Department of Environmental Conservation

(2)

Division of Environmental Remediation

Record of Decision

Atlas Graphics Site
Town of North Hempstead, Nassau County
Site Number 1-30-043B
Operable Unit - 01
On-Site Soil and Groundwater

February 2000

New York State Department of Environmental Conservation
GEORGE E. PATAKI, *Governor* JOHN P. CAHILL, *Commissioner*

DECLARATION STATEMENT - RECORD OF DECISION

"Atlas Graphics" Inactive Hazardous Waste Disposal Site
Town of North Hempstead, Nassau County, New York
Site No. 1-30-043B
Operable Unit-O1: On-Site Soil and Groundwater

Statement of Purpose and Basis

The Record of Decision (ROD) presents the selected remedy for the Atlas Graphics Class 2 inactive hazardous waste disposal site which was chosen in accordance with the New York State Environmental Conservation Law. The remedial program selected is not inconsistent with the National Oil and Hazardous Substances Pollution Contingency Plan of March 8, 1990 (40CFR300).

This decision is based on the Administrative Record of the New York State Department of Environmental Conservation (NYSDEC) for the Atlas Graphics inactive hazardous waste disposal site and upon public input to the Proposed Remedial Action Plan (PRAP) presented by the NYSDEC. A listing of the documents included as a part of the Administrative Record is included in Appendix B of the ROD.

Assessment of the Site

Actual or threatened release of hazardous waste constituents from this site, if not addressed by implementing the response action selected in this ROD, presents a current or potential significant threat to public health and the environment.

Description of Selected Remedy

Based on the results of the Focused Remedial Investigation/Feasibility Study (RI/FS) for the Atlas Graphics site and the criteria identified for evaluation of alternatives, the NYSDEC has selected Air Sparging/Soil Vapor Extraction to remediate on-site soil and groundwater contamination. The components of the remedy are as follows:

- *A remedial design program to verify the components of the conceptual design and provide the details necessary for the construction, operation and maintenance, and monitoring of the remedial program. Any uncertainties identified during the RI/FS will be resolved,*

- *Installation of injection wells to introduce air into the groundwater and unsaturated soil promoting volatilization of the volatile organic compounds,*

- *Installation of extraction wells to capture contaminants volatilized from the groundwater and unsaturated soil,*

- *Installation of activated carbon filters for treatment of volatilized contaminants prior to release to the atmosphere,*

- *Semiannual sampling of three (3) existing groundwater monitoring wells will be conducted to monitor the effectiveness of the system. The monitoring results will be reviewed annually to determine whether additional actions are necessary. This monitoring will also provide the data necessary to decide if the system reached its objectives and could be deactivated, and*

- *Implementation of institutional controls and the recording of deed restrictions to restrict the future use of groundwater at the site.*

- *Off-site (downgradient) groundwater contamination will be addressed as a part of the overall investigation of the groundwater contamination that is migrating from all Class 2 sites in the NCIA.*

New York State Department of Health Acceptance

The New York State Department of Health concurs with the remedy selected for this site as being protective of human health.

Declaration

The selected remedy is protective of human health and the environment, complies with State and Federal requirements that are legally applicable or relevant and appropriate to the remedial action to the extent practicable, and is cost effective. This remedy utilizes permanent solutions and alternative treatment or resource recovery technologies, to the maximum extent practicable, and satisfies the preference for remedies that reduce toxicity, mobility, or volume as a principal element.

2/29/00
Date

Michael J. O'Toole, Jr., Director
Division of Environmental Remediation

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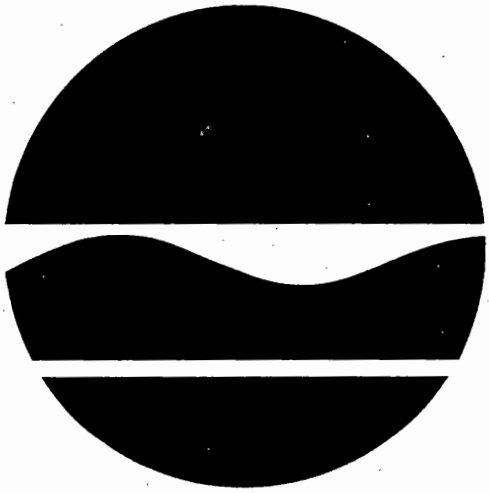


Division of Environmental Remediation
New York State Department of Environmental Conservation

RECORD OF DECISION

Atlas Graphics Site
Operable Unit - 01
On-Site Soil and Groundwater
N. Hempstead(T), Nassau County
Site No. 1-30-043B
February ~~1999~~ 2000

SECTION 1: SUMMARY AND PURPOSE OF THE RECORD OF DECISION

The New York State Department of Environmental Conservation (NYSDEC), in consultation with the New York State Department of Health (NYSDOH), has selected this remedy to address the significant threat to human health and/or the environment presented by the presence of hazardous waste at the Atlas Graphics class 2 hazardous waste disposal site. A Class 2 site is a site that has been determined to pose a significant threat to human health and/or the environment and action to remediate the site is required.

The Atlas Graphics site is located at 567 Main Street and was developed in 1950. The site building was used as a warehouse for construction materials until 1977. In 1977, the property was purchased by Atlas Graphics Inc., which currently operates a photo engraving manufacturing operation. This operation uses a reported 312 gallons per year of trichloroethylene (TCE). In 1977 there was a documented disposal of approximately 50 gallons of TCE to a cesspool located on the southwest corner of the building. Analysis of liquid samples from the Atlas Graphics cesspool performed by the Nassau County Department of Health (NCDH) in May 1978 showed 4,500 parts per billion (ppb) of TCE. In May of 1980, Atlas was directed to pump out the cesspool and have wastes removed by a licensed hazardous waste recycling contractor. Subsequent soil sampling shows that this work was carried out. Soil and groundwater samples were collected as part of the Remedial Investigation between January of 1997 and October of 1998. On-site soils were clean, with the exception of soils located in or near the abandoned cesspool. Groundwater on-site exibited high levels of TCE, especially in the area of the cesspool. Groundwater samples collected off-site show higher concentrations of TCE downgradient than upgradient. Photoengraving operations at the site have resulted in the on-site disposal of TCE, a hazardous waste, which has migrated from off-site and contributed to the groundwater contamination in the New Cassel Industrial Area (NCIA). These disposal activities have resulted in the following significant threats to the public health and the environment:

- a significant threat to human health and the environment associated with this site's contravention of groundwater standards in a sole source aquifer.

- a significant threat to human health and the environment associated with this site's contravention of soil cleanup objectives in soils overlying a sole source aquifer

The contaminated groundwater at the Atlas Graphics site, as well as in the entire NCIA, presents a potential route of exposure to humans. The area is served by public water, however, the underlying aquifer is the source of the water supply for the Bowling Green Water District customers. A supplemental treatment system, air stripping followed by carbon polishing, was constructed in 1996 to mitigate the impact of the groundwater contamination on the Bowling Green public water supply wells. The Bowling Green water supply wells are routinely monitored for purity and quality. Presently, no site specific contaminants exceeding drinking water standards have been detected in water distributed to the public. Guard wells have been installed south of Old Country Road, in locations downgradient of the NCIA hazardous waste disposal sites and upgradient of the water supply wells as a precautionary measure. Therefore, use of the groundwater in the area is not currently considered to be an exposure pathway of concern.

The Department has been using a three-prong strategy in remediating Class 2 sites in the New Cassel Industrial Area (NCIA). The first action identifies source areas of contamination at each site which will be remediated; the second action fully investigates groundwater contamination at and beneath each site and takes appropriate remedial measures; and the third action is the ongoing effort by the Department which includes a detailed investigation of groundwater contamination that is migrating from all Class 2 sites in the New Cassel Industrial Area. Upon completion of this groundwater investigation, a proper remedy will be proposed to the public. After public review, a final groundwater remedy will be selected.

The site has been investigated to locate source areas of contamination. The Selected Remedy addresses the removal of these on-site sources of contamination and on-site groundwater contamination. In order to restore the Atlas Graphics inactive hazardous waste disposal site to predisposal conditions to the extent feasible and authorized by law, but at a minimum to eliminate or mitigate the significant threats to the public health and/or the environment that the hazardous waste disposed at the site has caused, the following remedy is selected:

- *An air sparging/soil vapor extraction system (AS/SVE) to address volatile organic contamination (VOC) in the on-site soils and groundwater. A detailed description of the remedy is found in section 8.*

In order to assure that the chosen remedy is effective in improving groundwater quality, on-site groundwater will be monitored for a period of at least two years. The monitoring results will be reviewed annually to determine whether additional actions are necessary. This monitoring will

also provide the data necessary to decide if the system reached its objectives and could be deactivated.

The selected remedy, discussed in detail in Section 8 of this document, is intended to attain the remediation goals selected for the site in Section 6 of this document, in conformity with applicable standards, criteria, and guidance (SCGs).

