

STATE OF DELAWARE

DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL-
SITE INVESTIGATION AND RESTORATION BRANCH

FINAL PLAN OF REMEDIAL ACTION



July 2006

SCANNED

JUL 10 2006

File # 1385
B9

**Northern Pathway
Former Philadelphia and Reading Railroad
Right of Way
Wilmington, Delaware**

DNREC Project No. DE-1385

This Final Plan of Remedial Action (Final Plan) presents the Department of Natural Resources and Environmental Control's (DNREC's) preferred cleanup alternative for the Northern Pathway (Site) in Wilmington. For site-related reports and more information, please see the public participation section of this document.

The purpose of the Final Plan is to provide: 1) specific information about the contamination present at the Site and 2) the presumptive remedy DNREC has selected as the remedial action for the Site. A presumptive remedy is the preferred and established remedial alternative for common categories of releases or facilities and the remedy selected falls into this category. In addition, as described in Section 12 of the Delaware Regulations Governing Hazardous Substance Cleanup (Regulations), DNREC provided notice to the public and an opportunity for the public to comment on the proposed plan. During the comment period from June 11 to July 3, 2006, DNREC did not receive any comment on the proposed plan; therefore, the proposed plan has been adopted as the final plan. The final plan designated the selected remedy of the Site.

This Final Plan summarizes the Northern Pathway Sampling Summary investigation report dated September 22, 2005. This report is included in the administrative record file upon which this final remedy is based. Copies of these documents can be obtained or viewed at the DNREC offices in New Castle, Delaware.

INTRODUCTION

The Northern Pathway (henceforth “the Site”) is approximately 0.22 acres in size (15 feet wide by 500 feet long) and is the southeasterly right-of-way line of the former Philadelphia and Reading Railroad Company (Figure 1). The Delaware Department of Transportation (DelDOT) acquired the Site during a condemnation process before the New Castle Superior Court on March 15, 2006.

SITE DESCRIPTION AND HISTORY

The Northern Pathway Site is located in the Christina Riverfront section of Wilmington, Delaware and comprises an area of approximately 0.22 acres (15 feet by 500 feet). Located on the site are abandoned railroad tracks from the Philadelphia and Reading Railroad Company. The Site has been a railroad right-of-way since 1962. Prior to 1962, the history of the Site is unknown.

Surrounding properties are utilized for both commercial and industrial purposes. The property is bordered by Amtrak rail lines to the north, West Street to the east, Christina Crescent redevelopment project (the Boulevard Site (DE-1331) and Berger Brothers (DE-131)) to the south, and Justison Street to the west. The proposed future use of the Site is as a public pathway and as a fire access road in support of the Christina Crescent redevelopment project (Figure 2).

INVESTIGATION HISTORY AND RESULTS

In September 2005, BrightFields, Inc. (Brightfields), a HSCA certified environmental consultant, completed soil sampling at the Site and submitted the Northern Pathway Sampling Summary Report. Several contaminants were detected in soil above Delaware’s restricted use Uniform Risk-Based Standard (URS) values. A detailed discussion of the sampling results is included in the sampling summary report.

The following is a summary of the investigation results.

SOIL

In soil, arsenic, lead, and benzo(a)pyrene were detected at concentrations above DNREC’s restricted use (commercial/ industrial) criteria. Lead exceeded DNREC’s restricted use criteria only in a small area (hotspot area) near the western edge of the Site (Figure 2). The maximum concentrations for arsenic, lead, and benzo(a)pyrene are shown in the following table.

SOIL

<u>Contaminant</u>	<u>Maximum Concentration (mg/kg)</u>	<u>URS for Restricted Use (mg/kg)</u>	<u>Default Natural Background Concentration (mg/kg)</u>
INORGANICS			
Arsenic	52	11	11

<u>Contaminant</u>	<u>Maximum Concentration (mg/kg)</u>	<u>URS for Restricted Use (mg/kg)</u>	<u>Default Natural Background Concentration (mg/kg)</u>
Lead	46,500	1000	30-100
ORGANICS			
Benzo (a) pyrene	0.9	0.8	

* mg/kg – milligram per kilogram

GROUNDWATER

The groundwater at Christina Crescent was contaminated with volatile organic compounds (VOCs). The Site is only 15 feet wide and the groundwater data for the monitoring wells located on the adjacent Christina Crescent was determined to be representative of the Site. In order to be conservative and protective of human health and the environment, groundwater at the Site is assumed to be contaminated with VOCs.

SITE RISK EVALUATION

A risk assessment was performed to evaluate the possible effects on human health and environment by the contaminants of concern at the Site.

