



## **DNREC-Site Investigation and Restoration Branch**

### **LEGAL NOTICE**

#### **FINAL PLAN OF REMEDIAL ACTION FOR THE CHEMSOLV REDEVELOPMENT SITE (DE-1427)**

**WHAT:** The Site Investigation and Restoration Branch (SIRB), on behalf of the Department of Natural Resources and Environmental Control (DNREC or the Department), adopts the Proposed Plan of Remedial Action (Proposed Plan) as the Final Plan of Remedial Action (Final Plan) for the Chemsolv Redevelopment Site (Site). DNREC issues this Final Plan under the authority of the Hazardous Substance Cleanup Act (HSCA), 7 Del. C. Chapter 91.

**WHERE:** The 1.5 acre Site is located at 5301-5303 N. Dupont Highway in Cheswold, Delaware. The site is a certified Brownfield site which is occupied by several structures including a residence, several outbuildings, and the former Chemsolv office building, which is abandoned and in disrepair.

**WHY:** The Site was formerly operated as a solvent recovery facility between 1981 and 1984. In 1984, an explosion and fire at the facility resulted in the release of solvents into the environment. Following the fire and explosion, DNREC excavated and aerated approximately 1,300 cubic yards of contaminated soil to remove the volatile organic compounds (VOCs). The soil aeration reduced the contaminant concentrations to levels that permitted the soil to be returned to the excavated areas.

Between September 1984 and June 1986 DNREC conducted an extensive investigation into soil and groundwater contamination associated with the facility that included the installation of forty-three (43) monitoring wells and seven (7) recovery wells on and near the Site. Initial sample results indicated that groundwater contamination in the shallow aquifer consisted of VOCs, primarily TCE and associated chlorinated hydrocarbons. Groundwater quality was periodically monitored and by October 1985, the contaminant plume had migrated beyond the property boundary to the east of Route 13. In December 1985, DNREC decided to implement a groundwater treatment system.

The U.S. Environmental Protection Agency (USEPA) listed the Chemsolv, Inc. Superfund Site on the National Priorities List (NPL) in 1990 as a result of the volatile organic compounds (VOCs) that were released into soil and groundwater.

Following Chemsolv's listing on the NPL in 1990, the EPA conducted investigations at the site and adjacent areas, including a Remedial Investigation (RI), and determined that only groundwater posed an unacceptable threat to human health or the environment due to the presence of benzene, TCE, and manganese. A Record of Decision (ROD), which was signed in March 1992 and implemented in 1997, required the collection and onsite treatment of contaminated groundwater and the monitoring of domestic, recovery, and monitoring wells until the cleanup goals for the Site are met. The collection and treatment of TCE-contaminated groundwater and as well as monitoring are ongoing.

A groundwater management zone (GMZ) was placed on the Site on March 1, 1994 prohibiting the installation of any water wells or use of groundwater at the site without the prior written approval of DNREC.

A supplemental Brownfield Investigation (BFI) was performed at the Site by Ten Bears Environmental LLC during 2008 that consisted of the following activities: (1) the installation of twelve (12) direct push soil borings, ten (10) of which were completed as soil gas monitoring points (vapor points); (2) the collection of twenty-four (24) soil samples for screening of which fifteen (15) samples were sent for confirmatory laboratory analysis for all or part of the TAL/TCL parameters; (3) the collection of eighteen (18) soil gas samples for laboratory analysis, and (4) the collection of one (1) domestic water well sample for laboratory analysis.

The results of laboratory confirmatory analysis indicated that none of the fifteen (15) soil samples submitted for analysis contained contaminant concentrations that exceeded the Restricted Use Uniform Risk Based Standards (URS). However, three (3) metals (aluminum, iron, and manganese) and one (1) PCB (Aroclor 1248) exceeded the Unrestricted Use URS.

Seventeen (17) of the eighteen (18) soil gas samples submitted to the laboratory reported concentrations of VOCs above Target Shallow Gas Concentrations (TSGC). The VOCs detected at concentrations exceeding the TSGC included: benzene (in 11 out of 18 samples), trichloroethene (in 10 out of 18 samples), ethylbenzene (in 5 out of 18 samples), and acrolein, chloroform, 1,2-dichloroethane, and tetrachloroethene (in 3 out of 18 samples). Compounds detected in only one (1) or two (2) samples at concentrations above the TSGC for that compound included 1,1,2-trichloroethane, 1,1,2,2-tetrachloroethane, and acrylonitrile.