SECTION 2: SITE LOCATION AND DESCRIPTION

The Atlas Graphics site is located in the Town of North Hempstead, Nassau County, and is Site # 1-30-043B in the New York State Registry of Inactive Hazardous Waste Disposal Sites (the Registry). The site is approximately one acre in size, contains one building and is located at 567 Main Street, at the corner of Main and Swalm Streets in the NCIA. The NCIA is an urban and industrial area with level topography and is bounded to the north by a residential area and to the south by commercial and institutional establishments located along Old Country Road. There are currently thirteen Class 2 sites within the NCIA. Figure 1 shows the location of the New Cassel Industrial Area, Figure 2 shows the location of the site within the NCIA, Figure 2a shows the locations of all class 2 sites within the NCIA, and Figure 3 is a site map which shows soil sampling locations.

SECTION 3: SITE HISTORY

3.1: Operational/Disposal History

The building at 567 Main Street was built in 1950, and used as a warehouse for construction vehicles until 1977. In 1977, the property was purchased by Atlas Graphics Inc. which currently operates a photo engraving manufacturing operation. This operation uses a reported 312 gallons per year of TCE. At the time of its purchase, the building was connected to a cesspool for its sanitary waste disposal. In 1977, there was a documented discharge of approximately 50 gallons of TCE to the cesspool. In 1978, the cesspool collapsed. As a result of this, the building was connected to the Nassau County Sewer System in November of 1980, and the cesspool was abandoned.

3.2: Remedial History

Analysis of the Atlas Graphics cesspool carried out by the NCDH in May of 1978 showed 4,500 parts per billion (ppb) of TCE. Atlas Graphics was advised to pump out the cesspool and have future wastes removed by a licensed hazardous waste recycler. Subsequent sampling and analysis indicates that this was done.

In 1988, the entire NCIA, including this site, was listed in the Registry as a Class 2 site due to the presence of high levels of volatile organic compounds (VOCs) in the groundwater. The Class 2

classification indicates that the site poses a significant threat to the public health and/or the environment and action to remediate the site is required.

In February of 1995, a Site Investigation Report for the New Cassel Industrial Area was completed by Lawler, Matusky and Skelly Engineers under the New York State Superfund program. Based on this report, in March 1995 the entire NCIA was removed from the Registry and seven individual properties, including Atlas Graphics, were listed as Class 2 sites in the Registry. This Site Investigation Report is available for review at the document repositories.

SECTION 4: SITE CONTAMINATION

To evaluate the contamination present at the site and to evaluate alternatives to address the significant threat to human health and the environment posed by the presence of hazardous waste, the NYSDEC has recently conducted a RI/FS using State Superfund monies.

4.1: Summary of the Remedial Investigation

The purpose of the RI was to define the nature and extent of any contamination resulting from previous activities at the site. The RI was conducted in three phases. The first phase was conducted between January 1997 and April 1997, the second phase between September 1997 and December 1997, and the third phase was conducted between July 1998 and March 1999. A report entitled Atlas Graphics Immediate Investigation Work Assignment, dated March 1999, has been prepared which describes the field activities and findings of the RI in detail.

The RI included the following activities:

- *Installation of geoprobe soil borings for analysis of soils and groundwater as well as physical properties of soil and hydrogeologic conditions.*
- *Downgradient sampling of groundwater by hydropunch to ascertain whether VOC contamination has migrated off-site.*
- *Sampling of groundwater monitoring wells located in the vicinity of the site to determine upgradient and downgradient concentrations of VOCs.*
- *Removal of the cesspool cover, followed by geoprobe sampling of soils in and around the cesspool for VOC contamination.*

To determine which media (soil, groundwater, etc.) contain contamination at levels of concern, the RI analytical data was compared to environmental Standards, Criteria, and Guidance values (SCGs). Groundwater, drinking water and surface water SCGs identified for the Atlas Graphics site are based on NYSDEC Ambient Water Quality Standards and Guidance Values and Part 5 of NYSDOH Sanitary Code. For soils, NYSDEC Technical and Administrative Guidance

Memorandum (TAGM) 4046 provides soil cleanup objectives for the protection of groundwater, background conditions, and health-based exposure scenarios. Guidance values for evaluating contamination in sediments are provided by the NYSDEC "Technical Guidance for Screening Contaminated Sediments".

Based on the RI results, in comparison to the SCGs and potential public health and environmental exposure routes, the soil and groundwater at the site require remediation. These results are summarized below. More complete information can be found in the RI Report.

Chemical concentrations are reported in parts per billion (ppb), or parts per million (ppm). For comparison purposes, where applicable, SCGs are provided for each medium.

4.1.1 Site Geology and Hydrogeology

The Upper Pleistocene deposits of poorly sorted sands and gravel that make up the Upper Glacial Aquifer (UGA) are found from the surface to a depth of approximately 80 ft bgs. The UGA is an unconfined aquifer consisting of poorly sorted sands and gravels. The Magothy consists of finer sands, silt and small amounts of clay.

At the site there are no other hydrogiologic units located between the UGA and the underlying Magothy formation. In general, the upper surface of the Magothy formation is found at least 100 ft bgs. However, based on observations during installation of wells for this investigation, the Magothy is found at significantly shallower depths (60-80 ft bgs) in the NCIA than in many other areas of Long Island. The UGA and the Magothy are in direct hydraulic connection; however, clay lenses are often found in the upper Magothy in this area. Depth of water is about 52 ft bgs in the area of the site and groundwater flows in a southwesterly diretion. Both the UGA and Magothy have been designated as sole-source aquifers and are protected under state and federal legislation.

4.1.2 Nature of Contamination:

As described in the RI Report, many soil and groundwater samples were collected at the site to characterize the nature and extent of contamination. The main categories of contaminants which exceed their SCGs are volatile organic compounds (VOCs).

The VOCs of concern are: trichloroethylene (TCE); tetrachloroethylene (PCE); acetone; benzene; 1,1dichloroethylene (1,1DCE); 1,1 dichloroethane (1,1 DCA); 1,1,1trichloroethane (1,1,1 TCA) and toluene.

4.1.3 Extent of Contamination

Tables 1 and 2 summarize the extent of contamination for the contaminants of concern in soils and groundwater and compares the data with the SCGs for the site. The following are the media which were investigated and a summary of the findings of the investigation:

Soils

During the RI, subsurface soil samples were collected on-site at a total of eight locations. These investigations were conducted using a geoprobe, a vehicle mounted probe unit, capable of advancing a small diameter sampling device to depths of approximately 90 feet below ground surface (bgs) to collect either soil or groundwater samples. Four of the locations (AGCP 1, AGCP2, AGCP3 and AG5) were concentrated in or near the abandoned cesspool on the southwest corner of the property, while the remainder (AG1, AG2, AG3 and AG4) were distributed around the building's perimeter. Sampling locations are shown in Figure 3. Soil samples at each location were taken at four foot intervals from the ground surface to the water table or until refusal in geoprobe borings AG1 through AG5, and at four foot intervals from four to twenty feet in the borings located in the cesspool (AGCP01 through AGCP03). Geoprobe sampling locations with data summaries are shown in Figure 4. At AGCP-02 the concentration of TCE exceeded the recommended cleanup objective in the 8-12 ft soil probe sample with a concentration of 2.3 ppm. The recommended soil cleanup objective for TCE is 0.7 ppm. At AGCP-03 the concentration of TCE exceeded the recommended cleanup objective in the 12-16 foot soil probe sample with a concentration of 7.6 ppm. At this location and depth the concentration of toluene also exceeded the recommended cleanup objective of 1.5 ppm with a concentration of 4.9 ppm. Concentrations in all other soil probe samples were below the recommended soil cleanup objectives. For a summary of analytical results see Table 1.

Groundwater

Groundwater at the Atlas Graphics site flows in a south-southwesterly direction, as determined by numerous studies carried out in the area. The water table is found at approximately 55 feet.

During the RI, groundwater samples were collected from three geoprobe locations (AG-1, AG-3, and AG-5). The results of the sample taken at 56-60 feet at AG-1 (located near the northeast (upgradient) boundary of the site) indicated concentrations of VOCs in excess of NYSDEC class GA groundwater standards. TCE was detected at 47 ppb. At AG-3 VOC concentrations exceeded state groundwater standards (see Table 2) at all three depths sampled (56-60, 66-70 and 76-80 ft), with TCE being the primary compound detected, at a maximum concentration of 310 ppb. PCE was also detected at AG-3. At AG-5 VOC concentrations in excess of groundwater standards were found at all three sampled depths (56-60, 66-70 and 76-80 ft). The highest concentrations were found at 76-80ft, with a total of 4,819 ppb of total VOCs, including 3,900 ppb of TCE. PCE, toluene, 1,1,1 TCE and acetone were also detected at AG-5. See Figure 3 for sampling locations and Table 2 for sampling results. The presence of high levels of TCE in the vicinity of the former

cesspool suggests that the past disposal of TCE into the cesspool has affected the groundwater quality in this area.

