

Cleanup Plan for Soil and Groundwater Former Axton Cross and Cel-Lastik Properties 93 to 113 Canal Street

1. Background

As a result of former industrial operations at the former Axton Cross (113 East Canal Street) and Cel-Lastik properties, soil and groundwater below the sites became contaminated. Historically the area has been used by a bolt manufacturer (1800s to 1940s), a chemical manufacturer that prepared and mixed cleaning chemicals and powdered metals (1948 to 1971), and later by a roofing company, and a landscaping and carpentry company.

Environmental investigation revealed high concentrations of volatile organic compounds (VOCs), primarily the chlorinated solvents tetrachloroethene (PCE) and trichloroethene (TCE). Petroleum hydrocarbons and heavy metals are also present and those concentrations have exceeded applicable state criteria in some areas of the site.

During initial remedial activities and site revitalization efforts, the city removed many underground tanks and petroleum-contaminated soils. Existing buildings were demolished and removed from the sites and clean soils were put in place at the surface.

The Axton Cross site is still vacant, while its neighboring property at 93 Canal Street has become the new Veteran's Memorial Park.

What is left to do at the park is finalizing groundwater cleanup and providing a cover to surface soils in the corner where there is heavy vegetation. At Axton Cross, the groundwater requires remediation as well as a pocket of soil that contains remnants from what appears to be discharges of solvents to the subsurface soils.

2. Interim Cleanup Plan

The City has secured additional grants from the U.S. EPA and the Connecticut Department of Economic and Community Development (DECD) - Office of Brownfield Remediation and Development (OBRD). Various remedial technologies were evaluated based on cost, remediation time periods, implementability, and redevelopment potential.

The overall remediation approach is to remediate the site in accordance with the Connecticut regulations in phases as funding is made available and as site development is planned and implemented. This cleanup plan focuses on Phases 1 and 2 to target the most

contaminated soil and groundwater that serve as long-term sources and limit site development.

Soil -- For contaminated soil above the water table (surface down to approximately 10 to 12 feet), soil vapor extraction (SVE) was the alternative selected as the primary means of remediating the VOC-impacted soils. SVE extracts volatile chemicals from the subsurface by applying a vacuum to a network of extraction points to create flow in the soil and collect and treat the vapors. The SVE system will operate continuously for a period of 12 to 18 months. Periodic monitoring will be used to optimize system performance and to determine when the system can be shut-down.

Groundwater -- In-situ (in the ground) remediation will be performed for treatment of the most contaminated groundwater and soil below the water table. A remedial solution will be injected consisting of iron (zero valent iron or ZVI) and carbon (benign agents). The iron will react directly with the chlorinated VOCs. In addition, both the iron and the carbon generate conditions in the ground that are favorable for growth of natural bacteria that can degrade the contaminants of concern. Injection activities will be completed over several weeks and then allowed to react in the ground. Groundwater samples will be collected after the injection to evaluate the reduction of contaminants and if any follow-up injection will be necessary. The remediation solutions that will be added have an active lifetime in the subsurface of one to five years, so reduction in concentrations will proceed long after the injection. An additional advantage of in-situ remediation is that there is no active system operation - allowing above ground redevelopment to proceed. It is more cost effective than traditional pump and treat systems.

3. The Future

Following remediation, the site is proposed for mixed use development and will likely include a building for commercial or commercial/residential use. Redevelopment will incorporate green space, and the riverwalk will be extended across this property along the river bank. Additional engineering measures will likely be required to protect site users from other contamination at the site. Such measures may include engineering barriers, vapor mitigation for future building(s), and/or land use restrictions. These future protective measures are required by regulation and will be determined when redevelopment plans are prepared.

A summary of the phased approach:

