



PERSPECTIVES

The Evolution of Brownfield Redevelopment

Our perspectives feature the viewpoints of our subject matter experts on current topics and emerging trends.

INTRODUCTION

The exact number of brownfield sites in the United States is not known. Some sources estimate the number at more than 450,000, amounting to more than five million total acres of land. One report estimated that U.S. cities could realize \$1.3 billion to \$3.8 billion in additional annual tax revenue if their brownfield sites were redeveloped. The EPA defines the term “brownfields site” as “real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant or contaminant.”

HISTORICAL CHALLENGES & RECENT DEVELOPMENTS

There are many legal and practical obstacles to developing brownfield sites. Most obstacles stem from federal and state statutes which hold current owners of contaminated property liable for cleanup costs even if they did not cause or contribute to the pollution. Federal and state programs were created under a myriad of brownfield legislation to bring those properties back into productive use. Brownfields redevelopment benefits communities by increasing the property values and tax revenue, creating a larger tax base, creating jobs, and reducing crime. Federal and state brownfield programs were created to incentivize brownfield redevelopment by subsidizing cleanups with grants, loans, and tax incentives and by providing liability protections to developers, investors, and communities.

These programs were successful in encouraging investment in urban areas where many brownfield sites are located. As investment in urban areas increased, additional benefits of brownfield redevelopment became more apparent, such as improved supply chain efficiencies and strengthened corporate commitments to environmental sustainability. Government assistance and subsidies also evolved from investing in one-off contaminated sites to targeting parcels that had the largest benefit to the host community.

Predictions for the 2022 real estate market include continued recovery of multifamily investments from the early days of the pandemic and the expectation that the

industrial market, fueled by the need for warehousing, will continue. Investment into areas with access to ports, rail, and highways will continue to contribute to the recovery of brownfield properties. Much of the current brownfield investment is fueled privately by market demand and less financial assistance from the government.

The federal Small Business Liability Relief and Brownfields Revitalization Act of 2002¹ turns 20 this year. As brownfield programs have matured, environmental justice programs have been added to provide additional strengths to existing environmental programs. One of the unforeseen consequences of environmental justice programs is that they can also come into conflict with brownfield redevelopment. Environmental justice advocates do not always agree on the selection of the remedial standards, restrictions on site use, post remediation use of the property, and to whom the economic benefits from the redevelopment property flow. Many of these aspects were seen as hallmarks of the success of the brownfields program.

ENVIRONMENTAL JUSTICE

The environmental industry has not agreed to a single definition of environmental justice, but most definitions emphasize two elements: a right to be free from disproportionate environmental impacts and a right to participate in environmental decision-making. Environmental justice neighborhoods demand that the success of a brownfield project be measured by criteria such as job creation, reduced crime, housing development, and improvement to the overall environmental health and safety of the community. But those criteria are also subject to differing interpretations, such as who receives the newly created jobs, whether they are minimum wage or high paying jobs, and whether the housing development benefits the existing community or more affluent non-community members who are drawn to the improvements. As brownfield redevelopment evolves environmental justice will continue to be a challenge for developers to contend with.

¹ The Brownfields Act provided funds to assess and clean up brownfields and clarified liability protections. This is not an environmental justice program.

BROWNFIELD REDEVELOPMENT PROJECT RISKS

While championed for both economic return on investment and public benefits, brownfield redevelopment projects are not without risk. The primary risk is underestimating the size and scope of cleanup. Improperly assessing the cleanup can reduce, or worse, eliminate the fiscal return on a project or result in project delays, leaving the redevelopment exposed to risks in timing. Timing risks are beyond the control of the stakeholders and result from shifts in regulatory and economic headwinds. A classic example of a regulatory change is the identification and designation of contaminants of emergent concern and, more specifically, per- and polyfluoroalkyl substances (PFAS). PFAS, deemed as “forever chemicals,” are a family of fluorinated compounds that are both highly mobile and persistent in the environment. PFAS have garnered national media attention but have only become a common focus of regulatory concern in the last five years. A redevelopment project initiated roughly six or more years ago likely did not consider PFAS, and this could result in significant unforeseen remediation costs.

Project stakeholders also need to weigh potential penalties and claims from regulatory agencies and/or third parties who may have been damaged or who may have experienced bodily injury because of contamination. Third parties can be individuals or any entity that may have been damaged by the brownfield property. Natural resource damages (NRD) are injuries to natural resources that occurred due to a release of contamination. The enforcement of NRD penalties by regulatory agencies varies but is typically reserved for larger, more visible cleanups. Third party bodily injury claims are less predictable and may arise years after the initial creation of a brownfields project.

