representational thinking about sustainability has shifted to a series of nested areas, with economy at the centre and environment embracing both it and society. SuRF in the US conducted a project looking at the social dimension in remediation and outlined three different levels of participation - citizen power, tokenism and non-participation; they identified citizen power as the goal. She concluded by asking if we have the right tools and whether we are asking the right questions.

Remediation of Chlorinated Solvent Contamination Through Combined Chemical Reduction and Bioremediation: a Field Study - Brent Sleep

Brent gave an overview of recent U of T civil engineering research on in situ remediation. The keys to deciding which technology to use are the contaminants, site characteristics and objectives. Increasingly, stable isotopes and microbial characterization are being used as site characterization tools; isotope ratios allow identification of contaminants and the ratio changes depending on the type of microbial process taking place. He profiled an example of a former adhesive manufacturing plant in which TCA contamination was removed by in situ chemical reduction using guar gum, stabilized ZVI injection and limited soil excavation. The use of ZVI saw concentrations reduced to near zero.

Bacteria and Thermal Remediation - Paul Furbacher

Paul noted that groundwater contamination can be caused by underground storage tanks (among other things) interacting with groundwater. Contaminants released this way have low solubility, so a large plume can pollute groundwater heavily for a long time. Thermal remediation - drilling wells to heat the source zone and convert contaminants from liquid to gas where it can move to the surface for disposal - can be cost competitive, has high contaminant removal rates, and has a low surface footprint requiring minimal excavation. Polishing, to remove remaining contaminants, can be achieved through biodegradation - using bacteria to destroy the contaminants. While this can be difficult to predict/control and proving its efficacy requires multiple streams of evidence, biodegradation combined with thermal remediation could offer beneficial synergies.

Legal Update - Janet Bobechko (Norton Rose Fulbright LLP)

Janet reviewed the results of five recent Ontario cases: Midwest Properties v Thordarson; Dobara Properties v Arnone; Huang v Fraser Hillary's Ltd.; Crombie v McColl-Frontenac; and Sorban Investments v Litwack. These cases show that:

- Prospective purchasers of property need to be diligent in determining whether the property is contaminated, as there may be a limitations period that applies to preclude recovery;
- Damages under the Ontario Environmental Protection Act should be measured by the costs of restoring the property to contamination levels within MOECC standards;
- Claims should be made in nuisance, negligence, trespass and strict liability, but recent interpretation of s. 99(2) makes s. 99(2) claims potentially advantageous
- Landlords are rarely held liable for the negligence of their tenants (but *Canadian Tire* provides a potential precedent for the idea that geographic proximity will ground a duty of care

Municipal Innovations - Stéphanie Bohdanow (FCM), Meggen Janes (CH2M Hill) and Karen St. Martin (Town of Mayerthorpe, AB)

Stéphanie Bohdanow

Stéphanie gave an overview of FCM's LiBRe (Leadership in Brownfield Renewal) program and highlighted the achievements of some participating municipalities in 2016-17 (examples: Mississauga facilitated

interim use of an Ontario Power Generation site; Edmonton, Kingston and Windsor approved over $11 million in brownfield incentives; and Brantford completed the Greenwich-Mohawk clean-up) and some of the projects and fresh thinking underway for 2017-18.

Community-based Risk Assessment (CBRA) Process on Toronto's Waterfront - Meggen Janes (CH2M Hill)

Meggen outlined the community-based risk assessment (CBRA) process developed by CH2M Hill for Waterfront Toronto for the Don lands site, approximately 100 hA in size. CBRA is a voluntary, iterative process requiring examination of contaminants, exposure pathways and receptors. The aim of the Don lands project is to rechannel the Don River, creating an island and river through a brownfield site. The site suffered from land contamination from infill and non-aqueous phase liquid throughout the site. The process started with development of a set of terms of reference followed by 4 months of stakeholder consultation, defining the approach and issuing 13 reports to partners; in addition to this, there were public consultations. A draft report was issued to address comments, and a final report should be issued later this year. Usage of the property defined the receptors. Given the size of the area, the process is focusing on sub-areas to have a more specific, focused dataset. The CBRA balances risk management and remediation. The intent is to begin construction in the spring of 2019 and complete the project by 2023. Waterfront Toronto has identified technologies to deal with contaminants and pilot testing of 8-10 technologies is underway; once complete, they will look at balancing risk mitigation measures with remediation. Approximately 1 million cubic meters of soil is being evaluated and much of it will be excavated for reuse, although some will be remediated in-situ.