Soil

The risk was calculated using DNREC's risk calculator. The carcinogenic cumulative risk calculated for the exposure to Site soil would be 2.96×10^{-5} (2.96 in 100,000), if no remedial measures are taken. This risk exceeds DNREC's acceptable risk level of 1×10^{-5} (1 in 100,000). The individual compounds that contributed to the carcinogenic risk are benzo(a)pyrene (7.7 % of the total risk) and arsenic (92.3 % of the total risk). The non-carcinogenic cumulative risk calculation resulted in a Hazard Index (HI) of 0.54, which is below DNREC's acceptable risk level of HI of 1.0.

The lead concentration exceeded DNREC's restricted use standard of 1000 mg/kg and represents a risk if not remediated.

REMEDIAL ACTION OBJECTIVES

According to Section 8.4(1) of the HSCA Regulations, site-specific remedial action objectives (RAOs) must be established for all plans of remedial action. The Regulations provide that DNREC will set objectives for land use, resource use, and cleanup levels that are protective of human health and the environment. The following qualitative remedial action objectives are established for the Northern Pathway Site:

- Remove lead-contaminated soil hotspot area;
- Prevent human exposure to contaminated soil and groundwater under future restricted land use for as long as the contaminated soil remains at concentrations exceeding acceptable concentrations;

- Minimize potential exposure to contaminated soil for workers during Site development;
- Control potential contaminated soil erosion and subsequent overland transport of contaminated soil and surface water to the Christina River during Site development;
- Reuse or dispose of all excavated soil and groundwater, if encountered, generated during construction, in accordance with local, state and federal regulations.

These objectives are consistent with the planned development of the Site and the surrounding land and development plans for the City of Wilmington, zoning policies, state regulations governing water supply, and worker health and safety.

Based on the above qualitative remedial action objectives, the following quantitative remedial action objectives (RAOs) based on a restricted site use are appropriate:

- Soil contaminated with lead in the hotspot area, as defined in the Northern Pathway Sampling Summary investigation report, in excess of 1,000 mg/kg will be excavated and properly disposed.
- Prevent human exposure to soil contaminated with benzo(a)pyrene and arsenic that would result in a cumulative carcinogenic risk factor greater than 1×10^{-5} and a non-carcinogenic risk greater than Hazard Index of 1.0 for as long as concentrations of hazardous substances exceed acceptable concentrations.

EVALUATION OF POTENTIAL REMEDIAL ALTERNATIVES

A presumptive remedy is the preferred and established remedial alternative for common categories of releases or facilities. The presumptive remedy considered for the Site is removal of lead contaminated soil in the hotspot area on the western edge of the Site and capping the entire Site. According to Subsection 8.5(3) of the HSCA Regulations, "The Department may consider and approve any presumptive remedy that is determined to satisfy the requirements contained in Subsection 8.6". Removal of contaminated soil and capping was determined to meet the requirements of Subsection 8.6, which include:

- Protective of public health, welfare and the environment.
- In compliance with applicable laws and regulations
- Acceptable to the community
- Technically Practical
- Meets short-term and long-term effectiveness goals

DNREC has accepted soil removal and capping as the preferred remedial action for the Site since the remedy meets the criteria presented above. In addition, the remedy permanently removes soil contamination at the source area and it can be implemented in a short time frame.

FINAL PLAN OF REMEDIAL ACTION

Based on DNREC's evaluation of the site information, which includes current and past environmental investigations, historical information, and the above remedial action objectives, DNREC requires that the following remedial actions be taken at the Site:

1. Soil identified in the hotspot area contaminated with lead will be excavated and removed from the Site (Figure 2). The excavated areas will be backfilled with DNREC-approved clean fill. The excavated soils will be disposed of in accordance with a DNREC-approved soil management plan.
2. The surface of the Site will be covered with pavement, or a minimum of two feet of clean fill material including the landscaped areas.
3. All construction and redevelopment work will be done in accordance with a Site-specific Health and Safety Plan (HASP) and DNREC-approved Site-specific Contaminated Material Management Plan (CMMP), which results in removal and proper disposal of excavated contaminated soil, wood timbers, metal rail lines and groundwater, if encountered.
4. A DNREC-approved Operation and Maintenance (O&M) Plan will be established and implemented within ninety (90) days following construction completion. The O&M plan will detail the procedures and practices to be followed in order to minimize the potential for disturbing the cap and to promote the long-term integrity of the cap, including regular inspections.
5. The Site use will be restricted to commercial use by the owner by the placement of a restrictive covenant consistent with Delaware's Uniform Environmental Covenant Act (UECA). Any future development of the parcels will be limited to commercial development.
6. An environmental covenant consistent with Delaware's UECA will be placed on the Site following the completion of the construction activities prohibiting any land-disturbing activities including excavation, digging at the Site without prior written approval from DNREC, except in the clean utility corridors and clean landscaping areas. The location of these clean areas will be noted in the Construction Completion report and the O&M Plan, which will be maintained in DNREC's Site file. The Site will be incorporated into DNREC's Long-Term Site Stewardship program as it develops.
7. An environmental covenant consistent with Delaware's UECA will be placed on the groundwater beneath the Site. The covenant will reference the 2001 City of Wilmington Groundwater Management Zone, which prohibits the installation of wells and use of any groundwater from within the limits of the City of Wilmington prior to DNREC's written approval.

