

<b>TO:</b>	<b>CHAIR AND MEMBERS FINANCE AND ADMINISTRATION COMMITTEE MEETING ON JANUARY 16, 2012</b>
<b>FROM:</b>	<b>PAT MCNALLY, P.ENG. EXECUTIVE DIRECTOR PLANNING, ENVIRONMENTAL AND ENGINEERING SERVICES</b>
<b>SUBJECT:</b>	<b>DUE DILIGENCE FOR SITE REMEDIATION</b>

<b>RECOMMENDATION</b>
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That, on the recommendation of the Executive Director, Planning, Environmental and Engineering Services, the Business Planning Unit **BE DIRECTED** to investigate and develop a business case for the creation of a focused brownfield redevelopment function within the Corporation and report back to Municipal Council for their information.

<b>PREVIOUS REPORTS PERTINENT TO THIS MATTER</b>
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None.

<b>BACKGROUND</b>
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**Purpose:**

Municipal Council, at its session held on July 25, 2011 resolved:

*“That the Civic Administration **BE REQUESTED** to report back at future meeting of the Finance and Administration Committee with respect to the due diligence process that should be taken for projects involving site remediation, including brownfield projects; the appropriate contingencies that should be established for projects that may involve site remediation; and a summary of lessons learned to date in dealing with such matters. (21/17/FAC)”*

**Context:**

There are a substantial number of properties within the city of London that have been previously developed for industrial, commercial or other urban uses and may be contaminated as a result of these former activities. Some of these properties, which are commonly referred to as “brownfields”, are vacant, under-utilized or abandoned as a result of changing economics, their current environmental condition and/or associated liability concerns, resulting in lost property tax revenue, inefficient use of existing infrastructure and lost employment opportunities.

During the past several years, municipalities have become increasingly proactive in encouraging the remediation and redevelopment of brownfield sites as a means of increasing the municipal tax base in areas of existing infrastructure, increasing employment opportunities, and enhancing the viability of inner-City neighbourhoods.

With the potential for the redevelopment of a number of such sites in the future it is appropriate at this time to consider if the City of London has sufficient due diligence processes in place to safely and cost effectively manage the redevelopment of brownfield sites or other such sites with challenging site characteristics.

## Discussion:

### Due Diligence Process for Site Remediation/Brownfield Projects:

The City of London has, as adopted by Council in February 2006, a Community Improvement Plan for Brownfield Incentives (CIP-BI). This CIP-BI is a planning document that offers practical tools to promote the remediation and redevelopment of brownfield sites that might otherwise remain vacant or underutilized. These tools are consistent with objectives and policies in the Official Plan which support an efficient use of existing serviced lands and municipal infrastructure, and a reduction in the adverse environmental impacts associated with contaminated sites.

The CIP-BI is not a “how to” guide for conducting a site assessment or carrying out a brownfield site remediation. That information is described in detail in the Ontario Ministry of the Environment’s (MOE) “*Record of Site Condition, A Guide on Site Assessment, the Cleanup of Brownfield Sites and the Filing of Records of Site Condition*” (October 2004). To quote from the MOE’s document:

“This Guide has been prepared to provide property owners, consultants (i.e. qualified persons), municipalities, building officials, the public and other interested parties with an overview of the new requirements. The Guide describes the legislative and regulatory requirements in the following areas:

- assessing the environmental condition of a property (Section 4.0);
- the qualifications required for persons undertaking site assessments, risk assessments and filing records of site condition (Section 5.0);
- the standards to be met for soil, ground water and sediment (Section 6.0);
- the use of risk assessment if needed to develop property-specific standards (Section 7.0);
- completing a record of site condition (Section 9.0);
- filing and viewing records of site condition on the Environmental Site Registry (Section 10.0);
- when it is mandatory to file a record of site condition (Section 11.0); and
- liability protection from orders provided for property owners who file a record of site condition and for municipalities, secured creditors and others to facilitate investigative and other actions related to brownfield sites (Section 13.0).

The Guide also provides an overview of site remediation (Section 8.0) and the integration of land use planning and environmental requirements (Section 12.0).”