THE ROLE OF ENVIRONMENTAL CONSULTANTS & OTHER PROFESSIONALS IN BROWNFIELD PROJECTS

The brownfield redevelopment process has matured over time, and so has the understanding and expertise of the professionals who guide redevelopment. The environmental consulting field and adjacent entities help to identify, secure, and/or mitigate the redevelopment risks. This starts with the assembly of a team of consultants, engineers, attorneys, and insurance professionals who understand the regulatory environment and remediation process. The consultants and engineers assess the extent of the contamination to both define the risk and, ultimately, design the cleanup options that will meet both regulatory requirements and redevelopment goals. Budgeted costs and timeline for the cleanup options are calculated, which helps guide thoughtful redevelopment. Attorneys can further limit the risk contractually by defining what risks are being undertaken by the redeveloper. Finally, insurance professionals can provide a “safety net” for risks that cannot be readily quantified by the consultants and engineers or limited contractually by attorneys. These risks include contamination that was not identified during due diligence and potential third-party claims.

APPLICATION OF TECHNOLOGY & FORENSICS

Advances in technology play an important role in the proper and timely characterization of contamination during the due diligence phase or as part of the remediation design. These technological advances include direct sensing tools and forensics. Membrane Interface Probe (MIP) and Light Induced Fluorescence (LIF) are two examples of direct sensing technologies. MIP technology is used to detect volatile organic compounds by advancing a probe into subsurface layers. The probe provides real-

time qualitative levels of contamination to the assessor. Similarly, LIF provides real-time qualitative results on the presence of non-aqueous phase liquid (NAPL) in the subsurface. NAPL are organic liquid contaminants that do not dissolve easily in water (hydrophobic). Examples of NAPL are oil, gasoline and petroleum products.

The use of these technologies optimizes the investigation by providing a high-resolution depiction of the contaminant distribution. This shortens the remedial characterization timeframe and enables a more targeted remedial design.

Forensics have been used for decades with the goal of properly assigning liability for cleanup. One of the more recent advances is the use of compound specific isotopic analyses (CSIA). While laboratory analyses are a common component of environmental investigations, CSIA measures the ratios of stable isotopes in environmental samples. The results of a CSIA investigation can be used to identify contaminant origin and segregate liability in commingled plumes or to justify that natural attenuation processes are occurring and support a monitored natural attenuation remedy.

REGULATIONS

The regulatory process has also been optimized by granting licenses to environmental professionals to use their professional judgement and advance cleanups using state-provided regulations and guidance. Currently, New Jersey, Massachusetts, and Connecticut have such professional license programs.

According to the New Jersey Department of Environmental Protection, between 2009 and 2021, nearly 60,000 site remediation cases were closed. According to the Massachusetts Department of Environmental Protection, since the inception of their program in 1993, over 34,000 sites have been closed by duly licensed consultants. By relying on environmental professionals who are experts in the cleanup process, the cleanup of contaminated sites has accelerated. This condenses the cleanup timeframe and helps move a project from remediation to redevelopment.

CONCLUSION

Brownfield redevelopment has come a long way in the past two decades. Experienced brownfield redevelopers have streamlined their processes and created remediation frameworks that mitigate liability and economic risks. As the remediation process has become more efficient, brownfield redevelopers must be able to navigate more complex input from state and local government agencies and community groups in planning and delivering a project that provides desirable outcomes for all parties.

ABOUT THE AUTHORS

John Brennan is a Senior Vice President in J.S. Held's Environmental, Health & Safety Practice. He is a Licensed Site Remediation Professional (LSRP) in New Jersey with over 35 years of professional experience in both the public and private environmental sectors. John has extensive experience in managing a wide variety of projects involving the Resource Conservation & Recovery Act (RCRA), the Industrial Site Recovery Act (ISRA), brownfields, underground storage tanks (USTs), and state voluntary cleanup programs. He has overseen complex soil, groundwater, and vapor intrusion remediations as well as due diligence reviews and land-use issues including wetlands, flood plain management, threatened and endangered species surveys, and ecological risk assessments.

Contact John Brennan at jbrennan@jsheld.com or +1 973 528 7010.

John Hernandez is a Senior Project Manager in J.S. Held's Environmental, Health & Safety Practice. He is a Licensed Site Remediation Professional (LSRP) in New Jersey with over 20 years of professional experience. John has extensive experience in managing a wide variety of projects and is responsible for the design, management and implementation of complex, multi-media site investigations and delineations, hydrogeologic investigations, remedial investigations and the development and implementation of remedial action plans. Mr. Hernandez has overseen the investigation and remediation of hundreds of contaminated sites.

Contact John Hernandez at john.hernandez@jsheld.com or +1 973 528 7018.

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