Two locations were sampled by hydropunch (see Figure 3). Hydropunch enables sampling of groundwater to depths of approximately 250 feet, and is less sensitive to adverse probing conditions (such as the presence of dense clay layers) than geoprobe. HP-01 showed VOC concentrations in excess of NYSDEC Class GA groundwater standards for PCE and TCE at 60 and 70 feet bgs. The primary contaminants are PCE and TCE, with the total VOC concentration being 53 ppb. No VOCs were detected at 80 feet. The results of sampling at HP-05 indicate concentrations of VOCs in excess of NYSDEC class GA groundwater standards at 60, 70 and 80 feet bgs. The concentrations are greatest at 80 feet bgs, with 1,708 ppb of total VOC contamination including 1,400 ppb of TCE. This location is downgradient of the former cesspool at the Atlas Graphics site. This sampling location is also located immediately west of the IMC Magnetics site, another Class 2 site, at which VOC contamination is also present.

Four existing monitoring wells were sampled during the RI. The wells included NC-17, NC-2, NC-2D and NC-11843 (see Figure 3). The analytical results are shown in Table 2. N-11843 is located in the northwest corner of the site. It is in an upgradient position of the cesspool, and shows TCE (19 ppb) and PCE (20 ppb) in excess of NYSDEC Class GA groundwater standards. This well is 59 feet deep. Sampling results from NC-17 (64 feet deep) indicated TCE at 81 ppb. NC-2 and NC-2D are a well pair located downgradient of the site. Both the shallow well (NC-2, screened at approximately 55-65 feet) and the deep well (NC-2D, screened at approximately 150-160 feet) were sampled, with the greatest concentrations being found in NC-2 (290 ppb of TCE and 510 ppb of PCE). Groundwater contamination at the site is found primarily at shallow (less than 90 ft bgs) depth. The groundwater contamination at deeper depths will be addressed as part of the overall investigation of the groundwater contamination that is migrating from all Class 2 sites in the NCIA.

4.2 Summary of Human Exposure Pathways:

This section describes the types of human exposures that may present added health risks to persons at or around the site. An exposure pathway is how an individual may come into contact with a contaminant. The five elements of an exposure pathway are 1) the source of contamination; 2) the environmental media and transport mechanisms; 3) the point of exposure; 4) the route of exposure; and 5) the receptor population. These elements of an exposure pathway may be based on past, present, or future events.

Pathways which are known to or may exist at the site include:

- Ingestion of contaminated groundwater. Since an active supplemental treatment system is in place that prevents the completion of this exposure pathway, no known completed exposure pathways exist.

The contaminated groundwater at the Atlas Graphics site, as well as in the entire NCIA, presents a potential route of exposure to humans. The area is served by public water, and the underlying aquifer is the source of the water supply for the Bowling Green Water District customers. A supplemental treatment system, air stripping followed by carbon polishing, was constructed in 1996 to mitigate the impact of the groundwater contamination on the Bowling Green public water supply wells. Bowling Green water supply wells are routinely monitored for purity and quality. As of today, no site specific contaminants exceeding groundwater or drinking water standards were detected in water distributed to the public. Guard wells have been installed south of Old Country road, downgradient of the contaminated areas in the NCIA, and upgradient of the water supply wells as a precautionary measure. Therefore, use of the groundwater in the area is not currently considered to be an exposure pathway of concern.

4.3 Summary of Environmental Exposure Pathways:

This section summarizes the types of environmental exposures which may be presented by the site. Due to the density of commercial and industrial buildings in the NCIA, there are no significant sources of surface water in close proximity to the site. Virtually every open space in the industrial area has been covered by asphalt, concrete or buildings. Since the industrial area is highly developed, no wildlife habitat exists in or near the site. The nearest surface water sources are several small ponds in and around Eisenhower Memorial Park, approximately two miles southwest of the site across Old Country Road.

However, site-related contamination has entered the groundwater. The contaminated groundwater at the site, as well as in the entire NCIA, presents a potential route of exposure to the environment.

There are no known exposure pathways of concern between the contaminated groundwater and the environment. The potential for plants or animal species being exposed to site-related contaminants is highly unlikely.

SECTION 5: ENFORCEMENT STATUS

Potentially Responsible Parties (PRPs) are those who may be legally liable for contamination at a site. This may include past or present owners and operators, waste generators, and haulers.

The PRP for the site, documented to date, include:

- Atlas Graphics Inc.

The PRP declined to implement the RI/FS at the site when requested by the NYSDEC. After the remedy is selected, the PRP will again be contacted to assume responsibility for the remedial program. If an agreement cannot be reached with the PRP, the NYSDEC will evaluate the site for further action under the State Superfund. The PRP is subject to legal actions by the State for recovery of all response costs the State has incurred.

SECTION 6: SUMMARY OF THE REMEDIATION GOALS

Goals for the remedial program have been established through the remedy selection process stated in the State Superfund Program Regulations (6 NYCRR Part 375-1.10). The overall remedial goal is to meet all Standards, Criteria and Guidances (SCGs) and be protective of human health and the environment.

The Department has been using a three-prong strategy in remediating Class 2 sites in the NCIA. First, sources of soil contamination at these sites are removed or remediated; second, groundwater contamination at and beneath each site is fully investigated and appropriate remedial actions are taken; and third, the Department is currently conducting a detailed investigation of groundwater contamination that is migrating from all Class 2 sites in the New Cassel Industrial Area. Upon completion of this groundwater investigation, a proper remedy will be proposed to the public. After public review, a final groundwater remedy will be selected.

At a minimum, the remedy selected should eliminate or mitigate all significant threats to public health and/or the environment presented by the hazardous waste disposed at the site through the proper application of scientific and engineering principles.

The goals selected for this site are:

- *Elimination of, to the extent practicable, contamination in on-site groundwater which may eventually contribute to the contaminant plumes migrating from the NCIA*
- *Removal or treatment of contaminated soils which contribute to groundwater contamination*
- *Elimination of, to the extent practicable, ingestion of groundwater affected by the site that does not attain NYSDEC Class GA Ambient Water Quality Criteria*
- *Elimination of, to the extent practicable, off-site migration of groundwater that does not attain NYSDEC Class GA Ambient Water Quality Criteria.*

SECTION 7: SUMMARY OF THE EVALUATION OF ALTERNATIVES

Potential remedial alternatives for the Atlas Graphics site were identified, screened and evaluated in the report entitled Focused Feasibility Study for the Atlas Graphics Site dated July 1999.

A summary of the detailed analysis follows. As presented below, the time to construct does not include the time required to design the remedy, procure contracts for design and construction or to negotiate with responsible parties for implementation of the remedy. The time to implement is the expected time for the alternative to reach remedial objectives.

7.1: Description of Alternatives

The potential remedies are intended to address the contaminated soils and groundwater at the site. Groundwater contamination at shallow depth (less than 90 ft bgs) is predominant at the site, however, low levels of VOC contamination may be found at depths greater than 90 ft bgs. Downgradient groundwater contamination and deep groundwater contamination will be addressed as a part of the overall investigation of groundwater contamination that is migrating from all Class 2 sites in the NCIA.

Alternative #1: No Action

Present Worth:	*$ 50,000*
Capitol Cost:	*$ 0*
Annual O&M years 1-2	*$3,000*
Annual O&M years 3-30	*$2,300*
Time to construct	*none*
Time to implement	*30 years*

The no action alternative is evaluated as a procedural requirement and as a basis for comparison. It requires continued monitoring only, allowing the site to remain in an unremediated state. This alternative would leave the site in its present condition and would not provide any additional protection to human health or the environment. The site would remain as a Class 2 site.

Groundwater use restrictions would be implemented to prevent development of the underlying groundwater as a potable or process water source without the necessary water quality treatments. Semi-annual sampling of three existing groundwater monitoring wells would be carried out for the first two years, and annual sampling conducted for the subsequent 28 years. The monitoring program would be extended or discontinued based on new data received during this period.

Alternative #2 Excavation and Off-site Disposal of Contaminated Soil

Present Worth:	*$ 54,000*
Capital Cost:	*$ 23,000*
Annual O&M	*$ 2,300*
Time to Construct	*6 months*
Time to Implement	*10 years*

This alternative would require the excavation and disposal of approximately 67 cubic yards of material in the area of the abandoned cesspool. The depth of the excavation, coupled with the proximity to the building, would make shoring and bracing essential, since sloping the excavation would not be viable. Hand excavation to a depth of 4 feet would be required to avoid (unknown) utilities. Conventional excavation equipment would be employed below 4 feet. This alternative only directly addresses soil contamination. After the removal of the source of the contamination

it is expected that it would take a minimum of ten years to achieve the remedial objectives for on-site groundwater. This is based on the fact that in the time since the initial cleanup of the cesspool and connection to the public sewer (1982) groundwater contamination at the site has remained high despite the moderate levels of remaining soil contamination found in the RI. Contamination which has already reached the groundwater and is currently migrating south of the NCIA would not be addressed, however. Annual sampling of three existing groundwater monitoring wells would be conducted for ten years. The monitoring program would be extended or discontinued based on new data received during this period.