As no two brownfield sites are the same (i.e. differing - contaminates, soils and ground water conditions, planned end uses) the Guide does not recommend how many boreholes to drill per hectare or what tests to conduct. Those details are site specific and determined by the ‘qualified person’ (Section 5) retained to conduct the Record of Site Condition. Indeed, the history of site use is often the major factor in determining an appropriate site investigation and remediation strategy.

The Guide is also silent on providing cost estimates for any recommended remedial work, although one would assume such a task would be included in any work program for a brownfield remediation. Since it is a MOE Guide the main focus is public and environmental safety.

In general terms, when investigating the requirements to redevelop a brownfield site, if this MOE Guide is adhered to then due diligence has been followed with respect to the appropriate legislative and regulatory requirements in brownfield site remediation. The City however, would be wise to establish in-house expertise and processes to ensure its own due diligence is met.

### Appropriate Contingencies for Site Remediation/Brownfield Projects:

The Architect’s Handbook of Professional Practice clarifies a contingency allowance as the amount, or percentage, included in the project budget to cover unpredictable changes in the work or items of work. It serves three core purposes:

- To account for errors and omissions in the construction documents
- To modify or change the scope of the project

- To pay for unknown conditions

There is no such thing as a one-size-fits-all amount for the owner's contingency. Applying a standard amount or percentage can lead to cost overruns or lead to litigation. It is highly recommended that owners develop an internal process to evaluate project contingency needs.

As part of managing ongoing environmental responsibilities, City staff must continue to remain apprised of environmental regulations associated with their areas of responsibilities. As required, focused training occurs in specific areas of the corporation (e.g., sewer services, water services, etc.). For 2012, plans are being prepared for broader training across all managers and supervisors to increase awareness of environmental laws, recognize and evaluate environmental risks and general due diligence requirements. Key areas to be targeted include waste/disposals, spills, air, noise, wastewater, contaminated sites, Certificates of Approval and other compliance areas. This training is not only important to existing City work but will also be valuable input into a broader focus on site remediation requirements and strategies.

Our core business service areas such as the sewer/water/transportation lifecycle replacement program have developed "Key Project Considerations for Suspected Contaminated Sites, Lifecycle Replacement Program" (see Appendix 'A') following a continuous improvement process. As there is no identified 'lead' division or 'champion' assigned the overall responsibility for managing brownfield redevelopment projects, there is no similar knowledge base created or improved upon through a lessons learned review.

#### Summary of Lessons Learned:

We are not currently managing the redevelopment of brownfield/contaminated sites as well as we should. Since there is no 'lead' division or manager assigned this function, nor is there a centralized division assigned to receive, store or create a data base of known contaminated sites, knowledge gained through experience is fractured at best and may indeed be lost completely with the current corporate structure.

Current legislation states that under O. Reg 153, in order to identify Site Condition Standards for remediation, the owner or his competent agent confirms with a municipality the standards to be used. This requires that an owner or agent contact the municipal clerk and indicate the standards which they intend to use in writing. There are different standards which are applicable for various contaminant criteria based on land use type and whether the groundwater is potable or non-potable. Non-potable standards are less stringent. The municipality then has an obligation to respond within 30 days whether they agree with this position or not. As there is no centralized or designated group to deal with these types of submissions, there have been cases in the past where an owner or their agent has indicated they wish to use non-potable standards and by virtue of not giving a response within the 30 day time period, the City has been obligated to accept this position.

By establishing a focused brownfield function within the Corporation a knowledge base and expertise can be developed over time to better manage such projects.

Considering the number of redevelopment properties that may have brownfield concerns associated with them such as; London Psychiatric Hospital Lands, McCormick's Area Plan, the South Street Campus Hospital Lands, known coal tar sites and the city's railway corridors, it is our recommendation to conduct a service based review and develop a business case to determine the resources needed to put a brownfield management team in place.

To assist in compiling background information for this report staff met with representatives of the London Chapter of Consulting Engineers of Ontario to discuss London's approach to brownfield remediation and what, in their experience, other municipalities are doing in this regard. Their comments are included for information in Appendix 'B'.