Laboratory results for the on-site domestic well indicated that VOCs were not detected in the sample and that manganese was detected at a concentration below the Secondary Maximum Contaminant Level (SMCL) and DNREC URS values.

Based on the results of the investigation(s), DNREC calls for the following remedial actions be taken at the Site:

1. Placing an Environmental Covenant (EC), consistent with the Uniform Environmental Covenants Act, UECA (Title 7, Del. Code Chapter 79, Subtitle II), on the property limiting its use only to non-residential purposes, prohibiting land-disturbing activities without prior written approval from DNREC, and requiring compliance with a DNREC-approved Contaminated Materials Management Plan (CMMP).
2. Abandonment of the existing domestic well on the Site in accordance with all applicable regulations.

Future plans for the Site include the demolition of the existing buildings and erecting a new commercial retail building with a larger footprint than the current residential building on the Site.

For further details regarding the Proposed Plan and the Final Plan, a copy is available at the Dover Public Library or at the office of DNREC–SIRB, 391 Lukens Drive, New Castle, DE 19720. The Proposed Plan and the Final Plan are also posted on DNREC-SIRB’s website at <http://www.dnrec.state.de.us/dnrec2000/Divisions/AWM/sirb/> under the subject “Announcements.” For site specific information, please go to DNREC’s superfund site files database at <http://www.dnrec.state.de.us/dnrec2000/Divisions/AWM/sirb/sitefiles.asp>.

Pursuant to 7 Del. C. § 9107 (e) (2), DNREC invited written comments on this Proposed Plan. The public comment period began on Monday, January 5, 2009 and closed on Monday, January 26, 2009. DNREC did not receive any comments to the Proposed Plan. Pursuant to 7 Del. C. § 9110 (b)(1), the public may appeal this Final Plan within twenty (20) days following the date of this notice. For additional information, please contact Robert C. Asreen, Jr. at (302) 395-2600.

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# FINAL PLAN OF REMEDIAL ACTION



## Chemsolv Redevelopment Project Site

5301-5303 N. Dupont Highway  
Cheswold, Kent County, Delaware

DNREC Project No. DE-1427

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This Final Plan of Remedial Action (Final Plan) for the Site presents the Department of Natural Resources and Environmental Control's (DNREC's) determination that the cumulative soil gas vapor risk to human health due to the contaminants is above DNREC's restricted use standard.

DNREC issued public notice of the Proposed Plan for the Site on January 4, 2009 and opened a 20-day public comment period. The Proposed Plan requires:

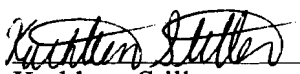
- Placing an Environmental Covenant (EC), consistent with the Uniform Environmental Covenants Act, UECA (Title 7, Del. Code Chapter 79, Subtitle II), on the property limiting its use only to non-residential purposes, prohibiting land-disturbing activities without prior written approval from DNREC, and requiring compliance with a DNREC-approved Contaminated Materials Management Plan (CMMP).
- Abandonment of the existing domestic well on the Site in accordance with all applicable regulations.

The Proposed Plan also includes the location of additional information found on the DNREC web page and at the DNREC office on Lukens Drive in New Castle.

There were no comments or questions from the public regarding the Proposed Plan. Therefore, the Proposed Plan was adopted as the Final Plan (see attached).

