FINAL PLAN OF REMEDIAL ACTION

SCANNED
FEB 16 2009
File# 1433 B9

300 Greenhill Avenue Site

300 Greenhill Avenue
Wilmington, Delaware

February 12, 2009
DNREC Project No. DE 1433

This Final Plan of Remedial Action (Final Plan) presents the Department of Natural Resources and Environmental Control's (DNREC's) requirements to address environmental contamination at the 300 Greenhill Avenue site (Site).

DNREC issued public notice of the Proposed Plan of Remedial Action (Proposed Plan) for the Site on January 18, 2009 and opened a 20-day public comment period. The Proposed Plan is attached. There were no comments or questions from the public. Therefore, the Proposed Plan is adopted as the Final Plan.

Final Plan will consist of the following requirements:

- Cap the site with asphalt, concrete or placement of a marker fabric and a 2 foot soil cover cap of DNREC-approved soil (or the cap equivalent).
- Implement an environmental oversight program, including an approved Contaminated Materials Management Plan, during redevelopment to protect workers and properly dispose of excavated soil and recovered groundwater, if necessary.
- Place an Environmental Covenant (EC), consistent with the Uniform Environmental Covenants Act (UECA) that will restrict site usage to commercial (restricted) purposes and restrict the use of groundwater through the existing City of Wilmington Groundwater Management Zone (GMZ).
- Develop a DNREC-approved Operations and Maintenance (O&M) Plan (to be delivered within 90 days of the final redevelopment) to maintain the cap to prevent exposure to site soil contamination and monitoring of on-site wells to evaluate the groundwater contamination. Additional remedial actions may be required based on the results of the on-site monitoring program and the area-wide groundwater investigation.

Approval:
This Final Plan meets the requirements of the Hazardous Substance Cleanup Act.

Kathleen M. Stiller, Program Manager II
Site Investigation and Restoration Branch

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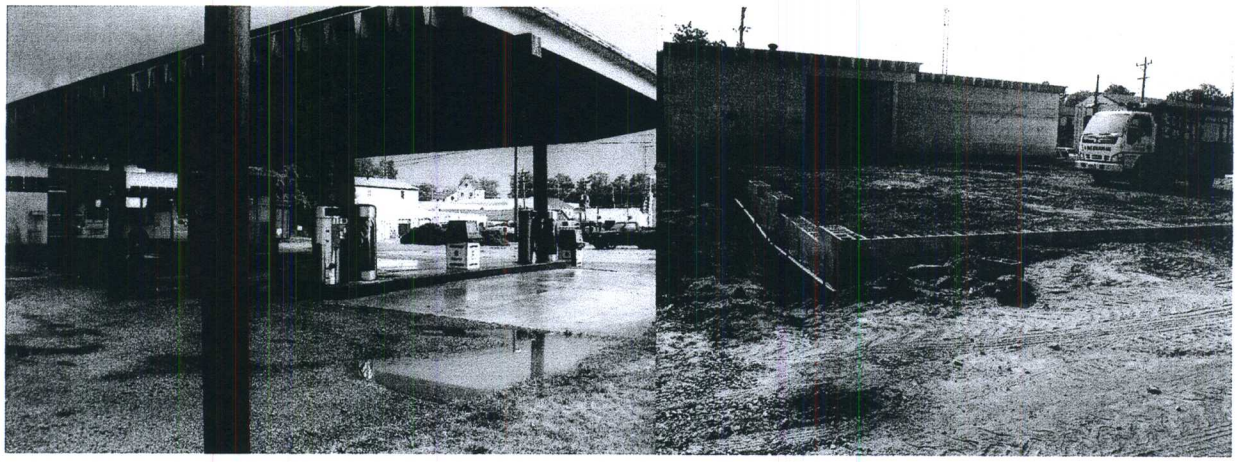
PROPOSED PLAN OF REMEDIAL ACTION

300 Greenhill Avenue
Wilmington, Delaware
DNREC Project No. DE-1433



January 2009

Delaware Department of Natural Resources and Environmental Control
Division of Air and Waste Management
Site Investigation & Restoration Branch
391 Lukens Drive
New Castle, Delaware 19720

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PROPOSED PLAN OF REMEDIAL ACTION

300 Greenhill Avenue
Wilmington, Delaware
DNREC Project No. DE-1433

Approval:
This Proposed Plan meets the requirements of the Hazardous Substance Cleanup Act.