Brownfield Redevelopment Program Policy/Grant - Karen St. Martin (Town of Mayerthorpe, AB)

Karen recounted how Mayerthorpe, a town of 1,320 citizens with a service area of 5,000, embarked on a comprehensive consultation in 2009 to develop a sustainability plan. In 2015, the Town began developing its Brownfield Redevelopment Policy to address its brownfields - small gas stations, bulk fuel depots, drycleaners, welding shops, etc. Patterned on Edmonton's policy, Mayerthorpe provides a grant of up to $1,000 for Phase I ESA and a grant of up to $5,000 for a Phase II a, b or c ESA. The Town has also created an environmental reserve so that uninvested funds in any year can be carried forward and made available in later years. This initiative has been promoted through social media and by sending letters directly to owners of potential brownfield sites. To date, one private landowner has engaged the Town, and they are continuing to work together through the completion of Phase I and, going forward, into Phase II. FCM's Green Municipal Fund is also approved funding for Phase II, and hopefully the landowner will be awarding the project to an environmental engineer shortly.

Emerging Technology - Bruce Tunnicliffe (Vertex Environmental Inc.), Hester Groenevelt (GeoSyntec Consultants Inc.), Yvo M. M. Veenis (Groundwater Technology), Diana Saccone (ERIS) and Jean Paré (Chemco Inc.)

Novel Adsorptive Method for Chlorinated Solvent Remediation - Bruce Tunnicliffe, Vertex Environmental Inc.

Bruce began by outlining developers' expectations for in situ remediation: cost efficiency, certainty (it must work both short- and long-term) and sustainability. Using activated carbon as an adsorptive material to trap contaminants, combined with treatment with zero valent iron (ZVI), meets these expectations for chlorinated solvents (perchloroethylene (PCE) and tricholorethylene (TCE)). Vertex uses in initial ZVI injection which reduces volatile organic compounds (VOCs), and follows that up about a year later with an injection of BOS100 (an engineered product consisting of a combination of activated carbon and ZVI) - this process has been shown to eliminate 98% to 99% of VOCs. In addition to injection, soil can be treated through mixing the products directly into the soil. For soil contaminated with petroleum hydrocarbons, Vertex treats with BOS200, an in situ remediation technology also based on activated the carbon platform and specifically designed to degrade petroleum hydrocarbons, related solvents, and oils. Post-injection, this product showed an immediate and almost total reduction of VOCs. Both products are injected into

contaminated soil at vertical intervals to produce overlapping pancakes to treat the soil at all depths. Bruce then presented three case studies:

- A sewer line which ran directly from a dry-cleaner, treated by injecting 2,400 kg. of ZVI mixed with 7,000 L. of slurry. This eliminated about 97% of contaminants in deeper wells but only about 45% in shallower wells. Following-up with an injection of 100 kg. of BOS100 mixed with 1,500 L. of slurry resulted, in the end, in 99.7% elimination of contaminants.
- A former dry-cleaner in London, which had initially been treated with a traditional pump-and-treat process that left some areas still showing contamination. Vertex treated this with BOS200; following treatment, virtually all contaminants were trapped and concentrations remained below MOECC targets.
- An industrial site in Mississauga which had 2 VOC plumes - one inside and one outside. In one of the areas, 1,1-dicloroethene was the contaminant of concern. Following treatment, both areas are now well below MOECC standards.

Vapour Intrusion Assessment and Mitigation - Faster, Better and Cheaper Through New Technologies - Hester Groenevelt, GeoSyntec Consultants Inc.