Alternative #3 Air Sparging/Soil Vapor Extraction for on-site soil and groundwater

Present Worth:	*$ 440,000*
Capital Cost:	*$ 270,000*
Annual O&M (years 1-3):	*$ 75,000*
Annual O&M (years 4 and 5)	*$ 5,000*
Time to Construct	*6 months*
Time to Implement	*3 years*

Air Sparging/Soil Vapor Extraction (AS/SVE) is a demonstrated in-situ physical/chemical treatment for remediating contaminated soil and groundwater. The AS/SVE system would require the installation of injection/extraction wells to effectively volatilize and capture contaminants in the soil and groundwater. Captured VOCs would be treated by activated carbon filters. Long-term groundwater monitoring would also be included as part of this alternative.

The air sparging component would consist of two wells installed in the upper fifty feet of the aquifer, to about 105 ft bgs. These wells would inject compressed air via air blowers or compressors into contaminated groundwater at controlled pressures and volumes to increase groundwater/air contact. The air channels would promote the volatilization of dissolved VOCs and adsorbed phase contamination. The volatilized contaminants would then travel from the saturated zone into the unsaturated soils. The injection well would be installed to ensure the entire area of concern would be effectively aerated. The number of injection wells may be reduced to one if the remedial design and pilot test demonstrate that adequate areal coverage will be provided.

The vapor-phase contaminants would be collected with the use of a vacuum pump/extraction wells. These wells would collect all vapor-phase contaminants and transport them to the surface. All vapors would be treated with a granular activated carbon filter before discharge to the atmosphere.

Pilot testing and field measurements would be necessary to determine the exact number of AS/SVE wells necessary to effectively remediate the area of concern. For costing purposes it was assumed that one air sparge and two soil vapor extraction points would be required. These points would be located on the southwest corner of the Atlas Graphics property near the abandoned cesspool.

This system would be expected to stay in operation for three years. To confirm the AS/SVE system is achieving remedial objectives, groundwater quality would be monitored at three monitoring wells semiannually for a period of five years. The monitoring program would be extended or discontinued based on new data received during this period.

Alternative #4 In Well Vapor Stripping/Vapor Treatment for on-site groundwater

Present Worth:	*$ 630,000*
Capitol Cost	*$ 460,000*
Annual O&M (years 1-4)	*$62,000*
Annual O$M (year 5)	*$5,000*
Time to Construct	*6 months*
Time to Implement	*4 years*

Under this alternative, the shallow groundwater contaminant plume would be treated in-situ using a series of groundwater circulation wells (or in-well stripping) to capture and re-circulate groundwater within the aquifer. The groundwater circulation well system creates in-situ vertical groundwater circulation cells by drawing groundwater from the aquifer formation through one screen section of a double-screened well and discharging it through a second screen section. While groundwater circulates in and out of the stripping cell, no groundwater is removed from the ground. Air is injected into the well through a gas injection line and diffuser, releasing bubbles into the contaminated groundwater. These bubbles aerate the water and form a type of air-lift pumping system (due to an imparted density gradient) that causes groundwater to flow upward in the well. As the bubbles rise, VOC contamination in the groundwater is transferred from the dissolved state to the vapor state through an air stripping process.

The air/water mixture rises in the well until it encounters the dividing device within the inner casing. The divider is designed to maximize volatilization. The air/water mixture flows from the inner casing to the outer casing through the upper screen. A vacuum is applied to the outer casing, and contaminated vapors are drawn upward through the annular space between the two casings. The partially treated groundwater re-enters the subsurface through the upper screen and infiltrates back to the aquifer and the zone of contamination where it is eventually cycled back into the well. This pattern of groundwater movement forms a circulation cell in the subsurface around the well that allows groundwater to undergo sequential treatment cycles until remedial objectives are met.

Off gas from the stripping system would be collected and treated using granular activated carbon filters.

Aquifer pump testing and field measurements would be necessary to determine the exact number of In Well Vapor Stripping wells necessary to effectively remediate the areas of concern. For costing purposes it was assumed that two (2) groundwater circulation/stripping wells would be required. These points would be located near the southwest corner of the Atlas Graphics property.

This system would remain in operation approximately four years. To ensure the system is achieving remedial objectives, groundwater quality would be monitored at three (3) existing wells semiannually for a period of five years. The monitoring program would be extended or discontinued based on new data received during this period.

Alternative #5: Extraction/Air Stripping/Re-Injection of on-site groundwater

Present Worth:	*$ 1,127,000*
Capitol Cost:	*$ 732,000*
Annual O&M (years 1-4)	*$ 100,000*
Annual O&M (year 5)	*$2,000*
Time to construct	*6 months*
Time to implement	*4 years*

The groundwater extraction system would draw contaminated shallow groundwater from the pumping well's cone of depression. The recovery flow rate is increased until the cone of depression is sufficient to cover the lateral dimensions of the contaminated area. The recovery wells would be located on the south-west (downgradient) portion of the property, in the vicinity of the abandoned cesspool.

The pumped groundwater would be collected at the surface for treatment. First it would enter a flow equalization tank, then a pH adjustment tank. The pH would be raised to about 9, and a coagulant would be added into the reaction tank to help flocculate and precipitate soluble inorganic constituents. Then, after passing through a mixer, the groundwater would enter a settling tank where an iron/manganese sludge would settle to the bottom of the tank. The groundwater then passes through a media filter to remove dissolved solids. An acidic compound would be added to lower the pH to 6 or 7 before the water is fed into a low profile tray air stripper. The low profile stripper would be selected over a stripping tower because the surrounding buildings are typically one story tall.

The vapor phase emitted from the air stripper would be collected and treated with granular activated carbon prior to discharge to the atmosphere.

The liquid effluent leaving the air stripper would be passed through a filter to remove any remaining solids before being discharged to the on-site infiltration gallery. The infiltration gallery would consist of four injection wells.

Aquifer pump testing and field measurements would be necessary to determine the exact number and placement of extraction wells necessary to effectively remediate the areas of concern. For costing purposes it was assumed that two (2) extraction wells would be required.

This system would remain in operation for approximately four years. To ensure the system is achieving remedial objectives, groundwater quality would be monitored at three (3) existing wells

semiannually for a period of five years. The monitoring program would be extended or discontinued based on new data received during this five year period.

7.2 Evaluation of Remedial Alternatives

The criteria used to compare the potential remedial alternatives are defined in the regulation that directs the remediation of inactive hazardous waste sites in New York State (6 NYCRR Part 375). For each of the criteria, a brief description is provided, followed by an evaluation of the alternatives against that criterion. A detailed discussion of the evaluation criteria and comparative analysis is included in the Feasibility Study.

1. Compliance with New York State Standards, Criteria, and Guidance (SCGs). Compliance with SCGs addresses whether or not a remedy will meet applicable environmental laws, regulations, standards, and guidance.

The data for the site shows that SCGs are exceeded for VOCs in on-site soils and groundwater. The remedy selected for this site must remediate the groundwater to Class GA standards, and soils to the cleanup objectives in TAGM #4046-Determination of Soil Cleanup Objectives and Cleanup Levels.

Since no remedial actions are included in Alternative 1, SCGs would not be met and concentrations of soils and groundwater contaminants would remain at unacceptable levels. Alternative 2 would address soil contamination at the site, but not groundwater. Alternative 3 would address both soil and groundwater contamination, whereas Alternatives 4 and 5 would primarily address groundwater contamination. Overall achievement of SCGs could be obtained by Alternative 3, or by combining Alternative 2 with Alternative 4 or 5.

2. Protection of Human Health and the Environment. This criterion is an overall evaluation of each alternative's ability to protect public health and the environment.

Alternative 1 offers the least protection to human health and the environment because no active remediation would be undertaken. Alternative 2 would offer some protection because soil contamination would be removed. Alternative 3 would offer the best overall protection, whereas Alternatives 4 and 5 would protect the environment by remediating groundwater contamination only.
Alternative 2, in combination with Alternative 4 or 5, would offer sufficient overall protection.

3. Short-term Effectiveness. The potential short-term adverse impacts of the remedial action upon the community, the workers, and the environment during the construction and/or implementation are evaluated. The length of time needed to achieve the remedial objectives is also estimated and compared against the other alternatives.

Alternative 1 offers no short term effectiveness. Alternative 2 offers good short term effectiveness for contaminated soils, but no short term effectiveness for groundwater contamination. Additionally, Alternative 2 may expose on-site workers and the general public to fugitive dust during the excavation process. Alternative three offers good short term effectiveness in that the majority of the contamination would be removed during the early stages of the operation. Alternatives 4 and 5 offer good short term effectiveness for groundwater contamination only.

4. Long-term Effectiveness and Permanence. This criterion evaluates the long-term effectiveness of the remedial alternatives after implementation. If wastes or treated residuals remain on site after the selected remedy has been implemented, the following items are evaluated: 1) the magnitude of the remaining risks, 2) the adequacy of the controls intended to limit the risk, and 3) the reliability of these controls.