#### Recommendations/Conclusions:

In order to move forward with the development of a focussed brownfield function, further investigation is required. We must determine:

- the best fit within the corporate structure for this work;
- whether the skills required exist currently within the Corporation;
- where capacity to undertake the work might be found; and
- how other municipalities are dealing with this issue.

A number of options exist and with ongoing corporate reorganization efforts the timing is right for setting up this function. The Business Planning Unit has been asked to assist with this investigation and can include it in their work plan for 2012. Others from across the Corporation will be consulted in this investigation and a business case can be developed to be included in the Business Plans for 2013 if required.

Included with this report in Appendix 'C' are some items to consider should this Business Planning Unit investigation be approved.

<b>PREPARED BY:</b>	<b>RECOMMENDED BY:</b>
<b>TOM COPELAND, P. ENG. DIVISION MANAGER WASTEWATER AND DRAINAGE ENGINEERING</b>	<b>JOHN BRAAM, P.ENG. DIRECTOR, WATER AND CITY ENGINEER, PLANNING, ENVIRONMENTAL AND ENGINEERING SERVICES</b>
<b>REVIEWED &amp; CONCURRED BY:</b>	
<b>PAT MCNALLY, P.ENG. EXECUTIVE DIRECTOR, PLANNING, ENVIRONMENTAL AND ENGINEERING SERVICES</b>	

January 24, 2012

Attach: Appendix 'A' – Key Project Considerations for Suspected Contaminated Sites  
Lifecycle Replacement Program  
Appendix 'B' - Comments from the London Chapter of Consulting Engineers Ontario  
Appendix 'C' - Considerations for a Brownfield Redevelopment Team

c.c. Sharon Houde, Director Business Planning  
Bill Warner, Division Manager, Reality Services  
Jay Stanford, Director, Environmental Program and Solid Waste  
Joy Jackson, Division Manager, Risk Management  
Dave Evans, R.V. Anderson, Chair, London Consulting Engineers Ontario

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## **APPENDIX 'A'**

### Key Project Considerations for Suspected Contaminated Sites Lifecycle Replacement Program

The following has been developed over a number of years as an internal continuous improvement measure when designing lifecycle replacement projects involving potential site remediation due to soil contamination within the general limits of the project. The design teams should be pro-active in dealing with this. Our consultants are responsible for much of this investigation noting project managers are often very engaged and spend more time, effort and money where they think better information/results are needed in order to appropriately design and budget for the work.

Key project management issues to deal with when on (actual/suspected) contaminated sites:

- **Early triggers:** Project Managers identify properties and file information within the limits of our project that may be contaminated (present or past) and bring this to the attention of our consultant at the conception stage. Triggers such as old gas stations, existing/old auto body/car/wrecker shops, material storage yards, train tracks, old industrial land, closed landfills manufacture yards, asbestos pipes, etc.
- **Extensive Geotechnical Program:** Quality Based Selection process dictates; “the Engineering Consultant will identify the Geotechnical Consultant, scope of work and fee estimate. The scope shall include requirements specific to testing against the new Excavated Fill Special Provisions. Testing shall be performed at the borehole stage and include material testing for Gradation and the Modified Table 1 (Chemical Analysis of inorganic materials per O.Reg 153/04). Consideration shall be given to the need for additional testing (e.g., BTEX etc.) based on historical land uses”.
  - Often extra boreholes & chemical/analytical testing are built into work plan.
- **Pre-existing geotechnical reports:** These can prove to be very useful. Also consider a records search. For example:
  1. The Beer Store on Wharnccliffe @ Devonshire (2007 project) had one report which included monitoring wells on the property and on Wharnccliffe Road (formerly a gas station).
  2. On Adelaide (2008) it was decided to line the sewer under the railway tracks and in front of the Old Copps Building. The property had a round-a-bout on it and had significant contamination. The decision to line the sewer was based on the concern that contaminated soil existed. This proved accurate.
- **Contact Solid Waste Division:** City lead on closed landfill sites during preliminary design for advice.
- **Geophysical or ground penetrating radar:** Can be built into geotechnical program and is useful at preliminary stage to determine extent of limits (depth/width).
  1. Edward Outlet (2005) – Dillon (In-house). Limits were accurate but conductivity mapping didn't nail down densities. Waste was heavy and tipping fees doubled as part of final project cost.
  2. Wheable Storm Sewer (2009) – AGM (geo subconsultant). Alternative alignment chosen based on extensive contamination within other alignments. Ultimately, helical piles used to support pipe in some locations.
- **Schedule:** Build in additional investigative time/preparation. Certificate of Approvals may need to be prepared & submitted; methane venting systems may need to be built.
- **Options/alternative solutions:** Contaminated sites trigger outside the box solutions. Early on, the project team needs to be flexible on solution and weigh out the cost/benefits/liabilities. Other alternatives have to be considered, be that alternative routes or trenchless installations or supporting the sewer (Wheable project – helical piles).
  - Sometimes avoiding the area in its entirety is the best option if possible (2007 – Trafalgar/Lansdowne outlet).

