Department of Environmental Conservation

Division of Environmental Remediation

Amended Record of Decision

Bedford Village Wells Sites
Shopping Arcade (Registry No. 3-60-006)
Hunting Ridge Mall (Registry No. 3-60-009)
Town of Bedford, Westchester County

March 2002

New York State Department of Environmental Conservation
GEORGE E. PATAKI, *Governor* ERIN M. CROTTY, *Commissioner*

DECLARATION STATEMENT - AMENDED RECORD OF DECISION

Bedford Village Wells Sites
Shopping Arcade (Registry No. 3-60-006)
Hunting Ridge Mall (Registry No. 3-60-009)
Town of Bedford, Westchester County, New York

Statement of Purpose and Basis

The Amended Record of Decision (ROD) presents the selected remedy for the Bedford Village Wells class 2 inactive hazardous waste disposal sites 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 Bedford Village Wells inactive hazardous waste disposal sites and upon public input to the Proposed ROD Amendment presented by the NYSDEC. A listing of the documents included as a part of the Administrative Record is included in Appendix B of the Amended ROD.

Assessment of the Site

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

For the Shopping Arcade site, exposure to hazardous waste constituents released from this site has been eliminated by providing a public water supply for homes and businesses that utilized contaminated private wells. Since the ROD was signed in 1990, groundwater contamination has naturally attenuated and therefore the site is no longer a threat to public health and the environment.

Description of Amended Remedy

Based on additional information obtained since the original RODs were published for the Bedford Village Wells sites in 1990 and the criteria identified for evaluation of alternatives, the NYSDEC has amended the remedies for these sites. The original RODs contained the following remedies for each site:

Groundwater and Surface Water

- On-site extraction and treatment of contaminated groundwater by air stripping with capabilities of a vapor phase carbon adsorption unit to insure compliance with air standards, reinjection of treated groundwater into the aquifer;
- Groundwater monitoring to insure that groundwater remediation is being accomplished; and
- Implementation of a site specific monitoring and evaluation plan of the Mianus River and its adjacent tributaries to insure that fish and wildlife are not impacted by the site.

Water Supply

- Installation of in-house activated carbon filters for affected commercial/residential users until a new water supply can be implemented;
- Monitoring of water quality where activated carbon filters are being used;
- Development of a new community water supply to supply those homes and commercial buildings affected by contamination; and
- If during the design study, it is found that through air stripping, the aquifer can be restored to acceptable drinking water standards within an acceptable time frame (less than 5 years), the need for a new water supply will be re-evaluated and may possibly be eliminated as a part of the remedial program implemented at the sites.

The public water supply has been constructed and all of the affected residences and businesses have been connected to public water. Properties in the vicinity of the affected area that continue to utilize private wells are tested periodically by the Westchester County Department of Health (WCDOH). If any of these properties are found to be contaminated with site related compounds above drinking water standards, they will be connected to the public water supply. The NYSDEC will reimburse the WCDOH for the cost of sampling and testing these private wells.

For the Shopping Arcade site, the NYSDEC will delete the extraction and treatment remedy and will reclassify the site to a Class 4, indicating that this site is properly closed but requires continued monitoring. A long term monitoring program will be implemented, which includes semiannual sampling of four groundwater monitoring wells for the first five years and subsequent annual monitoring of these four wells until they achieve groundwater standards for site-related contaminants.

The remedy at the Hunting Ridge Mall site will be changed from extraction and treatment to in-situ chemical oxidation of contaminated groundwater. A chemical oxidant will be injected into the contaminated groundwater and will react with the contaminants in the groundwater to form

nontoxic products. The long-term monitoring program for the Hunting Ridge Mall will include six monitoring wells sampled on a semiannual basis until groundwater standards are achieved for site-related contaminants.

The original RODs also called for a monitoring and evaluation plan of the Mianus River and its tributaries. The monitoring plan for the Mianus River and adjacent tributaries will be amended to the following: collection of surface water samples from the Mianus River and adjacent tributaries before and after implementation of groundwater remediation at the Hunting Ridge Mall site.