Alternative 1 offers little long term effectiveness. VOCs would be bio-degraded over time, however this may increase the levels of the breakdown compounds in the soil and groundwater. Alternative 2 offers good long-term effectiveness for soil contamination in the excavated area, but would not have any effect on groundwater contamination. Alternative 3 offers good long term effectiveness for both soils and groundwater contamination. Alternatives 4 and 5 offer good long term effectiveness for groundwater contamination, but will have little effect on soil contamination.

5. Reduction of Toxicity, Mobility or Volume. Preference is given to alternatives that permanently and significantly reduce the toxicity, mobility or volume of the wastes at the site.

Alternative 1 offers no reduction in toxicity, mobility or volume. Alternative 2 offers a reduction in toxicity, mobiliy and volume of soils contamination. Alternative 3 would reduce toxicity, mobility and volume of both soils and groundwater contamination. Alternatives 4 and 5 reduce toxicity and mobility of groundwater contamination.

6. Implementability. The technical and administrative feasibility of implementing each alternative are evaluated. Technical feasibility includes the difficulties associated with the construction and the ability to monitor the effectiveness of the remedy. For administrative feasibility, the availability of the necessary personnel and material is evaluated along with potential difficulties in obtaining specific operating approvals, access for construction, etc..

Alternative 1 requires no implementation. Due to the proximity of the site building to the area to be excavated, Alternative 2 would require special precautions during the excavation process. Alternatives 3 and 5 are readily implementable with only minor property access issues that would need to be addressed. Alternative 4, in-well vapor stripping, requires the use of one of a small number of vendors with specialized experience. This may result in Alternative 4 being more difficult to implement than the other alternatives.

7. Cost. Capital and operation and maintenance costs are estimated for each alternative and compared on a present worth basis. Although cost is the last balancing criterion evaluated, where

two or more alternatives have met the requirements of the remaining criteria, cost effectiveness can be used as the basis for the final decision. The costs for each alternative are presented in Table 3.

The estimated present worth costs range from $50,000 (Alternative 1) to $1,127,000 (Alternative 5). Alternatives 2, 3 and 4 have estimated present worth costs of $54,000, $440,000 and $630,000 respectively.

8. Community Acceptance - Concerns of the community regarding the RI/FS reports and the PRAP have been evaluated. The "Responsiveness Summary" included in Appendix A presents the public comments received and the Department's response to the concerns raised.

SECTION 8: SUMMARY OF THE SELECTED REMEDY

The Department has been using a three-prong strategy in remediating Class 2 sites in the NCIA. First, sources of contamination at these sites are removed or remediated; second, groundwater contamination at and beneath each site is fully investigated and appropriate remedial actions are taken; and third, the Department is currently conducting a detailed investigation of groundwater contamination that is migrating from all Class 2 sites in the New Cassel Industrial Area. Upon completion of this groundwater investigation, a proper remedy will be proposed to the public. After public review, a final groundwater remedy will be selected.

In accordance with this strategy the Department has selected, based on the results of the RI and the FS and the evaluation presented in section 7, to remediate the on- site soils and the on-site shallow groundwater contamination at the site using Alternative 3: Air Sparging/Soil Vapor Extraction. This alternative efficiently combines soil and on-site groundwater remediation, allowing the comprehensive remediation of the site in a timely fashion. Other alternatives or combinations of alternatives which offer timely remediation of both soils and groundwater are more complex, difficult to implement and more costly. Downgradient (off-site) and deeper (below 90 ft bgs) groundwater contamination will be addressed as a part of the overall investigation of the groundwater contamination that is migrating from all Class 2 sites in the NCIA.

This choice of remedial measure is based upon the evaluation of the five (5) alternatives developed for this site. Alternative 1 did not provide protection for human health or the environment. This is considered a threshold criteria, and therefore Alternative 1 was dropped from consideration. Alternative 2, excavation and off-site disposal, would be considered only in combination with Alternatives 4 (In Well Vapor Stripping/Vapor Treatment) or 5 (Groundwater Extraction/Air Stripping/Re-Injection) (and vice versa) because these alternatives did not independently provide adequate protection of human health and the environment. Alternative 5, when used in conjunction with Alternative 2, met the threshold criteria, but was less implementable and had a higher present worth cost than Alternative 3. Alternative 4, used in conjunction with Alternative 2, met the threshold criteria, but had a higher present worth cost and was judged less implementable overall than Alternative 3.

Alternative 3, Air Sparging/Soil Vapor Extraction, will be protective of human health and the environment, provides a permanent solution for on-site soils and groundwater contamination, provides both short term and long term effectiveness, and is the least costly of the alternatives that satisfy all the criteria. In addition, AS/SVE has been successfully operated at several similar sites. Semiannual sampling of three (3) existing groundwater monitoring wells will be conducted to monitor the effectiveness of the system. The monitoring results will be reviewed annually to determine whether additional actions are necessary. This monitoring will also provide the data necessary to decide if the system reached its objectives and could be deactivated.

The estimated present worth cost to complete the selected remedy is $440,000 which includes a capitol cost of $270,000. Annual Operation and Maintenance (O&M) costs for the first three years would be $75,000 and the cost for years 4 and 5 would be $5,000 per year.

The elements of the selected remedy are as follows:

- *A remedial design program to verify the components of the conceptual design and provide the details necessary for the construction, operation and maintenance, and monitoring of the remedial program. Any uncertainties identified during the RI/FS will be resolved,*

- *Installation of injection wells to introduce air into the groundwater and unsaturated soil promoting volatilization of the VOC contamination,*

- *Installation of extraction wells to capture contaminants volatilized from the groundwater and unsaturated soil,*

- *Installation of activated carbon filters for treatment of volatilized contaminants prior to release to the atmosphere,*

- *Semiannual sampling of three (3) existing groundwater monitoring wells will be conducted to monitor the effectiveness of the system. The monitoring results will be reviewed annually to determine whether additional actions are necessary. This monitoring will also provide the data necessary to decide if the system has reached its objectives and can be deactivated, and*

- *Implementation of institutional controls and the recording of deed restrictions to restrict the future use of groundwater at the site.*

- *Off-site (downgradient) groundwater contamination will be addressed as a part of the overall investigation of the groundwater contamination that is migrating from all Class 2 sites in the NCIA.*

SECTIOIN 9: HIGHLIGHTS OF COMMUNITY PARTICIPATION

As part of the remedial investigation process, a number of Citizen Participation activities were undertaken in an effort to inform and educate the public about conditions at the site and the potential remedial alternatives. The following public participation activities were conducted for the site:

- Repositories for documents pertaining to the site were established.
- A site mailing list was established which included nearby property owners and residents, local political officials, the New Cassel Environmental Justice Project, local community groups, local media and other interested parties.
- Fact sheets were distributed to an extensive public contact list and conducted public meetings in May 1995, January 1996, May 1996, October 1996, May 1997, December 1997, May 1998, December 1998, May 1999 and September 1999.
- Details of the remedial investigation were presented to the public at the May 1999 public meeting. The PRAP was presented at the September 30, 1999 public meeting held at the East Meadow High School, 101 Carman Avenue, East Meadow, New York. The public comment period began on September 13, 1999 and ended on October 13, 1999.
- In November 1999 a Responsiveness Summary was prepared and made available to the public, to address the comments received during the public comment period for the PRAP.

Table 1
Atlas Graphics
Site # 1-30-043B
Nature and Extent of Contamination
Sampling Results for Soils
Sampled in September 1997

MEDIA	CLASS	CONTAMINANT OF CONCERN	CONCENTRATION RANGE (ppm)	FREQUENCY of EXCEEDANCE	SCG (ppm)
Soils	Volatile Organic Compounds (VOCs)	Trichloroethylene	ND to 7.6	2 of 37	0.7
		Toluene	ND to 4.9	1 of 37	1.5

ppm: Parts per Million
ND: Not Detected
SCG: Standards, Criteria and Guidances

Table 2
Atlas Graphics
Site 3 1-30-043B
Nature and Extent of Groundwater Contamination
Upgradient Sampling Results in ppb
Sampled September 1997

Contaminant	Concentration in ppb		SCGs in ppb
	Well NC11843	Well NC17	
Trichloroethylene (TCE)	19	81	5
1,2 Dichloroethylene	7	ND	ND
Tetrachloroethylene (PCE)	20	ND	5

Table 2 Cont.
On-Site Sampling Results in ppb.
Sampled in September 1997

Contaminant	Concentration in ppb			SCGs in ppb
	AG-1	AG-3	AG-5	
Trichloroethylene (TCE)	4	310	3,900	5
Tetrachloroethylene (PCE)	10	40	56	5
Toluene	3	3	320	5
Acetone	150	ND	440	50
1,1,1 Trichloroethylene	47	ND	160	5