Approved by:

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

13 JAN 2009
Date

What is the 300 Greenhill Ave. Carwash Property?

The 300 Greenhill Ave. Carwash (Site) is a Brownfield site and is located at 300 Greenhill Avenue in Wilmington, Delaware (Figure 1). The owners of the property (Delaware Offices, LLC and GHCW, LLC) have initiated renovation of the existing carwash into a modernized carwash facility with a detailing center and self-wash bays. The proposed redevelopment of the property is shown on Figure 2.

Tax Parcel Number: 26-026.10-011
Address: 300 Greenhill Avenue, Wilmington
Nearest major intersection: 4th Street and Greenhill Avenue
Area: 0.58 acres
Surrounding Property: Surrounding land use is commercial and residential
Zoning: 26C-2 – Secondary business commercial center
Site Utilities: Water and sewer service provided by the City of Wilmington. Electric and gas service provided by Delmarva Power.
Surface water: The closest surface water body to the property is the Brandywine Creek, which is located approximately one mile northeast of the site; the Christina River is approximately 1.5 miles southeast of the site.
Topography: The property slopes down from 4th Street to 3rd Street following the topography of the area. The area has been historically filled and the fill layer is primarily composed of sand and silt with some clay and gravel. The fill ranges from 9 to 17 feet thick. Except for small landscaped areas, the carwash was completely covered with asphalt and concrete
Groundwater: Groundwater was encountered at approximately 4 to 12 feet below ground surface (bgs) in the borings completed across the site. Calculations of the horizontal gradient for the 300 Greenhill Avenue property based on groundwater level measurements collected from each of the six monitoring wells on June 20, 2008 indicate that groundwater flows towards the southeast, in the direction of the Christina River.

What happened at the 300 Greenhill Ave. Carwash Property?

This property was part of an identified former leather tannery that operated from 1901 into the 1930s. It also operated as a former gas station and had a history of leaking underground storage tanks and tank removal activities overseen by the DNREC Tank Management Branch. DNREC has overseen the removal and proper closure of the gasoline tanks on the property.

The property was one of a number of leather tanneries that operated in the City of Wilmington in the early 1900s. It was part of the Ford Morocco Company and later the Wilmington Leather Company. The tanning process included spreading the hides with a lime and arsenic paste and then scraping the hides to remove the hair. This operation appears to have been conducted on the 300 Greenhill Avenue property. In 1927, the property was listed as owned by the Wilmington Oil and Refinery Company and until the early 1970s was operated by various commercial and retail users. In 1971, the site was operated as a Coastal Oil gas station and as a carwash.

Under the supervision of the DNREC Tank Management Branch, four Underground Storage Tanks (USTs), two 10,000-gallon gasoline tanks, one 5,000-gallon gasoline tank and one 2,000-gallon diesel fuel tank, were removed from the property in 2007. A heating oil UST was removed in 1986. Sampling around the excavated tanks and gasoline dispensers was also undertaken in 2007. The Tank Management Branch issued a No Further Action (NFA) letter on January 30, 2008 for the removal of the tanks and pumps related to the operations of the gasoline station. The carwash remained open.

Adjacent properties appeared to have been maintained as leather manufacturers, residences, stables, a church, a direct mail and advertising business, an auto repair business, a stone and tile company, as stores and an appliance warehouse, and for other unidentified commercial purposes.

What is the environmental problem at the 300 Greenhill Ave. Carwash Property?

A Site Specific Investigation (SSA) of the 300 Greenhill Avenue Carwash property showed that shallow soil over portions of the property, mainly toward the southern (3rd Street) side of the property, contained arsenic above the levels acceptable under commercial (restricted) use of the property. Subsurface soil also showed impacts from arsenic above the restricted site use levels on soil boring (at the exit of the carwash tunnel) showed a layer of odorous white, pasty material. The arsenic level in the white pasty material was of a greater concentration than in all other areas of the property. This material was also found within 1.5 to 2 feet of the surface along the 3rd Street side of the property.