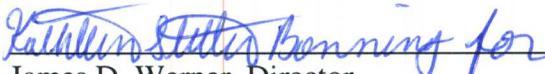
PUBLIC PARTICIPATION

The Department actively solicited written public comments and suggestions on the proposed plan of remedial action. The comment period began on June 11, 2006 and ended on July 3, 2006. No comments were received. If you have any questions or concerns regarding the Northern Pathway site, or if you would like to view reports or other information regarding the site, please contact the project managers, Rick Galloway or Lindsay Hall at 391 Lukens Drive, New Castle, Delaware 19720, or at 302.395.2600.

DECLARATION

The final plan of remedial action for the Northern Pathway site is protective of human health, welfare and the environment, and is consistent with the requirements of the Delaware Hazardous Substance Cleanup Act.

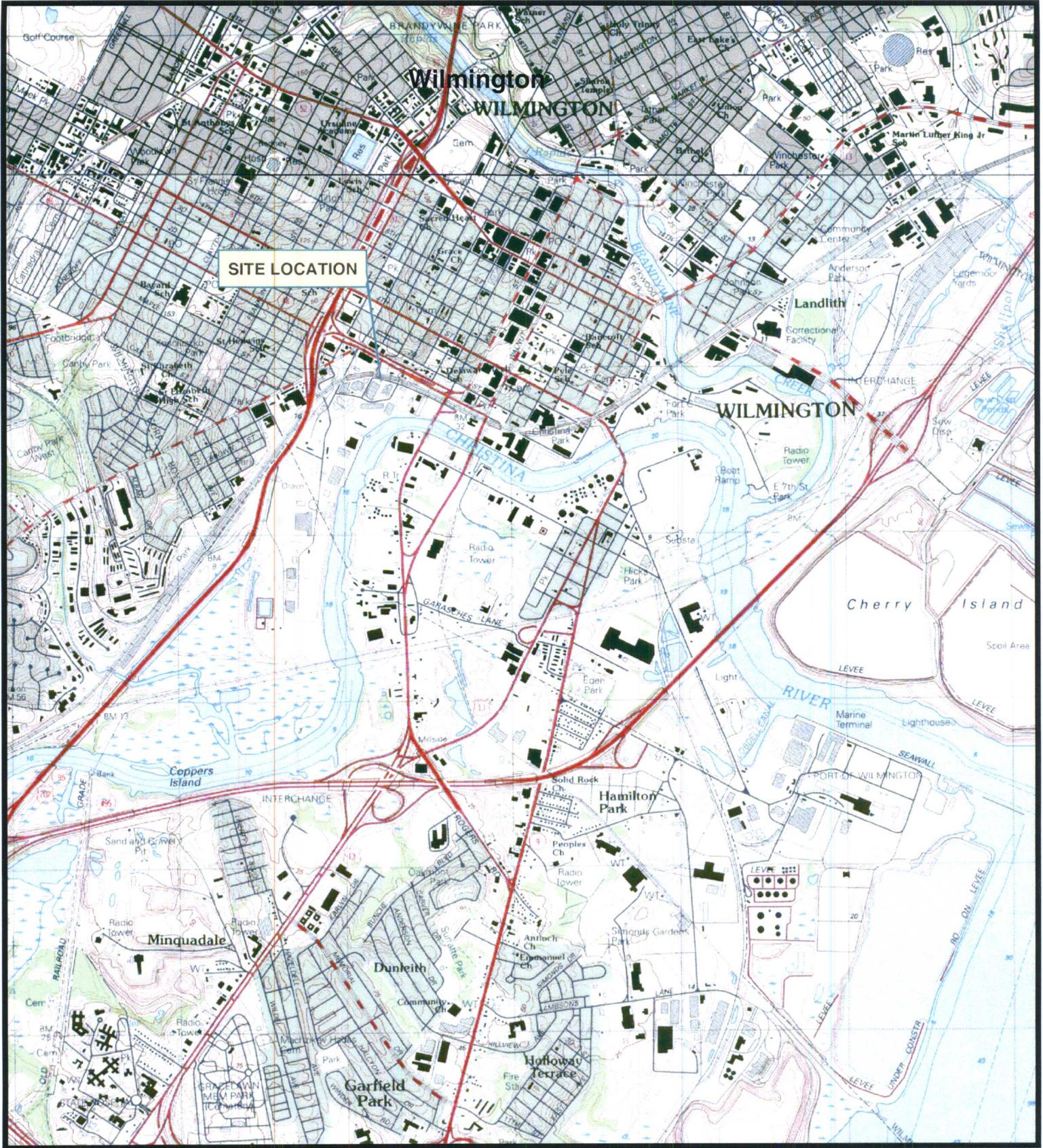
PUBLIC PARTICIPATION
The Department is actively soliciting written public comments and suggestions on the final plan of remedial action. The comment period begins July 9, 2006, and ends at the close of business (4:30 p.m.) July 31, 2006.
If you have any questions or concerns regarding the site, or if you would like to view the Sampling Summary report or any other information regarding this site, please contact the project managers, Rick Galloway or Lindsay Hall, 391 Lukens Drive, New Castle, Delaware 19720 or at 302.395.2600.