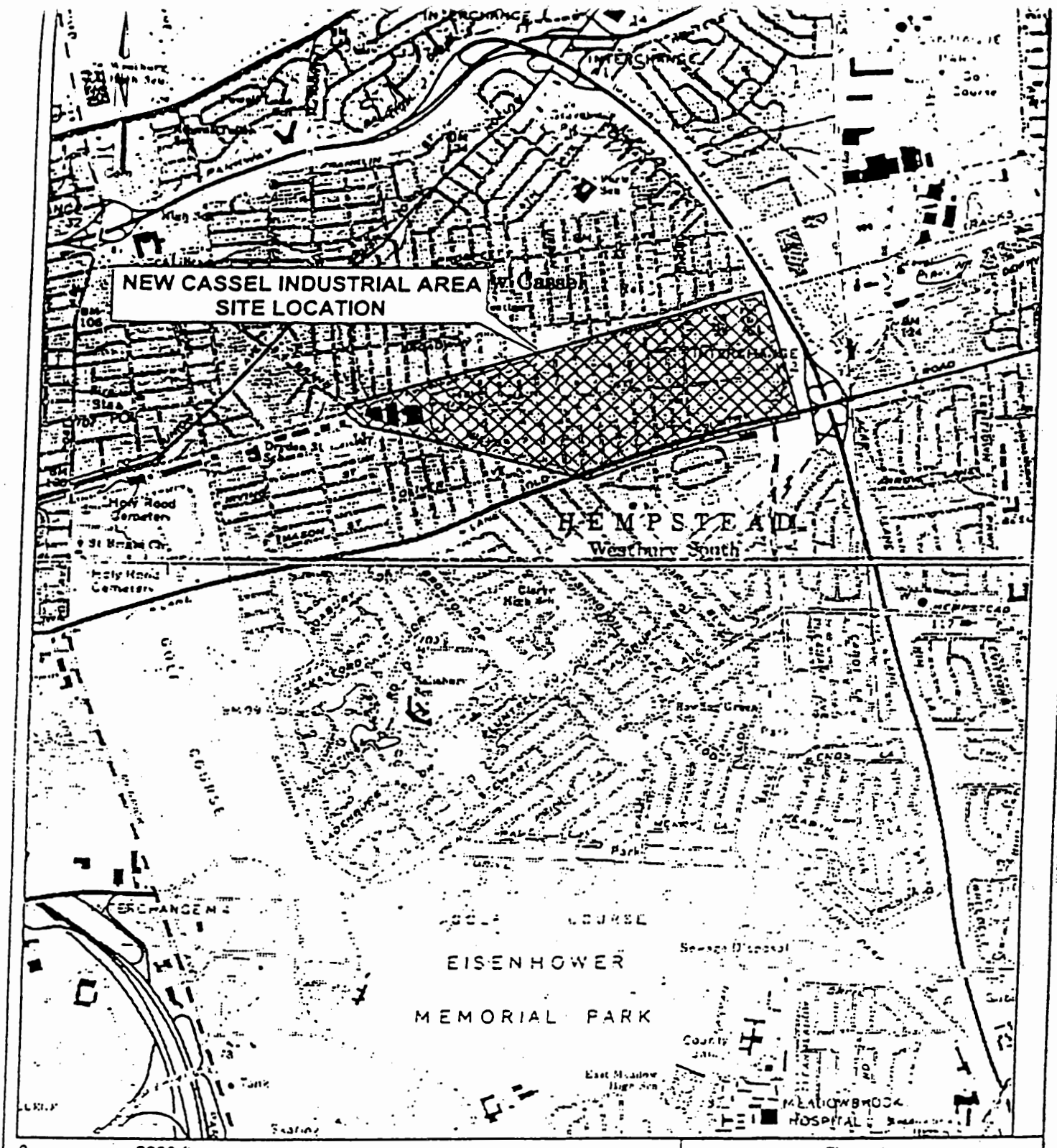
Table 2 cont.
Downgradient Sampling Results in ppb,
Sampled in February 1998

Contaminant	Concentration in ppb				SCGs in ppb
	HP-01	HP-05	NC-2	NC-2D	
Trichloroethylene (TCE)	18	1,400	290	81	5
Tetrachloroethylene (PCE)	35	99	510	160	5
1,1,1 Trichloroethane	ND	170	100	29	5
Acetone	ND	ND	ND	ND	50
Toluene	ND	39	3	2	5

Footnotes: AG-1: Geoprobe Sampling Location 1
HP-01: Hydropunch Sampling Location 1
ppb: parts per billion
ND: Not Detected
SCGs: Standards, Criteria and Guidances

Table 3
Atlas Graphics
Site # 1-30-043B
Remedial Alternative Costs

Remedial Alternative	Capital Cost	Annual O&M	Total Present Worth
Alt. #1 No Action	$0	$2,300 to $3,000	$50,000
Alt. #2 Excavation and Off-Site Disposal (soil only)	$23,000	$2,300	$54,000
Alt. #3 Air Sparging/Soil Vapor Extraction (soil and groundwater)	$270,000	$5,000 to $75,000	$440,000
Alt. #4 In Well Vapor Stripping/Vapor Treatment (groundwater)	$460,000	$62,000	$630,000
Alt. #5 Groundwater Extraction/Air Stripping/Re-Injection (groundwater)	$732,000	$100,000	1,127,000



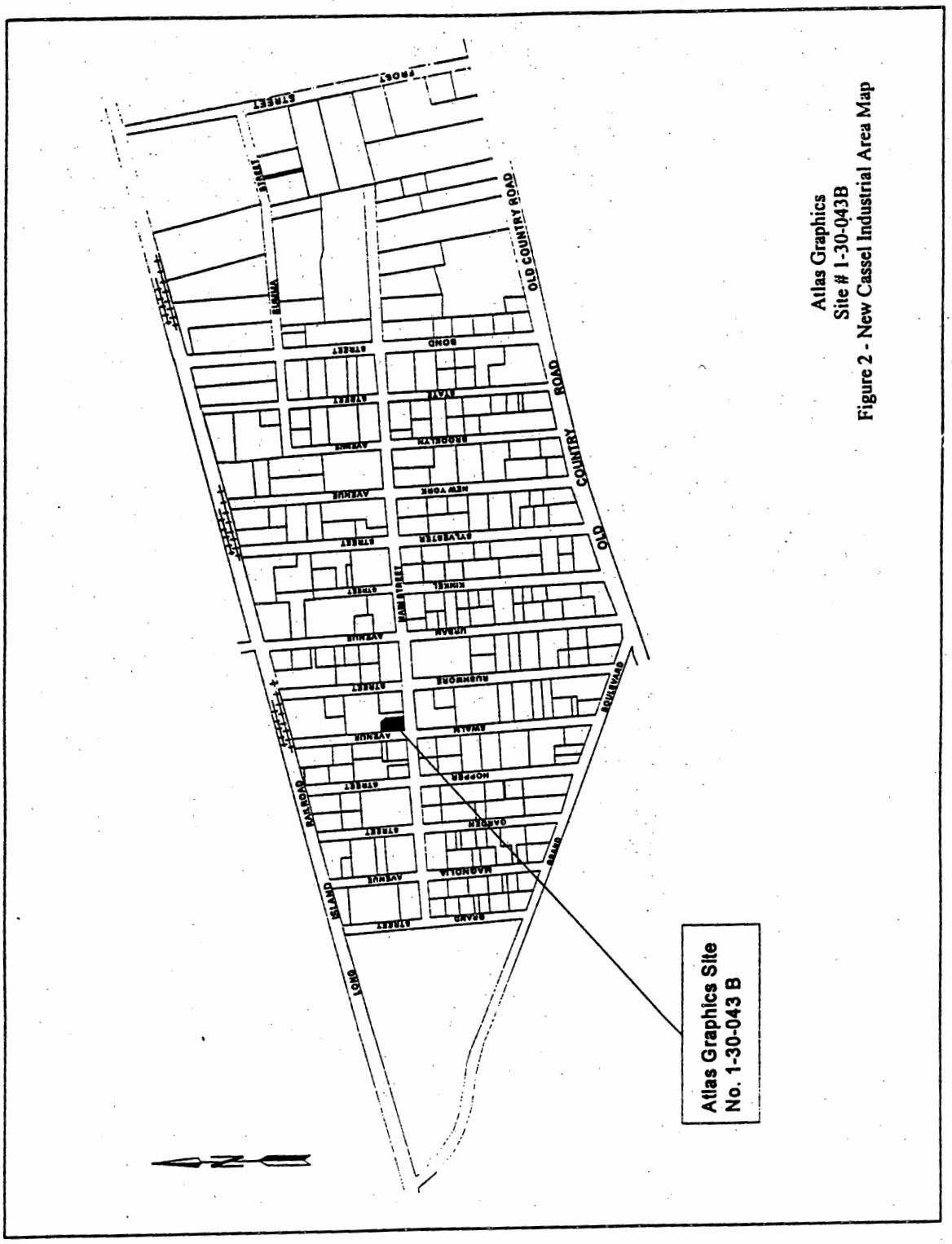
Map source:
USGS 7.5-minute quadrangle series.
Freeport, NY, 1969, photorevised 1979.
Hicksville, NY, 1967, photorevised 1979.