### Approval:

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

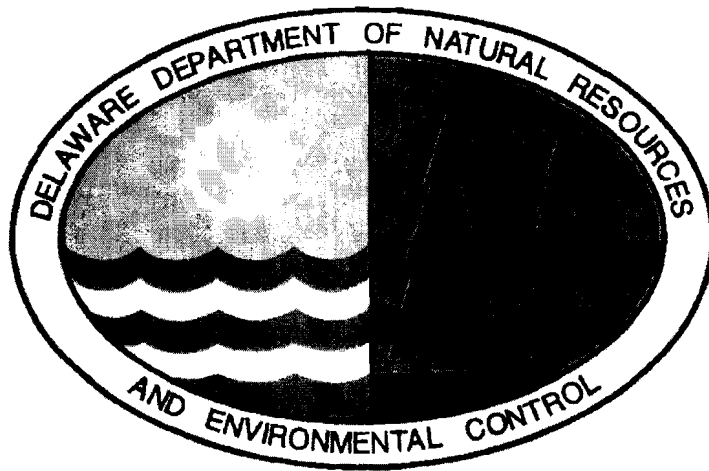
  
Kathleen Stiller  
Division of Air and Waste Management

1/29/09  
Date



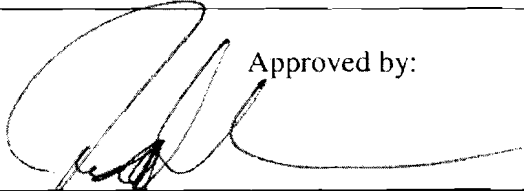
# PROPOSED PLAN OF REMEDIAL ACTION

Chemsolv Redevelopment Project Site  
Cheswold, Kent County, Delaware  
DNREC Project No. DE-1427



**Approval:**

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

	Approved by:
James D. Werner, Director Division of Air & Waste Management	
16 Dec 2008	Date







**What is the Chemsolv Redevelopment Project Site?** The Chemsolv Redevelopment Project Site ("Site") is located at 5301/5303 Dupont Highway within the town limits of Cheswold, Delaware. The Site is comprised of one (1) tax parcel and is occupied by several structures including a residence (currently occupied), several outbuildings, and the former Chemsolv office building, which is abandoned and in disrepair. The site was formerly operated as a solvent recovery facility. As part of the previous operation, a concrete pad was utilized to store 55-gallon drums prior to off-site disposal. Future plans for the Site include the demolition of the existing buildings and erecting a new commercial retail building with a larger footprint than the current residential building. The property, which was certified as a Brownfield site, is depicted on Figure 1- Site Location Map.

**Tax Parcel Numbers:** LC00-46.02-01-07.09

**Address:** 5301-5303 N. Dupont Highway, Cheswold, Delaware

**Nearest major intersection:** N. Dupont Highway and Fast Landing Road

**Area:** 1.5 acres

**Surrounding Property:** Surrounding land use is primarily commercial with some agricultural use.

**Zoning:** Commercial

**Site Utilities:** Currently, the Site is serviced by a domestic well and private septic system. Following redevelopment the Site will be serviced by municipal water and sewer.

**Surface water:** Alston Branch, a tributary of the Liepsic River, is located approximately 2,000 feet north of the Site.

**Topography:** The Site is approximately 40 feet above mean sea level with a gradual slope to the north toward the Alston Branch.

**Groundwater:** Shallow groundwater at the Site was determined to generally flow in an north easterly direction toward North DuPont Highway.

**What happened at the Chemsolv Redevelopment Project Site?** The Chemsolv facility was in operation from approximately 1981 to 1984. At the facility, spent industrial solvents were distilled and purified and the recovered product was then returned to the original generator for reuse. The residue generated during the distillation process, commonly referred to as "still bottoms," was collected in 55-gallon drums and stored on a concrete pad awaiting offsite disposal as hazardous waste. The concrete pad was located behind the former distillation building.

In 1984, an explosion and fire at the facility resulted in the release of solvents off the concrete pad and into the environment. The U.S. Environmental Protection Agency (USEPA) listed the Chemsolv, Inc. Superfund Site on the National Priorities List (NPL) in 1990 as a result of the volatile organic compounds (VOCs) that were released into soil and groundwater.



Following the fire and explosion, DNREC excavated and aerated approximately 1,300 cubic yards of contaminated soil to remove the VOCs. The soil aeration reduced the contaminant concentrations to levels that permitted the soil to be returned to the excavated areas. DNREC also initiated an investigation in September 1984 which consisted of air monitoring and the collection of soil samples. Based on the soil sample analysis, DNREC concluded that the soil contamination consisted primarily of the following VOCs: trichloroethylene (TCE), 1,1,1-trichloroethane (TCA), 1,2-dichloroethane (1,2-DCA), 1-chloroethane, ethylbenzene, and toluene.

Between September 1984 and June 1986 DNREC conducted an extensive investigation into groundwater contamination associated with the facility that included the installation of forty-three (43) monitoring wells and seven (7) recovery wells on and near the Site. Initial sample results indicated that groundwater contamination in the shallow aquifer consisted of VOCs, primarily TCE and associated chlorinated hydrocarbons. Groundwater quality was periodically monitored and by October 1985, the contaminant plume had migrated beyond the property boundary to the east of Route 13. In April 1985, DNREC retained SMC Martin Inc. to evaluate remedial alternatives for groundwater and, after the evaluation, DNREC decided to implement a groundwater treatment system which became operational in December 1985.