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.

3/19/2002
Date

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

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SECTION 1: SUMMARY OF THE AMENDED RECORD OF DECISION

The New York State Department of Environmental Conservation (NYSDEC) in consultation with the New York State Department of Health is amending the selected remedy to address the significant threat to human health and/or the environment created by the presence of hazardous waste at the Bedford Village Wells class 2, inactive hazardous waste disposal sites. The two Bedford Village Wells sites are the Shopping Arcade site and the Hunting Ridge Mall site. A Record of Decision (ROD) documenting the site remedy was previously completed for each site in March 1990. As more fully described in Sections 2 and 3 of this document, chemical releases of dry cleaning solvents have resulted in the disposal of a number of hazardous wastes, including tetrachloroethylene, at the sites, some of which were released or have migrated from the sites to surrounding areas. Off-site migration of contaminated groundwater has resulted in contamination of private drinking water wells used by homes and businesses. These disposal activities have resulted in the following significant threats to the public health and/or the environment:

- a significant threat to human health associated with ingestion of contaminated groundwater; and

- a significant environmental threat associated with the impacts of contaminants to Turtle Pond and the groundwater resource.

In order to eliminate or mitigate the significant threats to the public health and/or the environment that the hazardous waste disposed at the Bedford Village Wells sites has caused, the following remedy was selected in the original RODs:

Groundwater and Surface Water

- On-site extraction and treatment of contaminated groundwater by air stripping with capabilities of a vapor phase carbon adsorption unit to insure compliance with air standards, reinjection of treated groundwater into the aquifer;

- Groundwater monitoring to ensure that groundwater remediation is being accomplished; and

- Implementation of a site specific monitoring and evaluation plan of the Mianus River and its adjacent tributaries to insure that fish and wildlife are not impacted by the site.

Water Supply

- Installation of in-house activated carbon filters for affected commercial/residential users until a new water supply can be implemented;

- Monitoring of water quality where activated carbon filters are being used;

- Development of a new community water supply to supply those homes and commercial buildings affected by contamination; and

- If during the design study, it is found that through air stripping, the aquifer can be restored to acceptable drinking water standards within an acceptable time frame (less than 5 years), the need for a new water supply will be re-evaluated and may possibly be eliminated as a part of the remedial program implemented at the sites.

After the ROD was signed in 1990, the NYSDEC conducted an aquifer test at Memorial Field, the selected location of the new public water supply, to determine the maximum pumping rate of the aquifer at that location. The results of the pumping test revealed that the aquifer at Memorial Field would not provide enough water to be used as a public water supply. The NYSDEC also determined that there were no other suitable locations to install a new public water supply.

In 1991, the Town of Bedford was given the opportunity to purchase the Farms community water supply and extend the distribution system to properties that were affected by site-related contaminants. When the ROD was signed in 1990, this option was not chosen because the Farms water supply was privately owned. After a study was completed by the NYSDEC's standby consultant, the NYSDEC decided to provide funds for the Town of Bedford to purchase the Farms water supply well and expand the capacity of the system. A second well was drilled, the pump house was upgraded and the distribution system was expanded to properties with contaminated private wells. Due to the change in circumstances, the NYSDEC also decided to complete the public water supply before installing the groundwater treatment system.

The public water supply has been constructed and all of the affected residences and businesses have been connected to public water. Any additional properties utilizing private wells that are found to be contaminated with site-related compounds at concentrations exceeding drinking water standards will also be connected to the public water supply. Therefore, the contaminated groundwater is no longer a threat to public health.