As part of the SSA, six on site and 3 off site groundwater monitoring wells were installed. The water in the well located where the white pasty material was observed showed the highest impacts of arsenic. The five additional groundwater monitoring wells installed down gradient from this well, three onsite and two offsite, are also impacted. The off site up-gradient well was not impacted with arsenic

The SSA initially included the drilling of fourteen soil borings throughout the property, the collection of surface and subsurface soil samples for screening analysis by the DNREC-Site Investigation and Restoration Branch (SIRB), and confirmatory analysis at a commercial laboratory approved by DNREC. The borings indicated that throughout most of the southern portion of the site (towards 3rd Street), the shallow soil showed impacts from arsenic above the DNREC Uniform Risk-Based Standard (URS) for restricted use (commercial) use properties.

The subsurface soil showed impacts as well, and one sample collected at the exit of the carwash tunnel (on the 3rd Street side of the site) contained a white-pasty material consistent with former tannery operations. The level of arsenic in this sample was above what was found throughout the rest of the site. Additional soil borings were installed and the extent of the area of white pasty material was determined. An interim action was conducted to remove all of the white pasty material from this portion of the property. During the installation of a storm drain along the 3rd Street side of the property, white arsenic material was found within 1.5 to 2 feet below the surface. As the storm drain was installed, the material was excavated to the extent of its depth, stockpiled on the site and properly disposed at a licensed facility. It was noted that this material extended under the concrete portion of the driveway exit from the property. An additional removal action was conducted to remove the white arsenic material from an area approximately 70 feet by 10 feet, under the driveway to the extent of its depth in this location, approximately seven feet.

As part of the SSA, a total of nine groundwater monitoring wells were installed. Three of the monitoring wells were installed at locations outside the site boundaries. Groundwater results showed arsenic impacts in the groundwater, except for the well located up-gradient the site. This indicates that the site is one of the sources of arsenic contamination in groundwater.

A human health risk assessment showed that exposure to surface and subsurface site soil may pose an unacceptable carcinogenic and non-carcinogenic risk under a restricted use (commercial) scenario if the soil was not remediated. Surface and subsurface soil analytical data were used to evaluate the risk to future construction workers performing intrusive activities at the 300 Greenhill Avenue Carwash property under current site conditions (prior to remediation). Both the cumulative carcinogenic and cumulative non-carcinogenic risk for the site exceeded DNREC guidelines, primarily due to risk associated with arsenic in soil.

Routinely ingesting shallow groundwater at the property may pose both unacceptable carcinogenic and non-carcinogenic risks. However, groundwater at and near the property is restricted to be used for drinking water.

What does the owner want to do at the 300 Greenhill Ave. Carwash Property?

The owner of the property has started to remodel the former carwash into a modern carwash facility. The remodeled carwash will include a detailing center and self-wash bays. The entire carwash works inside of the carwash tunnel will be replaced with modern carwash machinery. It is anticipated that approximately ten jobs will be created by the redevelopment.

What clean-up actions have been taken at the 300 Greenhill Ave. Carwash Property?

In 2007, the underground storage tanks, pumps and pipes associated with the gas station operations were removed under DNREC Tank Management Branch oversight and DNREC issued a No Further Action letter for this work.

A total of approximately 400 tons of arsenic contaminated soil was removed from the property. In September 2008, approximately 180 tons of the arsenic impacted material observed near the carwash tunnel exit, was excavated from the site and disposed at an appropriate facility. An additional 220 tons of arsenic material was excavated from the site and disposed at a licensed disposal facility during installation of the storm drain in November 2008, and other utilities, and during an additional removal action in December 2008.

What additional clean-up actions are needed at the 300 Greenhill Ave. Carwash Site?

DNREC's Proposed Plan includes completing capping the site; continue implementing of an environmental oversight program during redevelopment; restricting the site uses to commercial (restricted) use only, maintaining prohibition of groundwater usage at the site; and implementing a DNREC-approved Operations and Maintenance Plan. DNREC will coordinate an area-wide groundwater program to address groundwater contamination off site.