Following Chemsolv's listing on the NPL in 1990, the EPA conducted investigations at the site and adjacent areas, including a Remedial Investigation (RI), and determined that only groundwater posed an unacceptable threat to human health or the environment due to the presence of benzene, TCE, and manganese. A Record of Decision (ROD) was signed in March 1992 and implemented in 1997 and required the collection and onsite treatment of contaminated groundwater and the monitoring of domestic, recovery, and monitoring wells until cleanup goals are met. The collection and treatment of TCE-contaminated groundwater as well as groundwater monitoring are ongoing.

**What is the environmental problem at the Chemsolv Redevelopment Project Site?** The USEPA issued Special Notice Letters in December 1987 to thirty (30) potentially responsible parties (PRPs) requesting them to perform a Remedial Investigation/Feasibility Study (RI/FS) for the Site. The PRPs performed a RI/FS that consisted of soil, groundwater and stratigraphic investigations. Ten (10) soil borings were drilled and thirty-two (32) soil samples were collected and analyzed for the full target analyte list/target compound list (TAL/TCL) parameters. Seven (7) additional monitoring wells were installed and groundwater samples were collected from these additional wells as well as from the seven (7) existing recovery wells. Groundwater samples from all fourteen (14) wells were analyzed for the full suite of TAL/TCL parameters. The results of the RI/FS indicated that there was no soil contamination above levels of concern present at the site. Groundwater contamination above allowable levels was identified beneath the Site; however, the contamination was shown to be limited to the shallow zone of the Columbia Formation.

As a result of the regulatory history of the Site, the identified shallow groundwater contamination, and the anticipated redevelopment of the Site, the prospective purchaser of the property entered the site into the State of Delaware Brownfields Program in 2007 in order to evaluate the environmental condition of Site soils and soil gas in areas to which human occupants will be exposed during or after the future redevelopment of the property and to ensure



that the Site evaluation meets all relevant State of Delaware requirements and thereby results in the release of environmental liability to prospective purchasers granted under the Brownfield Program. At the request of the prospective purchaser, Ten Bears Environmental, L.L.C. (Ten Bears) performed a Supplemental Brownfield Investigation (BFI) at the property.

Ten Bears completed a Supplemental BFI that consisted of the following activities: (1) the installation of twelve (12) direct push soil borings, ten (10) of which were completed as soil gas monitoring points (vapor points) (see Figure 2); (2) the collection of twenty-four (24) soil samples for screening of which fifteen (15) samples were sent for confirmatory laboratory analysis for all or part of the TAL/TCL parameters; (3) the collection of eighteen (18) soil gas samples for laboratory analysis, and (4) the collection of one (1) domestic water well sample for laboratory analysis.

The results of laboratory confirmatory analysis indicated that none of the fifteen (15) soil samples submitted for analysis contained contaminant concentrations that exceeded the Restricted Use Uniform Risk Based Standards (URS). However, three (3) metals (aluminum, iron, and manganese) and one (1) PCB (Aroclor 1248) exceeded the Unrestricted Use URS.

Seventeen (17) of the eighteen (18) soil gas samples submitted to the laboratory reported concentrations of VOCs above Target Shallow Gas Concentrations (TSGC). The VOCs detected at concentrations exceeding the TSGC included: benzene (in 11 out of 18 samples), trichloroethene (in 10 out of 18 samples), ethylbenzene (in 5 out of 18 samples), and acrolein, chloroform, 1,2-dichloroethane, and tetrachloroethene (in 3 out of 18 samples). Compounds detected in only one (1) or two (2) samples at concentrations above the TSGC for that compound included 1,1,2-trichloroethane, 1,1,2,2-tetrachloroethane, and acrylonitrile.

Laboratory results for the on-site domestic well indicated that VOCs were not detected in the sample and that manganese was detected at a concentration below the Secondary Maximum Contaminant Level (SMCL) and DNREC URS values.

**What does the prospective purchaser want to do at the Chemsolv Redevelopment Project Site?** The prospective purchaser wants to demolish the existing buildings and erect a new slab-on-grade structure with a footprint larger than the current residential building. The future building will be used for commercial retail space. (Figure 3- Site Redevelopment Sketch). The remaining areas will be asphalt-paved or landscaped.