Hester's presentation dealt with two remedial methods - STAR (for in situ remediation) and STARx (for ex situ remediation), both developed in conjunction with Western University. STAR, useful for petroleum hydrocarbons, coal tar and creosote, acts through insertion of an ignition/heat source and injection of oxygen into the soil; the contaminant serves as the fuel. Once the contaminant has ignited, the heat source can be switched off and the fuel (contaminant) will continue to smolder as long as oxygen is supplied. Vapour is drawn off and treated. Hester noted that, for some contaminants (high volatility compounds such as chlorinated solvents) which cannot act as fuel, a surrogate fuel must be injected. STAR is effective both above and below the water table. STARx allows contaminated soil to be excavated and placed on a "HottPad"; an ignition point is drilled into the waste and oxygen applied; the contaminants will smolder as long as oxygenation continues. Both technologies have been proven in multiple projects. As an example, STAR was used to treat a New Jersey facility with 55,000 cubic yards of contaminated soil. GeoSyntec has also developed, in conjunction with the University of Waterloo, a passive vapour intrusion assessment product that can reduce the "starvation effect" in sampling - starvation occurs when the uptake rate of the sampler is higher than the delivery rate of analytes to the sampler; the sampler will "scrub" its environment, causing a low concentration bias. The Waterloo Membrane Sampler eliminates this effect by use of a controlled cross-sectional area and membrane thickness and is more cost-efficient and less time consuming than an active soil gas sampling method. It is also useful for long-term indoor air sampling. Both STAR/STARx and the Waterloo Membrane Sampler experienced the transition from research to commercialization in 8-10 years.

In Situ Soil Stabilization - Yvo M. M. Veenis, Groundwater Technology

Yvo began by noting that Holland has a significant amount of contaminated soils, including unconsolidated - wet, loose - soils which are hard to build on. The typical approach to unconsolidated soils is to build a hard cap, but, given that much of the region is below sea level and the soils are therefore prone to liquefaction, other solutions must be sought to avoid subsidence and the effects of mud shakes to which Holland is prone. Liquefaction can cause buildings to shift and topple, and dams, roads, etc. can experience serious damage and other problems. Classical solutions for liquefaction are dewatering, use of bonding agents and civil engineering solutions; civil engineering solutions in particular are expensive and permanent. Increasing soil bonding by use of natural processes is an attractive alternative, and there are different processes to "train" bacteria so they excrete calcite - the end result of the process. Yvo summarized the result of different bonding agents, concluding that nitrate and calcium have shown good results with very little in the way of by-products - only small amounts of CO_2 and nitrogen gas. Testing in a 20 cubic metre tank with this process alone has yielded concrete-like material. The steps in the process are simple:

- Analyze soils for suitability

- Enrich local naturally-occurring bacteria
- Apply cultivated bacteria and amendments in treatment zone

The process takes between 1 week and 3 months; tests have shown that 2 weeks will allow excavation of the soil with a steep to shallow slope. Treatment of soils resulting in particles with a cohesive force of 60 kPa allows an excavation 4 metres deep and a steep slope.

Technology Meets Environmental Site Assessments - Diana Saccone, ERIS

Diana's presentation dealt with data visualization analysis tools to assist with brownfield assessments. In the past, such tools as were available could be complex and time consuming, and pulling information from raw data sources together was even more so. Technology simplifies this process. Web-based tools and geographic information systems (GIS) have become much more advanced in the last five years; now, pre-existing materials can be collected, geo-referenced and stitched together so they can work as layers in a GIS application. With the addition of an application programming interface (API - a collection of routines, protocols and tools for building software), creating a useful, advanced program can easily be created - a case in point is the ERIS Explorer which, once the data was collected, required only 3 to 4 months for development. ERIS Explorer, expected to launch in Canada in July, is a web-based application that looks like a Google Map and was, in fact, built using the Google API. It can be customized by bringing in different data sources. Diana then gave a demonstration of the product, showing:

- The ability to zoom in on a specific address to see the datapoints associated with it
- Clicking on a point displays summary data
- The availability of additional, detailed information by clicking on a link
- The use of the ERIS tools to customize data presentation and select or deselect different data sources
- The ability to choose the way data is displayed and sorted
- The image overlay tool's capability - integration of historical images such as photos, topographical maps, fire insurance maps, etc.
- The ability of the transition tool to display changes in an area over time to show the effects of development
- The variety of data layers included - flood data, geological data, soil maps, wetlands, etc.
- The use of the drawing tool, which allows making annotations on the map which can then be saved, printed and shared

Using the techniques described and putting images in easily usable formats facilitates brownfield redevelopment through leveraging data for site assessments.