Several groundwater monitoring wells associated with both sites were sampled in 1997-2001, after the completion of the public water supply. In 2001, only one monitoring well at the Shopping Arcade site had total volatile organic compound (VOC) concentrations exceeding 100 parts-per-billion (ppb). The highest VOC concentration at the Shopping Arcade site in 2001 was 130 ppb at MW-3M (see Figure 2 for the location of MW-3M), which decreased from 223 ppb in 1988. Since the RODs were signed in 1990, the NYSDEC has gained additional experience regarding the use of extraction and treatment and other active groundwater remediation technologies. Due to the concentrations of total VOCs that are present in the groundwater at this site (non-detect to 130 ppb), implementing extraction and treatment or any other active groundwater remediation technology at the Shopping Arcade site would not be efficient or cost effective. Since a plan has been successfully implemented to address exposures associated with the site, the NYSDEC is deleting the extraction and treatment portion of the remedy for the Shopping Arcade site. Furthermore, the NYSDEC will reclassify the Shopping Arcade site to a Class 4, indicating that the site is properly closed but requires continued monitoring. The long-term monitoring program will include semiannual sampling of four groundwater monitoring wells for the first five years and subsequent annual monitoring of these four wells until they achieve drinking water standards, which is estimated at 20 years.

In 2001, only one monitoring well at the Hunting Ridge Mall site had total VOC concentrations exceeding 100 ppb. The highest VOC concentration at the Hunting Ridge Mall site was 909 ppb at MW-3M (see Figure 3 for the location of MW-3M), compared with 62 ppb in 1988. Since the RODs were signed in 1990, new technologies have been developed to remediate contaminated groundwater, including in-situ chemical oxidation. Due to the limited areal extent of the high VOC concentrations at the Hunting Ridge Mall site, in-situ chemical oxidation is a more effective and cost efficient groundwater remedy than extraction and treatment. Therefore, the NYSDEC is changing the groundwater remedy for the Hunting Ridge Mall site to in-situ chemical oxidation.

Also, since the May 2000 surface water sampling revealed contaminant concentrations that marginally exceeded surface water standards, the NYSDEC also is amending the monitoring plan for the Mianus River and adjacent tributaries to the following: collection of surface water samples from the Mianus River and adjacent tributaries before and after implementation of groundwater remediation at the Hunting Ridge Mall site. The results of the surface water sampling will be used in conjunction with the groundwater monitoring data to determine the effectiveness of the groundwater remedy.

The amended remedy, discussed in detail in Section 3 of this document, is intended to attain the remediation goals selected for this site, in Section 4 of this Amended ROD, in conformity with applicable standards, criteria, and guidance (SCGs).

SECTION 2: SITE DESCRIPTION AND ORIGINAL REMEDIES

2.1 Site Description and History

The Shopping Arcade site and the Hunting Ridge Mall site are located on Old Post Road (Route 22) in the Bedford Village District, Town of Bedford, Westchester County. The Hunting Ridge Mall site is approximately one mile southwest of the Shopping Arcade site. The sites are situated in a commercial district of a suburban area. A former gasoline service station borders the southeast side of the Shopping Arcade site. A site location map is included as Figure 1.

The geology of the sites consists of a gneissic bedrock overlain by glacial deposits. The deposits are generally composed of sorted, fine-coarse sands and silts. The bedrock is encountered at depths from approximately 5 feet to 80 feet below ground surface (bgs). Groundwater flows toward the Mianus River in a northeasterly direction from the Shopping Arcade site and a southeasterly direction from the Hunting Ridge Mall site. Groundwater depths range from approximately 3 to 34 feet bgs, depending on the location and time of year.

In 1978, the Westchester County Department of Health (WCDOH) tested several private wells in areas where existing or former dry cleaning establishments were located. VOCs were found in several private wells in the Village of Bedford. The source of this contamination was traced to a former dry cleaner at the Shopping Arcade site and a dry cleaning facility at the Hunting Ridge Mall site. In 1983, both sites were listed on the New York State Registry of Inactive Hazardous Waste Disposal Sites.

Based on the private well testing, the Hunting Ridge Mall owner pumped out the on-site sanitary system in 1983 and removed contaminated sediment from the drainage system and nearby stream to which it discharged.

