

453 Pine Street Brownfield Redevelopment, Burlington, Vermont

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ENVIRONMENTAL
100% EMPLOYEE-OWNED

Services / Expertise

EPA-Funded Brownfield Redevelopment
Brownfield Economic Revitalization Alliance
Site-Specific Quality Assurance Project Plan
Remedial Site Investigation / Phase III ESA
Environmental Assessment and Remediation
Brownfields Redevelopment
High-Resolution Site Characteristics
NAPL Delineation and Monitoring
Groundwater Monitoring
Community Involvement Zoning Review
Permitting
Stormwater Management
Vapor Intrusion Assessment and Mitigation
Urban Soil Management

Markets

Commercial Site/Property Owners
State and Local Government

Project Location

Burlington, Vermont

Date Completed

2013-2016, 2018-2019; 2022-present

Project Owner

453 Pine Enterprises, LLC

Project IDs#

13-082, 15-147, 2022-1060

Project Manager

Dan Voisin
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Project Team

Les Carver, PG, Peter Lazorchak, PE, Katrina Mattice, PE, Annemarie Fortune, Brandon Martin, PE, Alex Huizenga, EIT, Julia Marcello, Meghan Arpino, Laura Rajnak, Jodie Wright, Jenn Cypher



453 Pine Street and surroundings, 1953.

THE 453 PINE STREET property in Burlington, Vermont has been the focus of several attempts at redevelopment dating back to the 1980s. The site, residing in a growing section of Burlington's south end, is positioned immediately adjacent to the Pine Street Canal Superfund Site and has institutional controls limiting the types of development that could occur on the property and requires that any development not adversely affect the Superfund Site remedy. In addition, physical characteristics and the natural setting of the property require non-standard design for foundations and stormwater management. Dense, Non-Aqueous Phase Liquid (DNAPL) coal tar can be found on the site and Superfund Site resulting from past use of the 501 Pine Street property for coal gas manufacturing.

In 2005, Stone conducted a thorough review of existing site conditions, opportunities, and constraints regarding the potential development of the site. Working with the client, state and federal regulators, and an engineering partner, we developed a clear understanding of permissible development at the site, including appropriate stormwater management alternatives. We determined what stormwater treatment standards and treatment practices applied to the site under Vermont's 2002 stormwater regulations and created a conceptual stormwater management scenario that was tested using a two-dimensional hydrogeologic model. The information we provided was used for decision-making by the client and other stakeholders.

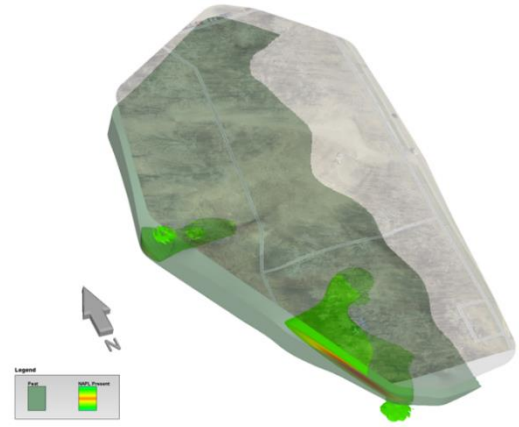
In 2013, the site was selected to participate in the Brownfield Economic Redevelopment Alliance (BERA) pilot program, and Stone was retained by the Property Owner to expand upon our earlier work for this brownfield redevelopment project of a former industrial property adjacent to the Pine Street Canal Superfund site. Site investigation tasks have included delineation of coal tar NAPL and polycyclic aromatic hydrocarbons (PAHs), geotechnical assessment, geotechnical project feasibility, stormwater feasibility, and development of an ongoing monitoring program to ensure that a proposed redevelopment would comply with institutional controls related to the Superfund site. NAPL delineation efforts included high-resolution site



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characterization using Tar-Specific Green Optical Screening Tool (TarGOST®) with confirmation soil borings. Stone developed an ongoing monitoring program to capture natural variability within the hydrogeologic system of the site to allow for comparison of conditions during and following construction. The monitoring program includes the installation of groundwater monitoring wells with pressure transducers equipped with telemetry. Geotechnical evaluations were performed by project partners (Weston & Sampson) to evaluate the feasibility of the construction of a commercial office building. Findings of the assessment and monitoring program were presented to the City of Burlington, Chittenden County Regional Planning Commission, US EPA Superfund and Brownfield Divisions, and Agency of Natural Resources staff. Ultimately, the cost of redeveloping the site for a commercial office building was too great compared to the expected revenues.



Three-dimensional visualization of the extent of coal tar non-aqueous phase liquid in peat deposits at the 453 Pine Street Property.

In 2021, with the passage of Vermont H315, brownfield redevelopment funding has been made available from the State of Vermont General Fund surplus. A new development team came forward seeking a location for their vision to bring a [Nordic bathhouse to Burlington](#). In 2023, Stone completed an Evaluation of Corrective Action Alternatives and re-implementing the Ongoing Monitoring Program with a focus on a planned redevelopment of the 453 Pine St. property. Stone, along with the project design team, presented the project in City of Burlington Conservation Commission and Planning and Zoning Review Meetings and to neighborhood and local conservation groups. Stone is currently preparing the Corrective Action Plan, bid specifications, and permit applications for city and state stormwater and wetland permits, among others.

Construction of the project is slated to begin in late spring of 2024.