Tools and Methods to Reduce and Control Uncertainties Associated with In Situ Remediation - Jean Paré, Chemco Inc.

Jean noted that, for successful remediation, it is important to use the correct technology in the correct location. In situ remediation can be quicker (resulting in a potential financial saving) and may also be easier (since contaminated material is not always accessible) than ex situ. He identified four different technologies for discussion today:

- Chemical oxidation: the end product is CO2, water and chlorides, none of which are toxic. This technology does not work so well with non-soluble contaminants, and will mobilize some metals
- Enhanced bioremediation: natural processes already occur at the site; this technology enhances them. It is effective with metals and organics and is typically slower than oxidation. End products are mostly non-toxic
- Soil washing: using a co-solvent and/or surfactant allows effective and economical treatment and allows for soil re-use or lower-cost disposal

- Activated carbon: enables reaching lower concentrations of contaminants very quickly

Challenges faced in application are site geology, site heterogeneity, low groundwater velocity, low fracture pressures, need to inject high volumes, reagent kinetics and unusually deep or shallow environments. Good treatment requires good contact. Jean recommended testing in the lab (if it is economical and/or applicable) before getting to the site; while testing may cost up to $25,000, it provides greater certainty when going into the field. If, after testing, a particular technology still makes sense, it is important to use high resolution tools (membrane interface probe, etc.) to characterize the site; this will help ensure the amendments go where the contamination is. It may be important to evaluate the pros and cons of various types of equipment; since no 2 sites are the same, it's possible that equipment does not always work. Jean noted that use of MIP 3D imaging helps ensure that injected materials reach the contaminants. A consideration is the radius of influence - how far will the amendment move and influence adjacent contaminants, and will they be blocked by hydrogeological/geological components. Finally, he noted it is important to follow-up after injection - core samples and groundwater sampling will validate oxidant/amendment distribution to ensure effectiveness and persistence.

Award Winning Projects, Where Are They Now? Doug Webber, WSP, Joshua Schram, City of Brantford and Ed Taves, CH2M

Hammarby Sjostad, Sweden (2008 Brownie Award Winner) - Doug Webber, WSP

Doug noted there are actually 2 developments - Hammarby (for which planning began in 1980 and construction of 11,000 dwelling units is just now concluding) and Royal Seaport (a much larger development, with a projected 90,000 residents, which was started in 2010).

Hammarby originally had no real vision around sustainability until Stockholm began thinking about hosting the Olympics. The broad environmental goal was to be twice as good as a typical development, with specific goals around energy, water and waste (e.g. reduction of water consumption from the city average of 200 L. per person per day to 100 L., installation of a closed loop cyclical water waste system and reduction of average intensity from 140 KWH/year to 60 KWH/year). In retrospect, Hammarby did not hit its targets due in part to the fact that those targets were predicated on behavioural changes by the population; this didn't happen, although it may be starting now.

The Hammarby experience fed into the way Royal Seaport is being planned - greater care is being taken in setting targets, and some specific targets are being set at the precinct level. To support this, there will be much more intensive measurement integration. In addition, rules were introduced at the outset (as opposed to Hammarby, where they came in late), with the result that developers support them. To date, Royal Seaport is more successful than Hammarby.

Contrasting Hammarby and Royal Seaport with Waterfront Toronto, Doug noted that, although Waterfront Toronto established minimum green building requirements, they did not put measurements in place. On the other hand, they did introduce rules from the beginning, and developers are therefore on board. Doug also reported that both Royal Seaport and Waterfront Toronto, intended to reduce CO2 emissions, will achieve more than half of the reduction from retrofits of existing buildings; new buildings will contribute less.

Brantford Sydenham Pearl Brownfield Remediation and Urban Renewal Project (2016 Brownie Award Winner) - Nicole Wilmot, City of Brantford and Ed Taves, CH2M

Nicole and Ed provided background on remediation projects in Brantford, a city of 100,000 an hour west of Toronto. There have been two major projects - Greenwich Mohawk and Sydenham Pearl - managed by the City; the purpose of remediating them is to support recreational and park uses with a view to ultimately redeveloping the properties.