**What clean-up actions have been taken at the Chemsolv Redevelopment Project Site?** Cleanup actions taken at the Site in previous investigations included soil aeration, the collection and onsite treatment of contaminated groundwater, and the monitoring of domestic, recovery, and monitoring wells until cleanup goals are met. The collection, treatment, and monitoring of TCE-contaminated groundwater is being conducted by the Potentially Responsible Parties (PRPs) in accordance with the US EPA's Record of Decision (ROD). The installation of groundwater wells on the Site for drinking water purposes is currently prohibited by an existing Groundwater Management Zone.



**What additional clean-up actions are needed at the Chemsolv Redevelopment Project Site?**

DNREC's Proposed Plan includes limiting the use of the Site to non-residential purposes through an Environmental Covenant, abandonment of the existing domestic well and prohibiting the use of groundwater for drinking water purposes until EPA's cleanup goals are met.

DNREC recommends the following remedial actions for the Site:

1. Placing an Environmental Covenant (EC), consistent with the Uniform Environmental Covenants Act (UECA), on the property limiting its use only to non-residential purposes, prohibiting land-disturbing activities without prior written approval from DNREC, and requiring compliance with a DNREC-approved Contaminated Materials Management Plan (CMMP).
2. Abandonment of the existing domestic well on the Site in accordance with all applicable regulations.

**What are the long term plans for the Site after the cleanup?** The proposed future use of the property includes a commercial / retail shopping center that will be slab-on-grade construction with an asphalt-paved parking area proposed for the western and eastern portions of the property. Preventing the use of groundwater for drinking water purposes until EPA's cleanup goals are met and preserving the commercial use only provision are Long-Term Stewardship requirements for the site. The collection, treatment, and monitoring of TCE-contaminated groundwater will be conducted by the PRPs in accordance with the US EPA's Record of Decision until the cleanup goals for the groundwater at the Site have been achieved.

DNREC plans to issue a Certificate of Completion of Remedy (COCR) for the Site after the completion of clean-up, the redevelopment of the property, and the implementation of the Uniform Environmental Covenant at the Site.

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

The complete file on the site, including the Brownfields Investigation Report, 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 Sunday, January 4, 2009 and ends at close of business (4:30 pm) on Monday, January 26, 2009. Please send written comments to the DNREC office or call Mr. Robert C. Asreen, Jr., Project Manager, at 302-395-2600.

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**Attachments**

- Figure 1: Site Location Map
- Figure 2: Sample Location Sketch
- Figure 3: Site Redevelopment Sketch





**Glossary of Terms  
Used in this Proposed Plan**

<b>Brownfield</b>	Property that is vacant or underutilized because of the perception or presence of an environmental problem.
<b>Certified Brownfield</b>	A brownfield that DNREC has determined is eligible for partial funding through the Delaware Brownfields Program.
<b>Contaminant of Concern (COC)</b>	These are potentially harmful substances at concentrations above acceptable levels (e.g. metals and PAH).
<b>Certificate of Completion of Remedy (COCR)</b>	A formal determination by the Secretary of DNREC that remedial activities required by the Final Plan of Remedial Action have been completed.
<b>*Exposure</b>	Contact with a substance through inhalation, ingestion, or direct contact with the skin. Exposure may be short term (acute) or long term (chronic).
<b>Final Plan of Remedial Action</b>	DNREC's proposal for cleaning up a hazardous site after it has been reviewed by the public and finalized.
<b>Hazardous Substance Cleanup Act (HSCA)</b>	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.
<b>Human Health Risk Assessment (HHRA)</b>	An assessment done to characterize the potential human health risk associated with exposure* to site related chemicals.
<b>Proposed Plan of Remedial Action</b>	A plan for cleaning up a hazardous site submitted by DNREC and subject to public comments.
<b>Risk</b>	Likelihood or probability of injury, disease, or death.
<b>Risk Assessment Guidance for Superfund (RAGS)</b>	An EPA guidance document for superfund sites
<b>Site Specific Assessment (SSA) and Site Inspection (SI)</b>	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>.