- **Cost:** Need to be aware of current disposal fees in by-law to provide good early estimates. Also, fill density determination becomes critical during final estimates noting only at time of actual construction will densities be known. Consideration to increase contingencies from 10% (typically) to 15-20% should be made on case by case basis. New pipe installation production losses due to contaminated material on sites not known and can some time happen.
- **Other considerations:** Usually in design; just a few examples;
  1. Helical piles,
  2. Special vertical private drain connection kits may be required due to instability of remaining fill (Mackay 2010).
  3. Clay collars on pipes are required to prevent methane and contaminated water migration along granular pipe bedding.

## **APPENDIX 'B'**

Comments from the London Chapter of Consulting Engineers Ontario

### **Site Characterization and Contingency Planning**

The following provides a brief summary of the information collected to date. Please note that in the context of this discussion, "remediation" and the associated costs and risk refer to subsurface (soil and groundwater) or surface water impacts only:

1. The key aspect to evaluating the potential costs associated with Brownfield development is **appropriate site characterization** which includes a detailed knowledge of site redevelopment and use history, physical characteristics and setting. The level and quality of effort put into this step directly affects the level of uncertainty associated with remedial cost estimates and, therefore, the level of contingency appropriate for inclusion in the estimates.
2. Related to the above, a number of municipalities in southwestern Ontario, when considering funding applications associated with Brownfield redevelopment (such as Brownfield tax incentive grants etc.) require that the work be completed to standards consistent with those provided in Ontario Regulation 153.04 (for Phase I and II ESAs and subsequent remedial work). This requirement is consistent with most financial lenders and reflects the understanding of the importance of site characterization in reducing risk associated with Brownfield redevelopments.
3. In general terms, the level of risk (defined loosely as costs associated with unknown environmental liabilities on a site) is, not surprisingly, closely linked to site history, specifically the types of use and the number of years the site has been developed for such use. Based on our experience with remedial costing and completion, and assuming reasonable levels of site characterization have been completed, it is considered that the appropriate level of contingency to assign when evaluating the potential remedial costs could generally be categorized as follows:
  - a) Relatively low risk – residential, commercial properties less than 50 years old with well established history (10-15% contingency).
  - b) Moderate risk – commercial, light industrial properties less than 50 years old with well established history (10-20% contingency).
  - c) High Risk – heavy industrial property, multiple site uses, significant potentially contaminating activities, less than 50 years old with well established history (20-30% contingency).
  - d) Very High Risk – heavy industrial properties with several users, significant potentially contaminating activities, greater than 50 years old with incomplete historical record (>30% contingency).

The above are obviously general guidelines which are further affected by site geology (i.e. susceptibility of the soils and groundwater to impact and impact migration), setting (e.g., receptors) and proposed end use.

### **Potential Strategies**

As noted above, from a technical perspective, the most important factor in reducing uncertainty and contingency ranges is site characterization and contaminant delineation. Other more general strategies for dealing with costing and funding of Brownfield redevelopment include

- 1) **Costing** – cost verification of consultant remedial estimates could be undertaken through comparison with quotes requested from three remedial contractors that the City is familiar with. The quotes could be based upon the site characterization reports prepared for the subject site.