The Sydenham Pearl site is 2.5 hA surrounded by residential areas; the site abuts a CN shunting line and main station. The site was historically used for manufacturing of small appliances and roof shingles, among other things. By the early 80s, the companies operating on the site had closed, leaving it prone to fire, vandalism, etc. In 2002, there was a major fire that resulted in demolition of the buildings, and in 2005, the City began thinking about what to do with the property. In 2012, Council approved $4.6 million in funding for remediation and redevelopment and retained CH2M to do the remediation work. The Phase I assessment (2012) defined potentially contaminating activities and areas of potential environmental concern; Phase II (2013) was conducted concurrently with the risk assessment. In 2016, implementation on some of the risk management measures began, and a record of site condition (RSC) and certificate of property use (CPU) are expected to be issued in the fall of 2017.

The site contaminants were almost all at or near the surface, and there was a thin band where trichloroethylene (TCE) had preferentially absorbed (although a source for this was not identified with certainty). For Phase II work, CH2M went down to silty clay (11 m.) to get the delineation. Multiple underground storage tanks had to be removed and, since there were tars on the surface from Domtar's activities which had also penetrated the upper sand layer, there was significant surface clean-up. For TCE clean-up, they used Lang Tool mixing, which worked well. The Lang Tool is basically an excavator with a plunger that features an up-and-down motion for mixing. The amendment is injected at the beater head. For phase 3 work, the risk assessment showed that a 500 mm. cap was required; this was installed with a non-woven geotextile as demarcation. Some trees and other site features prohibited going to a full 500 mm. on the cap. The objective was to leave the site with a pleasing look so it could be used by the community for interim recreational use.

Challenges with the site arose from the adjacent residential area, which meant that work would be done almost in people's back yards; this influenced the design of the remediation technology to minimize inconvenience to neighbourhood residents. Because the land had sat vacant for so long, a number of abutting owners had assumed part of the property for their own use - this required non-traditional community outreach, but all encroachments were successfully resolved. Next steps are acceptance of the CPU and filing of the RSC - this will frame future site redevelopment options. The City hopes to be able to present options in the fall of 2017 and then go back to the community to present concepts.

HUB Award Presentation - Grant Walsom, CBN President and Partner, XCG

Grant presented the 2017 HUB Awards to Al Durand (Foundation Award), Bruno Thielmann (Pillar Award) and Todd Latham (Vision Award). For more information, please see the 2017 HUB Awards page on the CBN website at https://www.canadianbrownfieldsnetwork.ca/brownfield-awards/cbn-hub-awards/cbn-hub-awards-2017.

Speaker presentations from the Conference are on the CBN website and can be viewed by clicking here.

CBN Partner Events

Federation of Canadian Municipalities Sustainable Communities Conference 2018

Join the Federation of Canadian Municipalities (FCM) in Ottawa February 6-8, 2018, for their Sustainable Communities Conference - where innovation meets action. This revamped 2018 edition offers three days

of must-attend workshops, study tours and plenary sessions that showcase the latest in municipal green innovation and best practices. Connect and network with sustainability leaders from across the country. Be inspired by local green successes and celebrate them with the presentation of the 2018 Sustainable Communities Awards.

BC Environmental Industry Association's Bettering Environmental Stewardship and Technology (BEST) 2018

BCEIA's BEST Conference attracts Environmental Professionals every May for two days of technical sessions, networking opportunities, and a sponsor exhibition. Conference registration includes a welcoming reception, technical sessions, panel discussions, an off-site networking reception, and all meals and coffee breaks. For further information, please visit http://bceia.com/best/

Real Property Institute of Canada's 2018 Federal Contaminated Sites Workshop

The RPIC Federal Contaminated Sites National Workshop is the leading professional development workshop for federal and industry environmental professionals involved in the management and remediation of federal contaminated sites. It will be held in Toronto June 13-15, 2018.

CBN Updates

It's hard to believe that summer's over, fall is quickly passing and winter is soon to be on us. At CBN, we've been keeping up with the changing seasons by continue to move the brownfield agenda forward. Key to that is ensuring stakeholder and public awareness of brownfields as a preferred alternative for development and redevelopment, and what better way to do that than continuing to discuss brownfield projects and concepts at Canadian conferences.