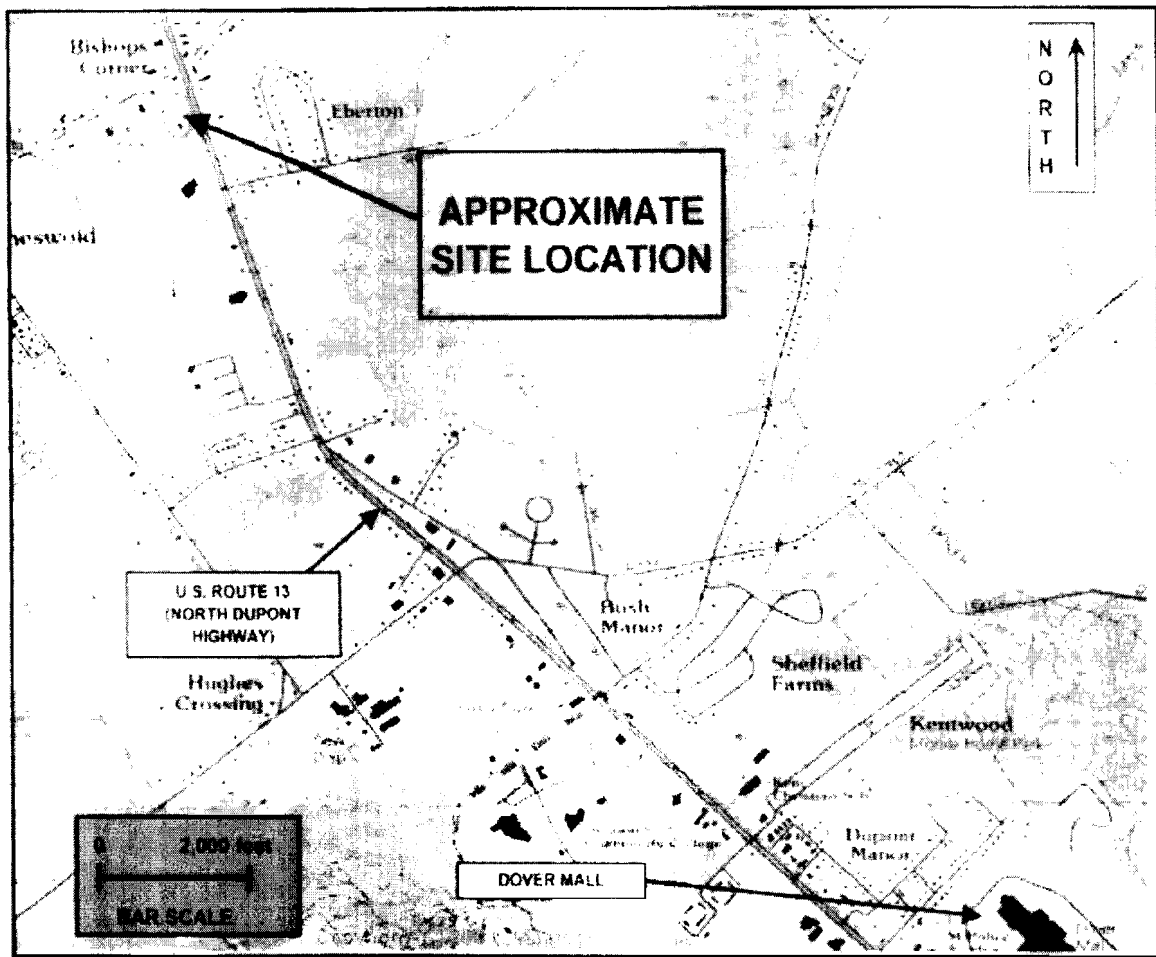
DNREC issues the Proposed Plan by advertising it in at least one newspaper in the county where the site is located. The legal notices for the Proposed Plans and the Final Plans usually run on Wednesdays or Sundays in the legal classified section of the News Journal and/or the Delaware State News. The 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.