DNREC recommends the following remedial actions:

1) Cap the site with asphalt, concrete or placement of a marker fabric and a 2 foot soil cover cap of DNREC-approved soil (or the cap equivalent).
2) Place an Environmental Covenant (EC), consistent with the Uniform Environmental Covenants Act (UECA) that will restrict site usage to commercial (restricted) purposes and restrict the use of groundwater through the existing City of Wilmington Groundwater Management Zone (GMZ).
3) Implement an environmental oversight program, including an approved Contaminated Materials Management Plan (CMMP), to protect workers and properly dispose of excavated soil and recovered groundwater, as necessary. This CMMP would apply during redevelopment as well as during the period of the UECA Restrictive Covenant, unless modified by DNREC pursuant to HSCA and UECA.
4) Develop a DNREC-approved Operations and Maintenance (O&M) Plan (to be delivered within 90 days of the final redevelopment) to maintain the cap to prevent exposure to site soil contamination and monitoring of on-site wells to evaluate the groundwater contamination. Additional remedial actions may be required based on the results of the on-site monitoring program and the area-wide groundwater investigation.

What are the long term plans for the Property after the cleanup?

The property owner/developer plans to continue the use of the property as a carwash. The O&M plan will ensure that the remedial measures taken at the site remain protective of human health and the environment.

DNREC plans to issue a Certificate of Completion of Remedy for the site after the implementation of the proposed remedial actions at the site.

How can I find additional information or comment on the Proposed Plan?

The complete file on the site, including the Brownfield Remedial Investigation, is available at the DNREC office, 391 Lukens Drive in New Castle. Most documents are also found on:

http://www.dnrec.state.de.us/dnrec2000/Divisions/AWM/sirb/

The 20-day public comment period begins on January 18, 2009 and ends at close of business (4:30 pm) on February 9, 2009. Please send written comments to the DNREC office or call Wilmer Reyes or Kate Durant, Project Managers, at: 302-395-2600.

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Glossary of Terms
Used in this Proposed Plan

Brownfield	Property that is vacant or underutilized because of the perception or presence of an environmental problem.
Contaminant of Concern (COC)	These are potentially harmful substances at concentrations above acceptable levels (eg metals and PAH).
Certificate of Completion of Remedy (COCR)	A formal determination by the Secretary of DNREC that remedial activities required by the Final Plan of Remedial Action have been completed.
Final Plan of Remedial Action	DNREC's proposal for cleaning up a hazardous site after it has been reviewed by the public and finalized.
Hazardous Substance Cleanup Act (HSCA)	Delaware Code Title 7, Chapter 91. The law that enables DNREC to identify parties responsible for hazardous substances releases and requires cleanup with oversight of the Department.
Human Health Risk Assessment (HHRA)	An assessment done to characterize the potential human health risk associated with exposure to site related chemicals.
Proposed Plan of Remedial Action	A plan for cleaning up a hazardous site submitted by DNREC and subject to public comments.
Risk	Likelihood or probability of injury, disease, or death.
Site Specific Assessment (SSA) and Site Inspection (SI)	Environmental studies of a site including sampling of soils, groundwater, surface water, sediment and/or wastes on the property.

What is a *Proposed Plan?*

A Proposed Plan of Remedial Action (Proposed Plan) is a summary of how DNREC plans to clean up a contaminated site. A Final Plan of Remedial Action (Final Plan) is the adoption of the Proposed Plan, after all comments made by the public within the comment period of twenty days have been considered and addressed by DNREC.

The Delaware State Legislature passed the Hazardous Substance Cleanup Act (HSCA) in 1990. The Legislature made sure that members of the public would be informed about environmental problems in their own neighborhoods and have a chance to express their opinion concerning the clean up of those environmental problems before DNREC takes action.

After DNREC studies a site, it summarizes the problems there and proposes one or more possible solutions in a Proposed Plan. The Proposed Plan contains enough information to allow lay persons to understand the site. More detailed information can be found in the reports and documents approved by DNREC. All of the documents and reports created by DNREC or consultants during the course of the investigation of the site are available to the public at the offices of DNREC-SIRB or at DNREC's website:

http://www.dnrec.state.de.us/dnrec2000/Divisions/AWM/sirb/sitefiles.asp

DNREC issues the Proposed Plan by advertising it in at least one newspaper in the county where the site is located. The legal notices for the Proposed Plans and the Final Plans usually run on Wednesdays or Sundays in the legal classified section of the News Journal and/or the Delaware State News. The public comment period begins on the day (Wednesday), or the day after (Sunday) the newspaper publishes the legal notice for the Proposed Plan.

