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Sustainable Remediation

By Charles Rich

There is a nationwide trend in the desirable integration of 'green' or 'sustainable' building practices and techniques into new construction. This trend is equally beneficial, if not more so, when applied to cleaning up contaminated brownfield sites as well. The current definitions of sustainable remediation involve considering the environmental effects of remedial implementation. With respect to brownfield redevelopment, we suggest the following:

“Sustainable remediation is remediation that satisfies agreeable cleanup objectives for a site efficiently and cost-effectively using renewable resources at sustainable rates, while balancing and minimizing the use of ‘clean’ non-renewable resources”.

With growing concern over the risks associated with global warming (perhaps more appropriately called: “ocean warming”), we now have over 150 local municipal governments nationwide rapidly passing new building codes, statutes, and various ordinances to promote green and sustainable practices in the design/build, renovation, and operations & maintenance of new buildings. These freshly-minted green



codes (including some within the City of New York) are designed to put potentially more costly, but desirable, sustainable building practices on a level playing field with non-green conventional building renovations or construction practices.

Some of these mandate conservation of energy and water, use of preferred construction materials, installation of automated energy data centers, 5-year energy auditing, and on-site stormwater management.

Their beneficial intent will be to facilitate more efficient, healthier and resource-minded sustainable buildings and workplace practices. Sustainable remediation has these same objectives but is related solely to the cleanup and reuse of environmentally-impacted sites.

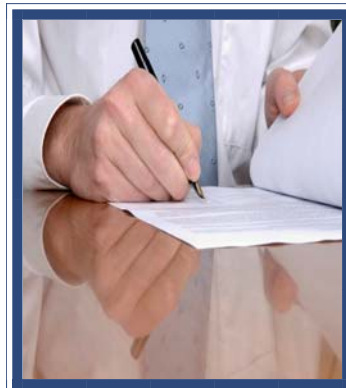
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Declaration of Covenants & Restrictions

By Eric Weinstock

There is an old saying: “the job is not finished until the paperwork is done.” When it comes to the completion of a remediation program at a Superfund or Brownfield Site, this sentiment certainly applies to the document known as a “Declaration of Covenants and Restrictions.”

Tucked away in the middle of Consent Orders and BCP Agreements, there is typically a clause which requires that a document be prepared by the property owner's attorney, approved by the overseeing government agency, and filed at the County Clerk's Office. This document lists the Institutional Controls or Engineering Controls (IC/ECs) associated with the selected remedy for the site.



An Institutional Control is a restriction or limitation imposed on real property that limits how the land may be used. These are created to protect current and future users of the land from the remnants of past environmental concerns. Examples of typical Institutional Controls are:

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Soil vapor barrier / waterproofing membrane installation at NYC Brownfield Site



There is a prevalent misconception that building green is more expensive than non-green alternatives due to oftentimes higher upfront capital construction costs and/or the 10-20% 'greenwashing' premiums attached to so-called green products and materials.

However, it is speculated that over a redeveloped site's completed 50-60 yr. life cycle, the cost of building green, and by extension, remediating green, will prove to be no more expensive than more conventional construction, renovation and remediation practices (where integrated sustainable practices were not applied). In actuality, a green project's life cycle analytical costs will probably be proven to be significantly less.

Conventional cleanup such as excavations, groundwater pump-and-treats, soil vapor extraction, installed vapor barriers, slurry trenches and injected grout walls, bioremediation, and/or phytoremediation, all involve varying levels of air emissions, energy usage, waste generation, wastewater discharges, and specifically-sourced materials consumption that collectively add to our carbon footprint.

Non-renewable resource impacts can be mitigated somewhat by considering and integrating more 'sustainable' practices during design and implementation of remedial systems. Several sustainable goals or ideas deemed directly applicable to the cleanups we do in the NY Metro area are:

- ◆ Strive to reduce greenhouse gas emissions and petroleum products utilization;
- ◆ Reduce remediation system infrastructure and energy usage (consider utilizing less natural resource-intensive remediation, alternative fuels, pv solar panels, hybrid vehicles, biodiesel, purchase electricity through grid only from renewable resources, hydro, wind, etc.);
- ◆ Decrease potable water usage in pump-and-treat, reinject, or irrigation cleanups, reuse treated effluent and avoid sewer;
- ◆ Minimize waste generation, reuse fill in redevelopment, and recycle on-site demolition materials, reduce truck transport;
- ◆ Protect and preserve existing and adjoining land resources;
- ◆ Combine soil vapor barriers with waterproofing membranes;
- ◆ Utilize sustainable materials in remedial systems (concrete made with coal ash rather than Portland cement, etc.);
- ◆ Integrate storm water management practices on-site (pervious pavement, bioswales, greenroofs, etc.); and
- ◆ Integrate site remediation into site redevelopment wherever feasible (geothermal closed loop systems in parking, etc.).

Today, the mitigation of complex urban and suburban site legacy risks, increased environmental liabilities associated with rising corporate bankruptcies, devalued distressed properties, stalled or suspended reconstruction due to credit crunches, and economic impetus for developers to get deals done to ensure predictable investment returns, means that environmental consultants must not only embrace 'performance-based' Phase 1 & Phase 2 environmental due diligence, but also where needed, sustainable and expedited remediation.

Sustainable remediation will also be utilized to support redevelopment-related green scoring systems and Certifications (e.g. LEED). However, these popular rating systems should not be considered definitive since a LEED-Certified project today does not mean that the project will be proven sufficiently 'green' once occupied and utilized in the future.

Thus, it is suggested, in general, that as these desirable 'silver', 'gold' and 'platinum' project Certification rating systems increase in number, that they be subjected to periodic 'renewals' (say, every 10 years) - as sustainability-related construction and remedial technologies, supported by benchmarking, yield valuable information for us to learn from in the years ahead ■

"... remediating green, will prove to be no more expensive than more conventional construction, renovation and remediation practices..."