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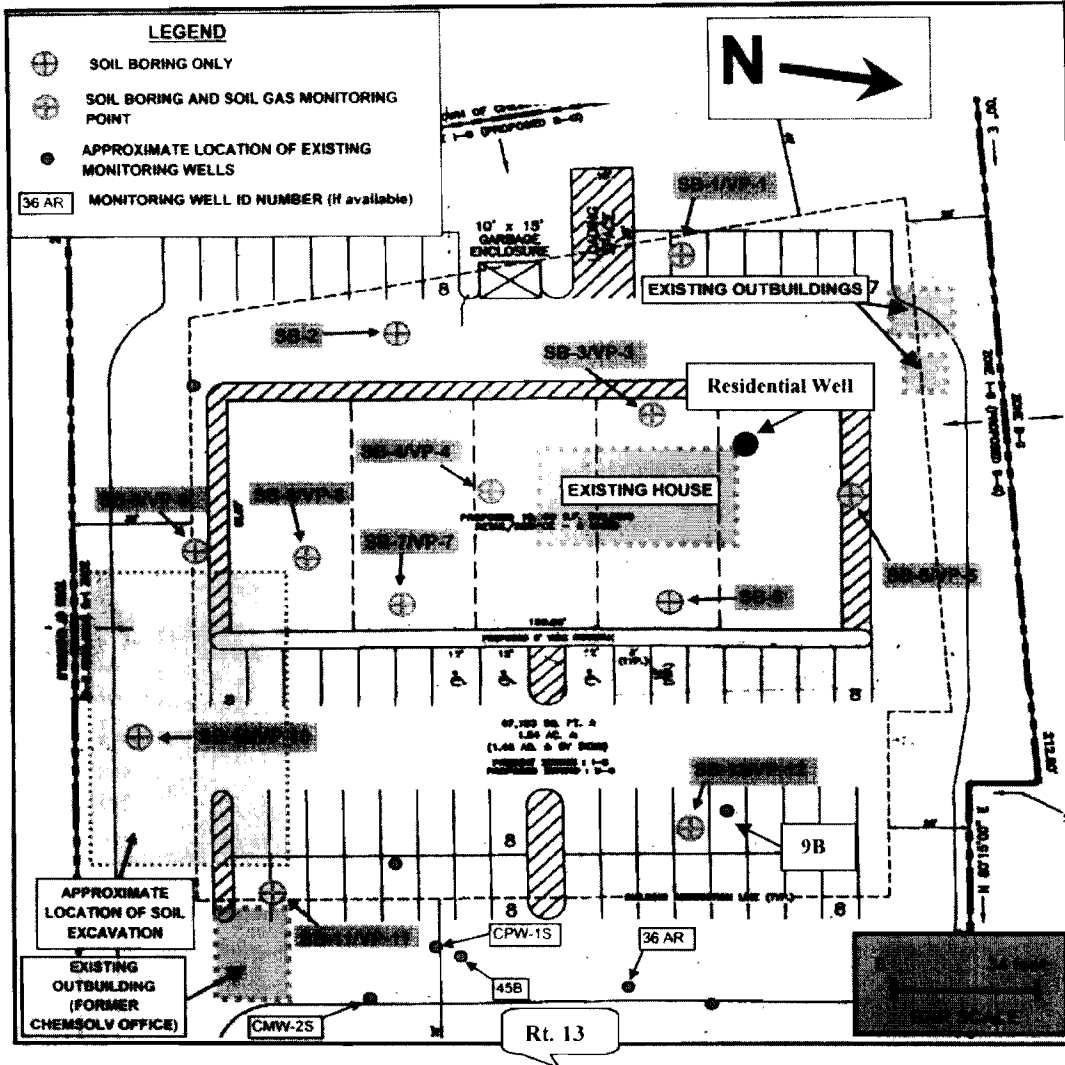




This location sketch was adapted from the Maptech USGS Topographic Series, Edition 1 0 for Delaware (2001)

**FIGURE 1 - SITE LOCATION SKETCH**  
**CHEMSOLV REDEVELOPMENT SITE**  
 CHESWOLD  
 KENT COUNTY, DELAWARE





This Figure is based on an April 2005 Earl D. Smith, Inc. drawing "Office Sketch/Rezoning Request Lands of Irvin F. Simon & Harriett I. Simon, Little Creek Hundred, Kent County, Delaware."

**Ten Bears Environmental**

Ten Bears Environmental, L.L.C.  
 1080 S. Chapel St., P.O. Box 9711  
 Newark, Delaware 19714-9711  
 Phone: (302) 731-8633 Fax: (302) 731-8655