Figure 1-

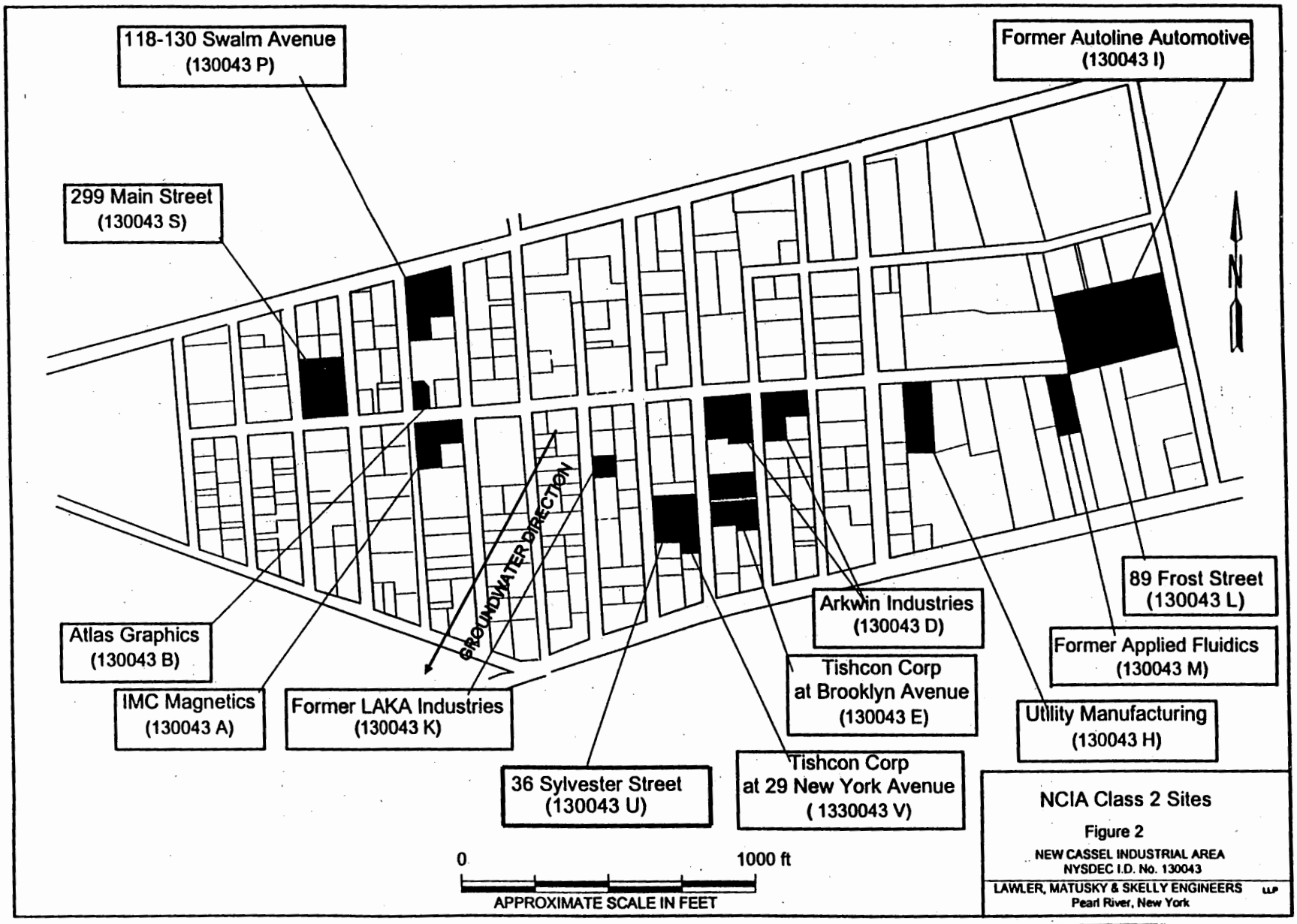
New Cassel Industrial Area
Site Location

ATLAS GRAPHICS
NEW CASSEL INDUSTRIAL AREA
NYSDEC I.D. No. 130043 B

LAWLER, MATUSKY & SKELLY ENGINEERS LLP
Pearl River, New York



Atlas Graphics
Site # 1-30-043B
Figure 2 - New Cassel Industrial Area Map


118-130 Swalm Avenue
(130043 P)
Former Autoline Automotive
(130043 I)
299 Main Street
(130043 S)
N
GROUNDWATER DIRECTION
89 Frost Street
(130043 L)
Arkwin Industries
(130043 D)
Atlas Graphics
(130043 B)
Former Applied Fluidics
(130043 M)
Tishcon Corp
at Brooklyn Avenue
(130043 E)
IMC Magnetics
(130043 A)
Former LAKA Industries
(130043 K)
Utility Manufacturing
(130043 H)
36 Sylvester Street
(130043 U)
Tishcon Corp
at 29 New York Avenue
(1330043 V)
0
1000 ft
APPROXIMATE SCALE IN FEET
NCIA Class 2 Sites
Figure 2
NEW CASSEL INDUSTRIAL AREA
NYSDEC I.D. No. 130043
LAWLER, MATUSKY & SKELLY ENGINEERS LLP
Pearl River, New York