DNREC frequently holds public meetings during the comment period. Those meetings are usually held near the site in the evening. Citizens can request a public meeting if DNREC did not already schedule one.

Comments are collected at the public meetings, by phone or in writing. DNREC considers all comments and questions from the public before the Proposed Plan is finalized and adopted as a Final Plan.

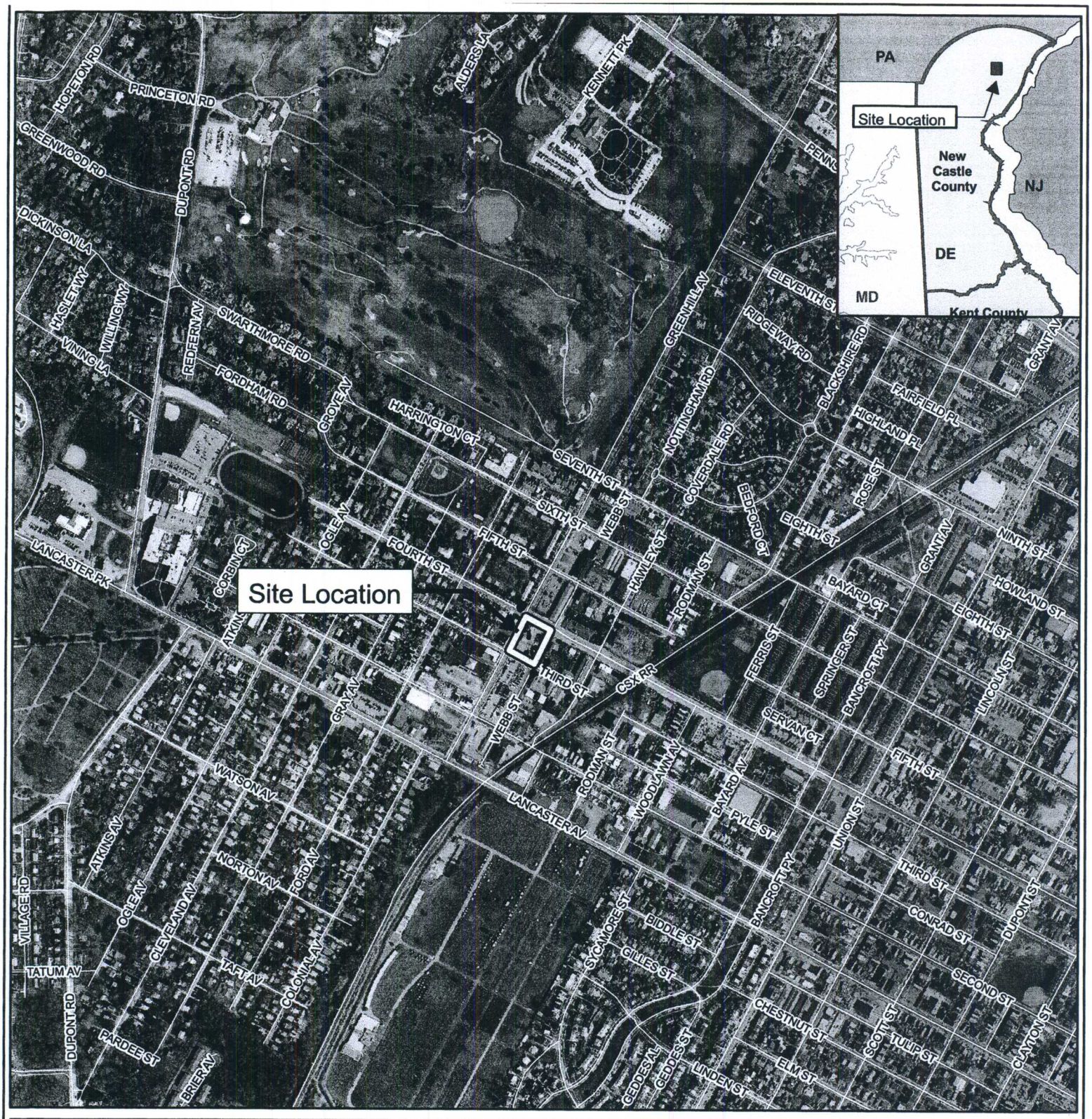

FIGURE 1
Site Location

300 Greenhill Avenue

Wilmington, Delaware

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800 400 0 800 Feet

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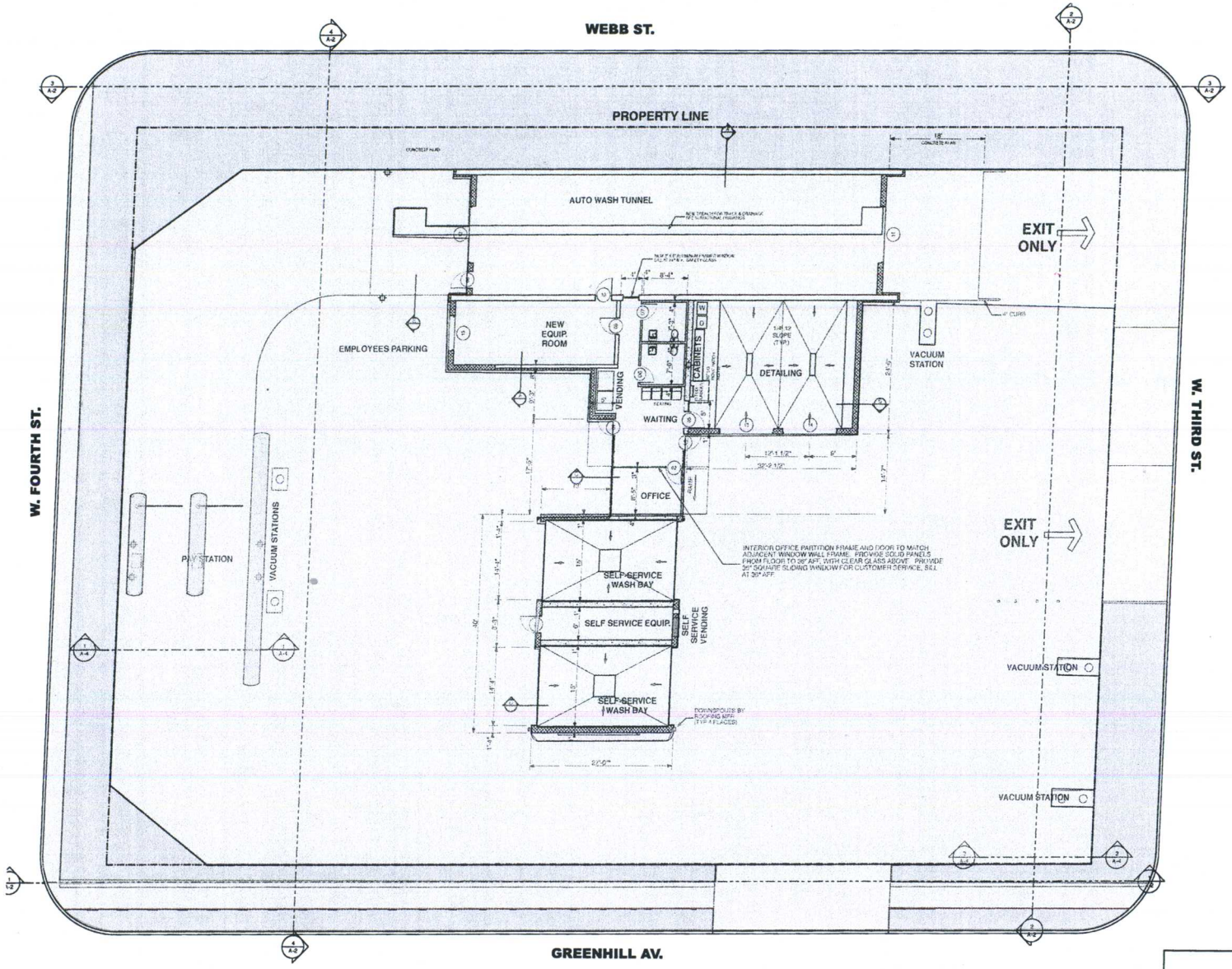