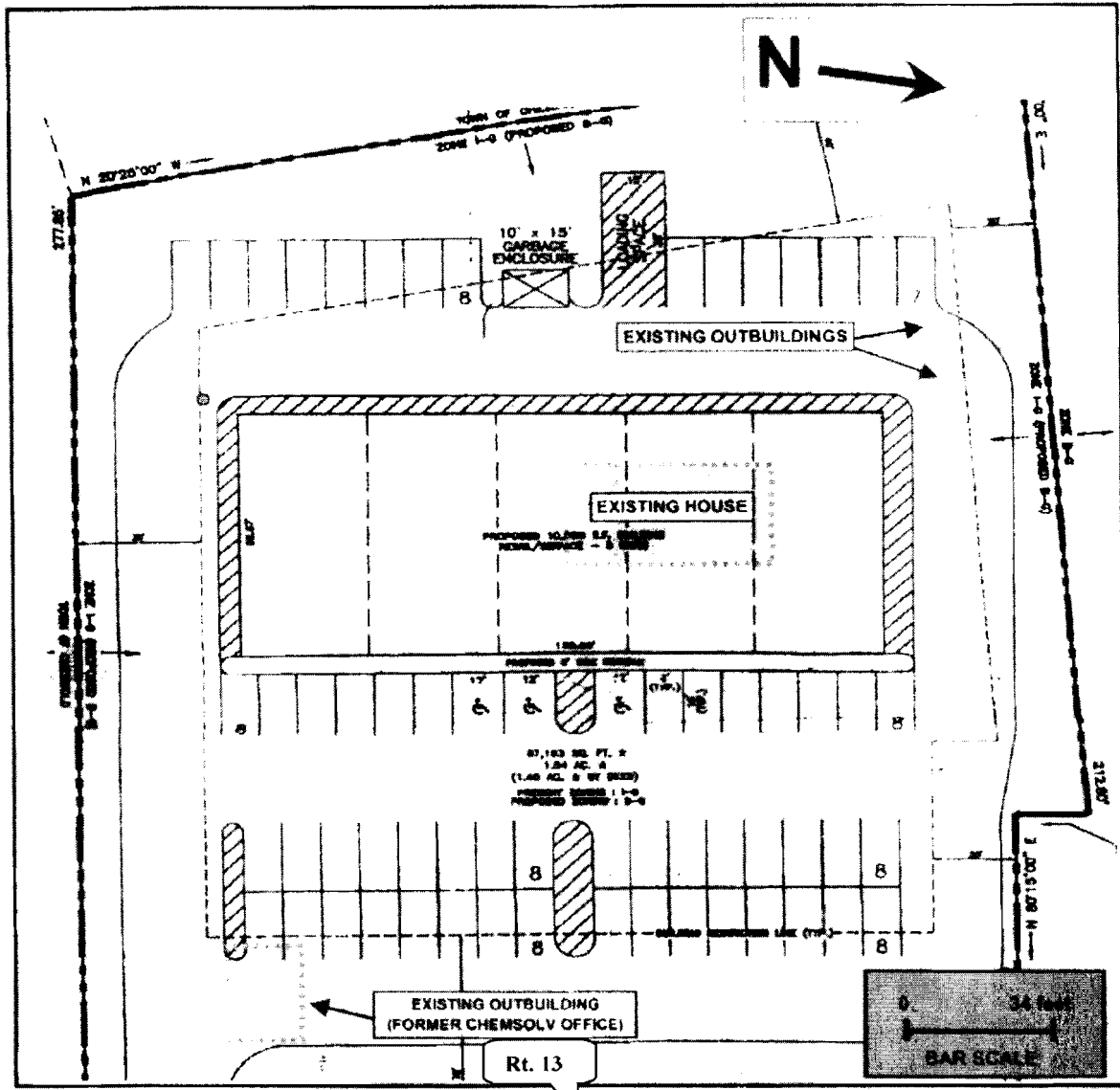
**FIGURE 2 - SOIL BORING/SOIL GAS LOCATION SKETCH AND PREVIOUS/EXISTING/FUTURE SITE FEATURES SKETCH**

FORMER CHEMSOLV NPL SITE  
 CHESWOLD, KENT COUNTY, DELAWARE

DATE: 2/15/2008	JOB NUMBER: 06-534.A
DRAWN BY: RLH	SCALE: 1 inch = approximately 34 feet
CHECKED BY: JPG	FIGURE NO: 2
FILE NO: 06-534.A-Figs	SHEET 1 OF 1







This Figure is based on an April 2005 Earl D. Smith, Inc. drawing "Office Sketch/Rezoning Request Lands of Irvin F. Simon & Harriett I. Simon, Little Creek Hundred, Kent County, Delaware"

### FIGURE 3 - REDEVELOPMENT PLAN

CHEMSOLV REDEVELOPMENT SITE  
 CHESWOLD, KENT COUNTY, DELAWARE