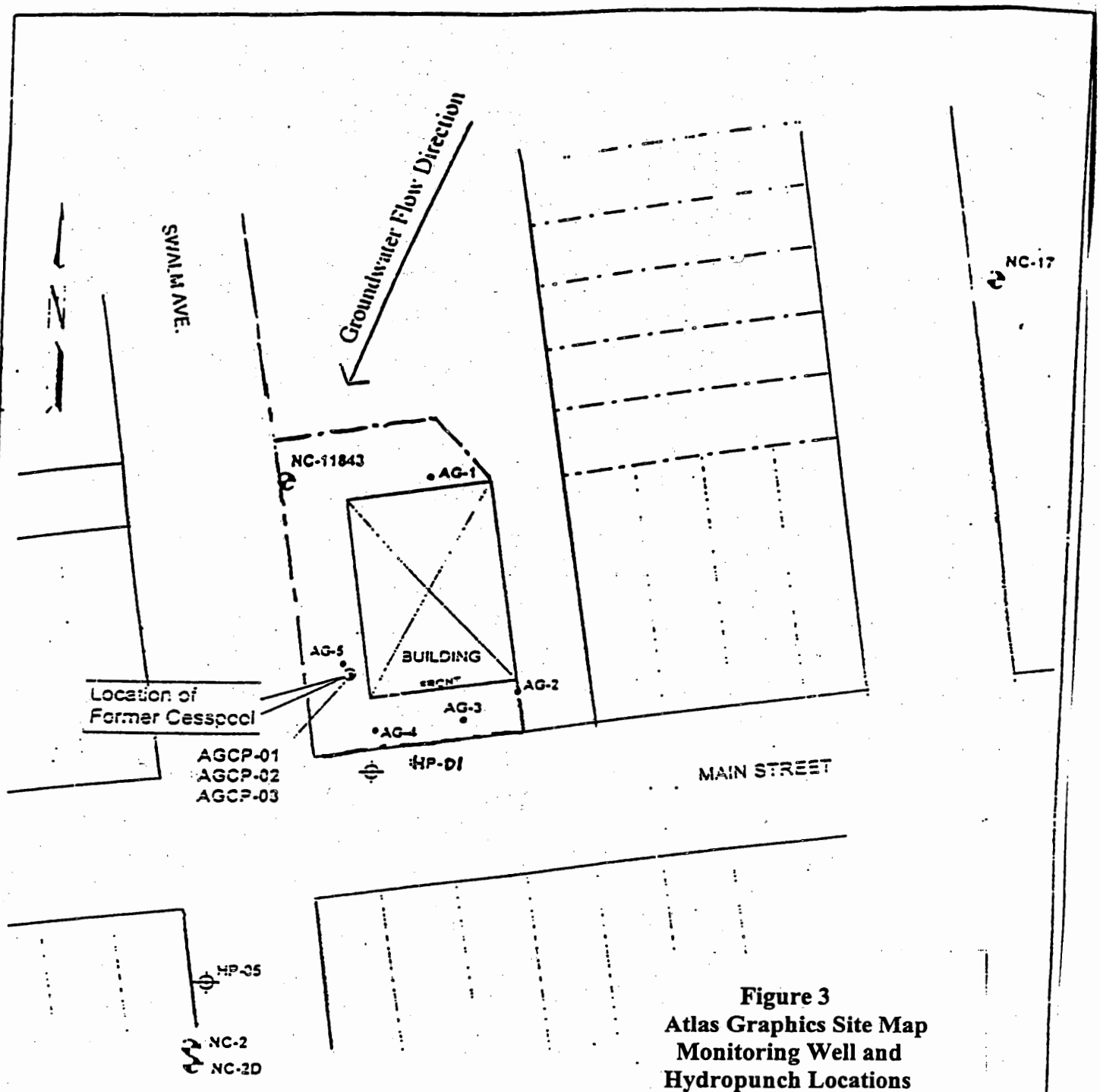


Figure 3
Atlas Graphics Site Map
Monitoring Well and
Hydropunch Locations

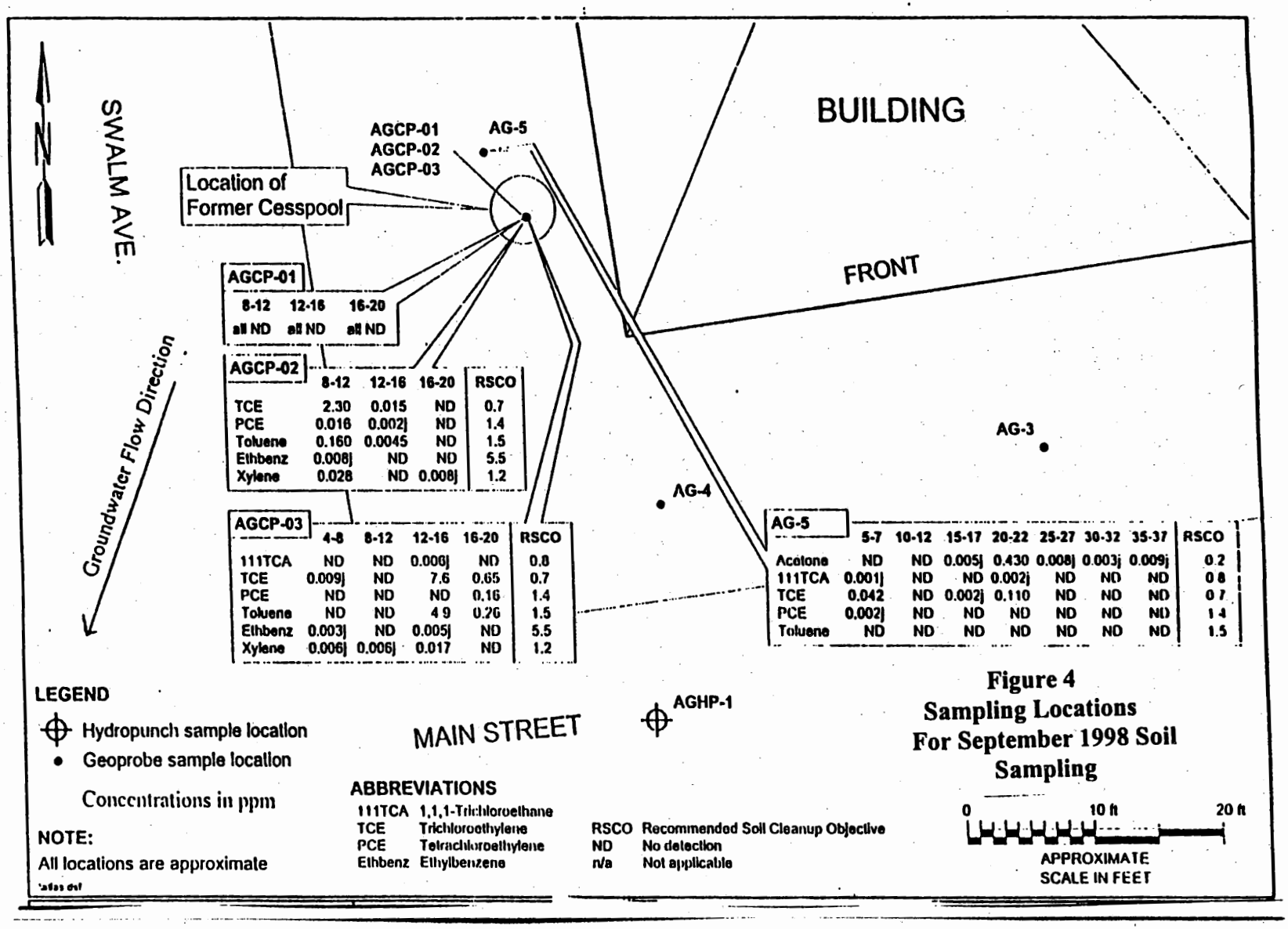


Figure 4
Sampling Locations For September 1998 Soil Sampling

APPENDIX A

RESPONSIVENESS SUMMARY

ATLAS GRAPHICS
Town of North Hempstead, Nassau County
Site No. 1-30-043 B

The Proposed Remedial Action Plan (PRAP) for the Atlas Graphics site, was prepared by the New York State Department of Environmental Conservation (NYSDEC) and issued to the local document repository on September 13, 1999. This Plan outlined the preferred remedial measure proposed for the remediation of the contaminated soil and sediment at the Atlas Graphics site. The preferred remedy is Air Sparging/Soil Vapor Extraction.

The release of the PRAP was announced via a notice to the mailing list, informing the public of the PRAP's availability.

A public meeting was held on September 30, 1999, which included a presentation of the Remedial Investigation (RI) and the Feasibility Study (FS) as well as a discussion of the proposed remedy. The meeting provided an opportunity for citizens to discuss their concerns, ask questions and comment on the proposed remedy. These comments have become part of the Administrative Record for this site. No written comments were received from the public.

The public comment period for the PRAP ended on October 13, 1999.

This Responsiveness Summary responds to all questions and comments raised at the September 30, 1999 public meeting.

The following are the comments received at the public meeting, with the NYSDEC's responses:

1. Comment: You have stated that groundwater in the New Cassel Industrial Area is contaminated. Is my family drinking contaminated groundwater?

   Response: You are not drinking contaminated groundwater. The water that is delivered to consumers from the Town of Hempstead Department of Water is drawn from a depth in excess of five hundred feet below the ground surface, well below the level at which the greatest levels of contamination are found (high levels of contamination are detected at depths of fifty to one hundred and twenty feet below ground surface). The pumped out groundwater is then treated by an air stripper followed by carbon filtration to remove any contaminants. The water is also tested at regular intervals to ensure that the water meets drinking water standards before it is distributed to consumers.

2. Comment: Water from my faucet has at times been turbid and discolored, especially when there have been excavations involving water mains near my house. Is it possible that contaminated groundwater has entered the water delivery system, and that I have consumed contaminated groundwater?

   Response: The water mains are located approximately four to six feet below the ground surface. The water table in the New Cassel Industrial Area and the surrounding residential areas is a minimum of fifty feet below the ground surface. Even if the water mains were broken, it would not be possible for the groundwater to contaminate them. The discoloration that you have observed is more likely to be due to iron oxide originating within the system, and is probably harmless.

3. Comment: What is a Consent Order?

   Response: In the New York State Inactive Hazardous Waste Disposal Site Program, a Consent Order is an agreement between the responsible party and the Department to conduct a remedial activity for a site such as an investigation, feasibility study, remedial design or construction. Once the agreement is executed, the responsible party performs the work and the Department provides staff oversight of fieldwork and reviews all reports, making sure that the work was performed in accordance with procedures. The Department staff make sure that the personnel performing the work are qualified and that the samples are properly collected.

4. Comment: Will Air Sparging/Soil Vapor Extraction (AS/SVE) be effective?

   Response: AS/SVE is a proven technology for the remediation of volatile organic compounds and has been utilized at many sites throughout the state. AS/SVE is best suited for sites with coarse-grained materials (e.g., sand) similar to those found at Atlas Graphics. The Department is confident that AS/SVE will be an effective remedial technology for use at this site.

5. Comment: Has the Department considered using iron filings as an alternative for remediating the groundwater?

   Response: Iron filings fall under the general remediation technology known as in-situ passive treatment walls. In-situ passive treatment walls were considered in the Feasibility Study Report as a potential technology. They were screened and eliminated from consideration because installing treatment walls at depths of 80 feet would prove to be impractical.

6. Comment: Is it possible that the groundwater contamination found at the Atlas Graphics site originates at the IMC Magnetics site?

   Response: It is unlikely that the contamination found at the Atlas Graphics site originates at IMC Magnetics. IMC Magnets is located south of Atlas Graphics, and the groundwater in the New Cassel Industrial Area flows to the southwest. Therefore, IMC is almost directly downgradient, rather than upgradient, of Atlas Graphics. Additionally, the highest levels of groundwater contamination at the Atlas Graphics site are found directly beneath the abandoned cesspool located on the southwest corner of the property.

APPENDIX B

Administrative Record

ATLAS GRAPHICS
Record of Decision
Town of North Hempstead, Nassau County
Site No. 1-30-043B

1. Lawler, Matusky and Skelly Engineers LLP (LMS). 1999. Immediate Investigation Work Assignment Report, Atlas Graphics Site. Prepared for the New York State Department of Environmental Conservation (NYSDEC).

2. Focused Feasibility Study for the Atlas Graphics Site. Prepared by the New York State Department of Environmental Conservation. September 1999.

3. Proposed Remedial Action Plan. Prepared by the New York State Department of Environmental Conservation. August 1999.