Legend

- Concrete
- Clean Fill and Marker Fabric
- Asphalt

Figure 2
Site Redevelopment Plan
300 Greenhill Avenue
Wilmington, Delaware

0 12.5 25 50 Feet

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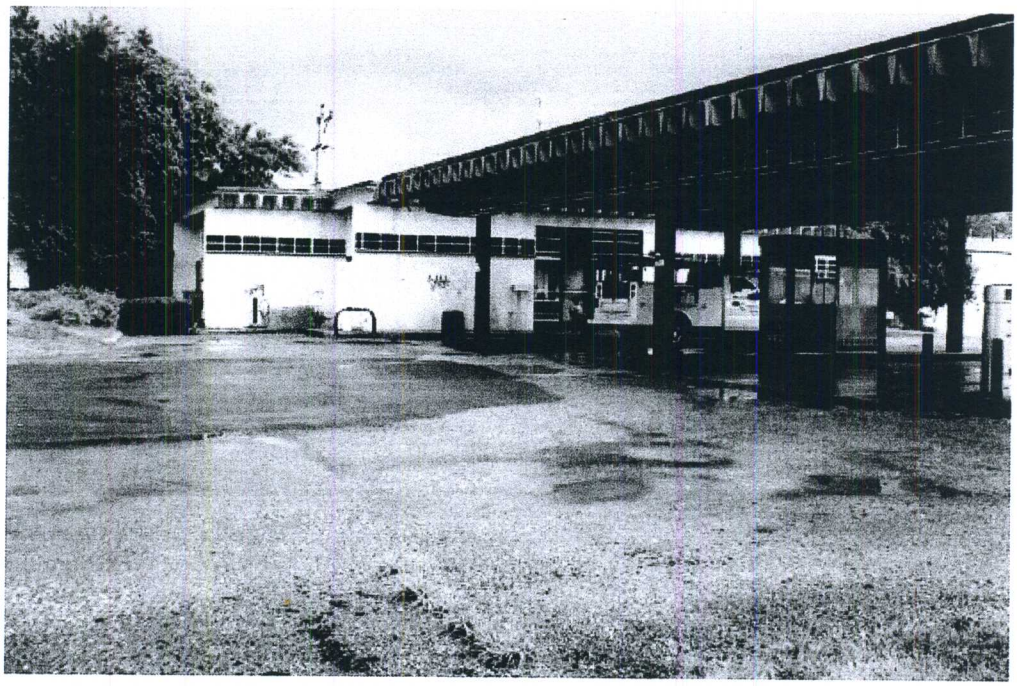
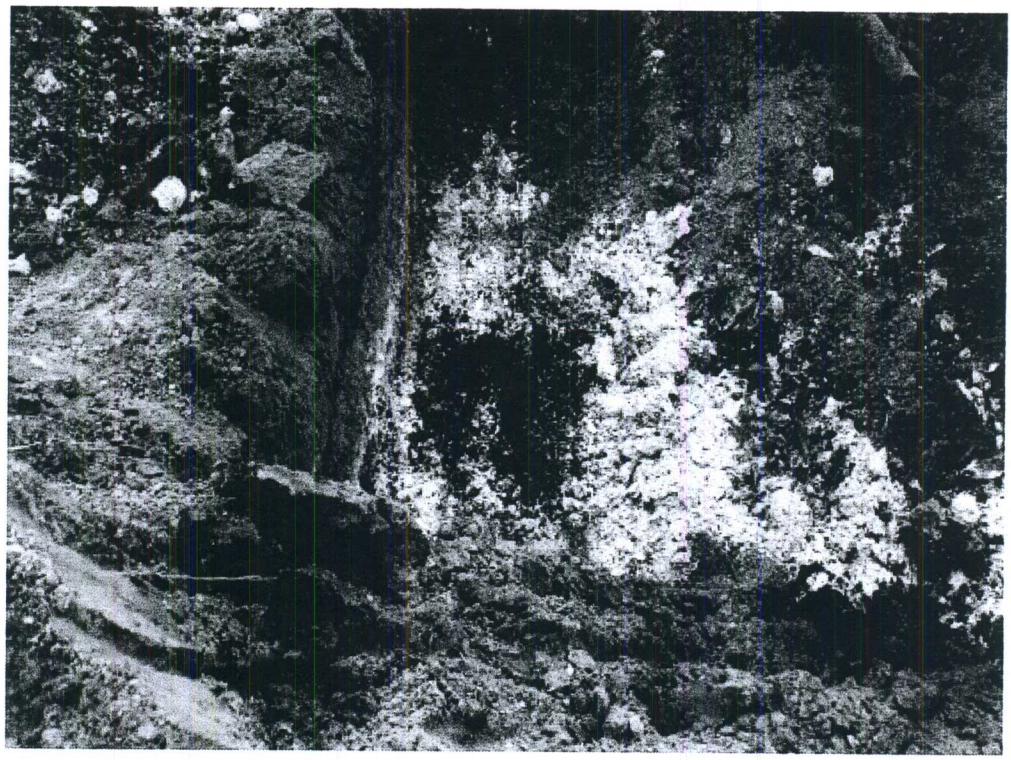
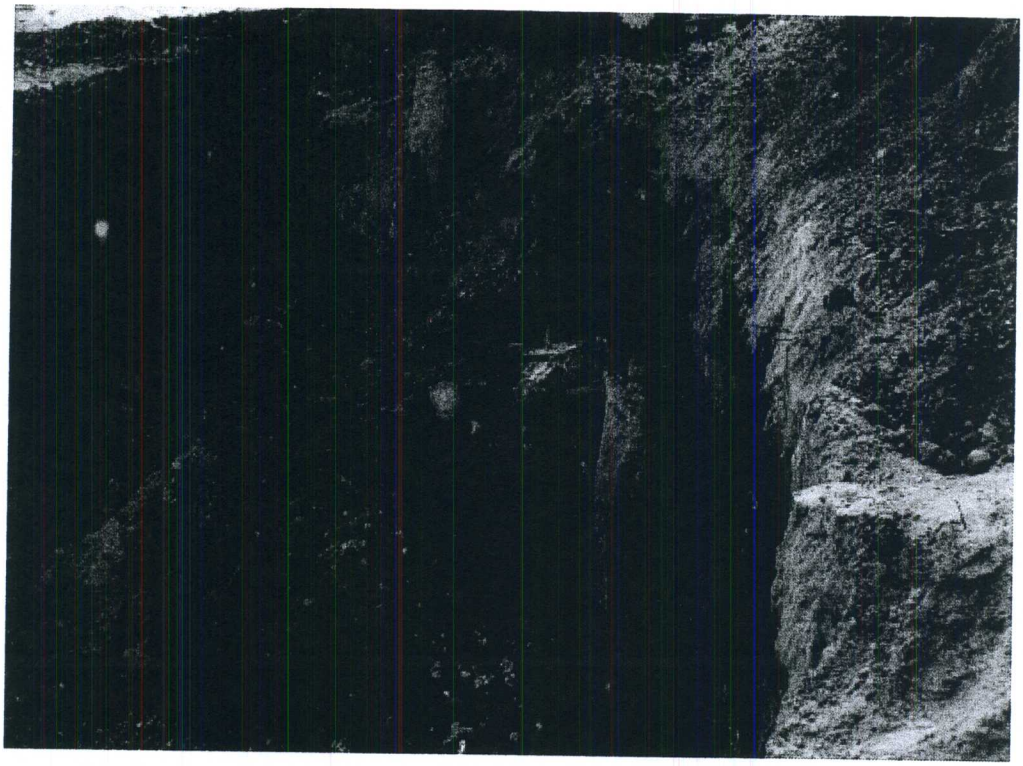
SITE PHOTOGRAPHS
300 Greenhill Avenue



Carwash tunnel and canopy looking east before redevelopment began



Impacted soil from the southern corner of the site containing white pasty material



White pasty material removed from soil at southern corner of site

Arsenic removal area along 3rd Street being back filled with crusher run