- 2) **Costing** – tracking and characterization of Brownfield projects, including estimated and final costs, will provide direct data on appropriate contingency values for projects completed in the City
- 3) **Funding** – As discussed in our meeting, an effective means of insuring against unexpected financial losses in Brownfield redevelopment would be to develop a Brownfield contingency fund which would accept any unutilized contingencies from individual projects and correspondingly be available where contingency estimates were exceeded.
- 4) **Leadership** – the designation of a “Brownfield Champion” within the City would greatly enhance program and protocol development, technology transfer with other municipalities, data management, etc. Such a champion would also be aware of any external funding programs (such as the Federation of Canadian Municipalities Green Municipal Fund – Brownfields)



## **APPENDIX 'C'**

### Considerations for a City of London Brownfield Redevelopment Team

#### 1. Build a Team

Civic Administration does not currently have in place a lead manager nor division that could be considered as being proficient in understanding how brownfield sites or other contaminated sites should be assessed, what remediation tools are available and could be used in site specific conditions or how to determine the appropriate costs/contingencies for these tasks.

While a Record of Site Condition could be commissioned by any number of City divisions, such as Reality Services, Parks Planning and Design, Facilities, Industrial Land Development or any of the engineering divisions for example, there is not a 'go to' in house expert that could provide guidance on what needs to be included in a work plan for a specific site or suspected contaminate.

Indeed, once a Phase I, Phase II, Record of Site Condition or Risk Assessment is completed for a property there is no identified City staff member assigned the task to review these reports.

#### 2. Create a Data Base

Information regarding brownfield/contaminated sites, including both privately owned and City owned, can initiate from a variety of sources and need to be managed and shared for diverse situations. Various departments and divisions within Civic Administration, from Reality Services, Parks Planning and Design, DABU, Engineering Review, Facilities, Wastewater and Drainage Engineering, Water Engineering, Sewer and Water Operations and others, may receive or commission site assessment reports on brownfield/contaminated sites. However, there is no established central data base in place that documents brownfield/contaminated sites within the city, save for closed landfill sites and known methane producing areas.

A due diligence process would suggest that should the Civic Administration receive or commission site assessment reports on specific properties that they should be properly recorded, stored and shared in a central data base.

The following provides a brief overview and some examples of what an information management program would need to address:

##### Receiving information

- Some information is currently on file with the City such as the location of landfill and/or known methane-producing areas.
- New information may also be submitted by a private land owner to meet applicable regulations, typically Ministry of the Environment or as a result of a development application such as a land use change or a building permit application.
- At this time, information is most likely received and stored within the files of divisions within the Planning, Environmental and Engineering Services Department (PEESD). It is also likely that there is a wide range in the level of detail, reliability and adherence to current standards in this existing information.

##### Tracking information

- As previously mentioned, the City mapping system provides information regarding the location of landfill/methane sites. The Technology Services Division has indicated that this feature could be expanded to identify other types of contaminated sites. There would need to be some guideline to differentiate between areas of concern (eg. known contamination vs. potential contamination).

##### Sharing information

- From PEESD's perspective, a primary use for information on file would be to ensure that adequate health and safety measures are followed when work is undertaken in

contaminated areas. This known information would need to be provided, not just to City staff, but to all workers who could be affected (i.e. private contractors, utility companies). Also, projects undertaken in these areas would be identified to consider additional construction/maintenance methods and/or costs.

- The information could be used by Realty Services in real estate negotiations and land transactions.
- With respect to development applications, the Planning Division and Building Control Division need to ensure that land owners are aware of and fulfill any conditions with respect to the appropriate legislative and regulatory requirements for brownfield/contaminated site remediation

#### Maintaining and Up-dating information

- Decisions will need to be made to establish the intended scope of the information to be managed.
- Once an information management system is developed, it will need to be maintained to remain current and accurate.
- Resources need to be in place to allow this service to be provided.

#### 3. Establish a Continuous Improvement Review

In order to retain knowledge and to adjust practices through a lesson learned approach it is recommended that a project post mortem review take place upon the completion of all brownfield remediation projects.