(Declaration... Continued from page 1)

- ◆ *Prohibition of the use of groundwater below the property for potable or industrial use without treatment rendering it safe, unless the user first obtains permission from relevant agencies.*
- ◆ *Prohibition of construction at the Site that requires an excavation 15 feet deep, or that results in unacceptable human exposure to areas of previously contaminated soil.*

“ Limit the application of the Declaration of Covenants and Restrictions to as small a portion of the site and/or property as possible...”

- ◆ *The maintenance by the owner of the property of an asphalt pavement cap covering the property.*
- ◆ *The prohibition of the entire site from use for*

purposes other than restricted commercial use, which shall specifically exclude day care, child care and medical care uses without the express written waiver of such prohibition by the relevant agency.

Engineering Controls, on the other hand, are physical components of a remedy installed upon the property to ensure long-term effectiveness of a remedial program. The operation and maintenance of these are enforced by the Institutional Controls discussed above. For example, an asphalt cap may be required as an Engineering Control to prevent contact between an area of excavated soil and building occupants. An Institutional Control (as described above) is the mechanism that ensures the asphalt cap remains in place and is maintained by the property owner.

Sub-slab depressurization (SSD) systems are also Engineering Controls. This remedy may require that SSD fans operate at a property to ensure that vapors trapped below a building are safely vented to the atmosphere. Again, the Institutional Control ensures that these fans are operated and properly maintained. As part of the site closure process, a Site Management Plan (SMP) is required. The SMP will specify that items listed in the Declaration of Covenants and Restrictions are inspected annually to confirm they remain in good condition.

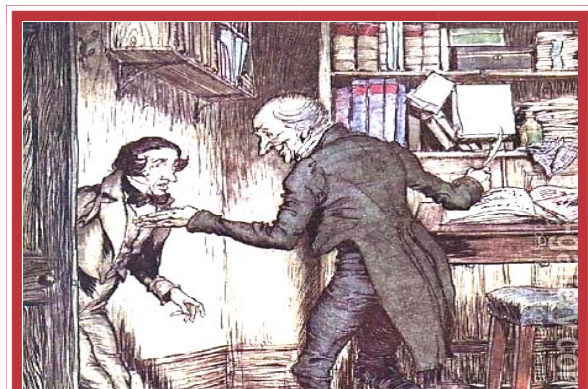
The filing of a Declaration of Covenants and Restrictions, also known as a Deed Restriction, is often overlooked until a remediation site approaches closure. When the overseeing government agency be-

gins the process of reclassifying a site, it checks to determine if this document has been filed. Reclassification typically cannot occur until proof of its filing is provided.

One potential pitfall in this process is having the site defined in the associated Order on Consent or Agreement to include the entire property. Oftentimes, the property is large, but the contaminated area is limited to only a small portion of it. When it comes time to prepare the release, the property owner wants the release to attach to the entire site which means the entire property. However, the owner may not want the requisite Declaration of Covenants and Restrictions to impact the entire property. For example, an Institutional Control excluding day care, child care and medical care usage on the entire site is not desirable when the contamination was limited to a much smaller area. Environmental Counsel, Miriam E. Villani, Esq., Sahn Ward & Baker, PLLC, advises: “Limit the application of the Declaration of Covenants and Restrictions to as small a portion of the site and/or property as possible. DEC should be amenable to this as long as you can show that the limitation will not compromise the effectiveness of the remedy.”

Institutional Controls may be temporary. For example, the remedy may require that a groundwater treatment system be operated at a site until predetermined termination criteria are achieved (i.e. sufficient contaminant reduction in groundwater occurs). Once the termination criteria are met, the Declaration of Covenants and Restrictions may be modified or removed ■

Best Wishes for a Happy & Healthy Holiday Season and a 'Sustainable' New Year from your friends at CA RICH



“ No more coal for the fire, Cratchet. This Firm is committed to reducing its carbon footprint! ”

What's new at CA RICH

CA RICH has recently been awarded the NY State Brownfield Cleanup Contract at the planned Via Verde ('the green way') in the Bronx. **Deborah Shapiro** is managing the Cleanup. Via Verde will include a mixed-use residential and commercial development and will achieve Gold LEED Certification.

CA RICH is providing groundwater resource exploration and development services to the Watchtower Bible and Tract Society at their International Educational Center in upstate New York. **Eric Weinstock & Richard Izzo** recently completed a successful comprehensive aquifer test of seven on-site pumping wells with remote electronic monitoring of 22 on-site and off-site wells.

Congratulations to our valued Client Dunn Development who recently opened their Atlantic Avenue Apartments in Brooklyn. The project was awarded the Energy Star label for achieving energy efficiency standards established by NYSERDA. Integral to the development team, CA RICH designed and completed all requisite remediation.

We are pleased to announce that **Charles Rich** was selected for Long Island Business News' 2009 Who's Who in Engineering & Environmental Consultants, and Who's Who in Green.

In the spirit of the Season, we look forward to the important Climate Change Conference in Copenhagen and hope Participants collaborate in a cooperative, step-wise and compromising fashion to enable effective preservation and protection of our global environment.

*For more information about CA RICH or the **ENVIRONMENTAL BULLETIN**, please call (516) 576-8844 or write to:*

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CA RICH CONSULTANTS, INC.

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The Company supplies environmental consulting; Phase I & II assessments; compliance audits; investigation; remediation; groundwater resource management; storage tank; indoor air quality & hazardous waste management; soil vapor intrusion mitigation; brownfield redevelopment; sustainability, expert testimony; strategic thinking; dispute resolution; and all other professional services related to meeting evolving environmental regulations.

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