Even though the virtual ink is barely dry on this CBN Conference edition of the newsletter, we've already begun working on the 2018 CBN Conference. It will be held in Toronto in mid-June, and more information will follow soon, so stay tuned. While the agenda is still in the planning stages we are extremely excited about the theme. We can announce that you can look forward to the return of our popular cross-country regulatory update, great educational opportunities and chances to network with others in the industry.

For the fifth year, we recently presented the brownfields stream at the ESAA RemTech Conference, held in Banff, AB this past October. Once again the CBN sessions were very well attended with great take-aways. I'd like to personally thank those who gave generously of their time to present informative and educational sessions as part of the CBN Brownfields stream:

- John Georgakopoulos and Jacquelyn Stevens, Willms & Shier Environmental Lawyers LLP
- Lisa Fairweather, Alberta Environment and Parks
- Krista Barfoot, CH2M
- Meggen Janes, Waterfront Toronto
- Bruce Tunnicliffe, Vertex Environmental
- Tyler Mahn and Kevin Shipley, XCG Consulting
- Rob Shogren, Lafarge North America

Watch the newsletter and our member updates in the spring for our call for abstracts for RemTech 2018.

On behalf of CBN, welcome to our new corporate members:

- ALS Laboratories
- Vertex Environmental

As always, thank you for your support of CBN - with your help, we continue to promote brownfields in becoming the preferred option for redevelopment!

Grant Walsom - President, CBN

Industry News

Do You Have Industry News to Share?

Has your organization been involved in a notable project? Do you have a new product or service offering that might be of interest to our members? If so, our "Industry News" section is a good place to share. Our quarterly newsletter publishing schedule is:

- mid-March
- mid-June
- mid-September
- mid-December

If you have news for us, please submit it to davidp@canadianbrownfieldsnetwork.ca, and our Communications & Membership Committee will consider it for the next issue. Thanks for your support of CBN!

Membership Renewal Reminder

Reminders for the CBN 2016-2017 renewals have been sent out. If you haven't renewed your membership yet, please do so today. We need your support to continue providing the events and information you need to stay current on all things brownfields. Thank you for keeping CBN strong!

Be part of CBN's success in promoting brownfield property reuse as the preferred solution for developers - join us today! Our large and committed membership offers more opportunities for networking, increasing your chances to learn about best practices, gain business, hear about new projects and be exposed to the latest processes and techniques in remediation.

As a CBN member, you get access to our Members Only website, an opportunity to be heard by contributing to our submissions to various governments on issues of concern to the industry, and reduced rates at CBN and many partner events. You may also be selected to participate as a CBN speaker in brownfield streams/sessions we organize at partner events or at our Annual Brownfields Conference.

If you're interested in being part of the future, download the membership application from our Membership Info page or contact Isaël Poirier, Chair of our Membership Task Force at 343-998-1214 or by e-mail at ipoirier21@gmail.com. Help shape tomorrow - join CBN today!

Already a member? Please forward this newsletter to someone you know who could benefit from CBN membership. Thank you!

CBN's LinkedIn Group - Your Invitation to Join

The Canadian Brownfields Network has started a LinkedIn group, and you're invited to join and contribute. Our group will focus on all things brownfields:

- New trends in the brownfield industry
- Brownfields-related events and resources
- Brownfields news
- Municipalities active in brownfield redevelopment

The group will have something for all brownfields stakeholders. It's only open to CBN members, and we encourage you to join, participate in discussions, and contribute postings. To join, please click here.

CBN's Twitter Feed - Please Follow Us!

Always looking for ways of connecting with the brownfields community, CBN is now on Twitter. We post current news, trends and timely items. We also live-tweet from our events and those in which we participate. Be sure to stay current - sign up follow us @CdnBrownfields!

Interested in Volunteering for CBN?

Did you know that CBN has 4 Committees which, along with the Board of Directors, help us accomplish our goals? They are:

- Communications and Membership
- Finance and Insurance
- Government Relations
- Technical Advisory

If you would like to be a part of any of these Committees, please contact David Petrie, our Operations Manager, by e-mail at davidp@canadianbrownfieldsnetwork.ca.

We appreciate your interest and support!

Send Us Your Comments!

Do you have any ideas on what can be included in future newsletters, or comments on the content of this one? Please send them to us by e-mailing David Petrie. If you'd like to start a discussion on any of the items in this newsletter, we encourage you to use our LinkedIn group.

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