James D. Werner, Director
Division of Air and Waste Management

7/5/06
Date of Review of Final Plan

RMG/vdc
RMG06079.doc
DE 1385 II B 9

FIGURES



0 0.5 Miles
1 inch equals 0.49 miles 1:30,735

DNREC
SITE INVESTIGATION AND RESTORATION BRANCH
391 LUKENS DRIVE,
NEW CASTLE, DE 19720-2774
302.395.2600

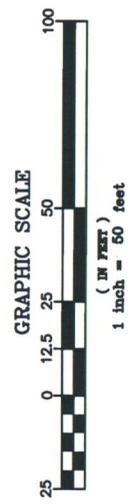
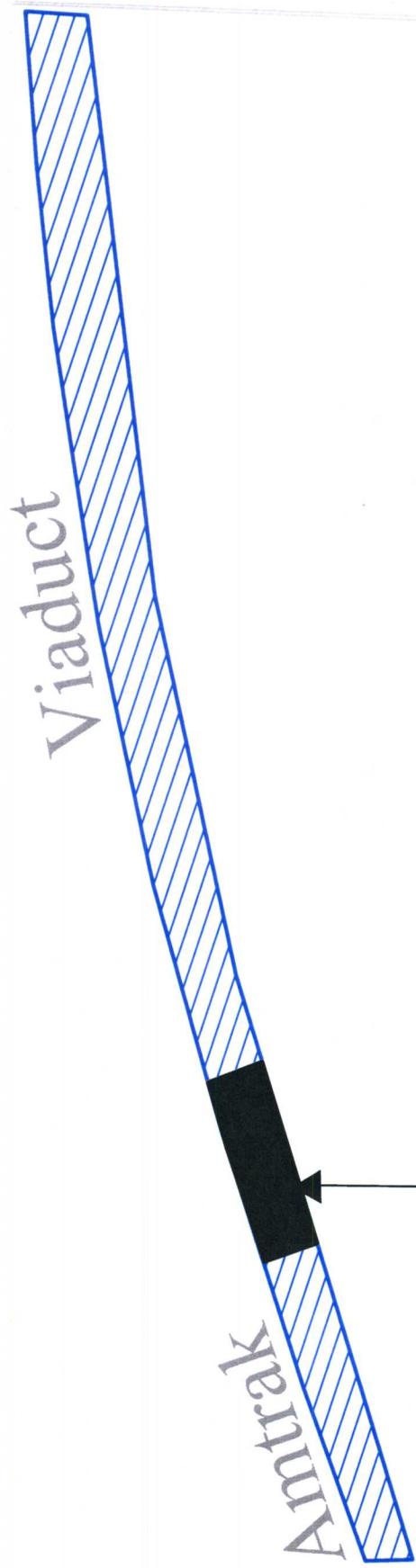
FIGURE 1
SITE LOCATION MAP
NORTHERN PATHWAY
WILMINGTON, DE

West Street

Justison Street

Christina Crescent

Lead Concentrations
above 1,000 mg/Kg



Northern Pathway Site