2.2 Nature and Extent of Site Contamination

As described in the original RODs and other documents, many soil, groundwater, surface water, and sediment samples were collected at the sites to characterize the nature and extent of contamination. The primary contaminants of concern were VOCs, including: tetrachloroethylene (PCE), trichloroethylene (TCE), 1,2-dichloroethene (DCE), vinyl chloride, benzene, toluene, and xylene. PCE is used in dry cleaning operations and TCE, DCE, and vinyl chloride are breakdown products of PCE. Benzene, toluene and xylene are constituents of gasoline. VOC concentrations exceeding NYSDEC standards, criteria, and guidance (SCGs) were only present in the groundwater and surface water samples.

Surface water

The Shopping Arcade site and the Hunting Ridge Mall site are located near tributaries of the Mianus River (refer to Figures 2 and 3). The tributary near the Shopping Arcade site flows

southeast through three ponds before discharging into the Mianus River. The tributary near the Hunting Ridge Mall site flows southeast through two ponds before discharging into the Mianus River. The upstream pond is known as Turtle Pond.

In the 1990 Remedial Investigation/Feasibility Study (RI/FS), PCE was detected in Turtle Pond, near the Hunting Ridge Mall Site, at 40 ppb. The surface water standard for PCE is 0.7 ppb.

On May 23, 2000, NYSDEC staff collected surface water samples from the Mianus River and the two tributaries (along with their associated ponds) that are located near the sites. Refer to Figures 2 and 3 for surface water sampling results. Sampling of the tributary and ponds near the Shopping Arcade and Hunting Ridge Mall site detected maximum PCE concentrations of 2 ppb and 4 ppb, respectively. The concentration of 4 ppb was detected at the south end of Turtle Pond. No contaminants were detected from the samples obtained from the Mianus River. These sampling results indicate that the levels of PCE contamination in the tributaries and ponds have decreased since the original sampling.

Groundwater

The Remedial Investigation/Feasibility Study (RI/FS) reports prepared in 1990 by NYSDEC's consultant, Dvirka and Bartilucci, indicated that VOCs were present in the groundwater at concentrations exceeding New York State drinking water and groundwater standards (10 NYCRR Part 5 and 6 NYCRR Part 703, respectively). The RI/FS reports presented data from groundwater monitoring wells and historic groundwater samples obtained from 1979 to 1989. The maximum VOC concentrations in groundwater at the Shopping Arcade site were: PCE (710 ppb), TCE (71 ppb), DCE (520 ppb), benzene (440 ppb), toluene (35 ppb), and xylene (39 ppb). At the Hunting Ridge Mall site, the maximum VOC concentrations were: PCE (160 ppb), TCE (8 ppb), DCE (15 ppb), benzene (6 ppb), toluene (39 ppb), and xylene (9 ppb). The New York State groundwater and drinking water standard for each of the above contaminants is 5 ppb with the exception of benzene, which has a groundwater standard of 1 ppb.

After the ROD was signed in 1990, the public water supply was designed and constructed. The water supply included two wells, drawing groundwater from a deeper depth than the contamination was known to exist. Construction of the public water supply was completed in November 1997. The location of the public water supply is shown in Figure 3. Low levels of VOC contamination (less than 5 ppb, the groundwater and drinking water standard) were subsequently discovered at the public water supply wells in 1998. An air stripping unit was added in December 1998 to remove VOCs from the source water and to ensure that the VOC concentrations did not exceed the standards. Since the air stripping unit was installed, the average PCE concentration of the untreated water at the public water supply wells has been less than 5 ppb. PCE has never been detected in the treated water.

Several groundwater monitoring wells associated with both sites were sampled in 1997-2001, after the completion of the public water supply. The maximum VOC concentrations in June

2001 for the Shopping Arcade site were: PCE (130 ppb), TCE (20 ppb), DCE (17 ppb), trichloroethane (0.4 ppb), vinyl chloride (6 ppb), benzene (0.5 ppb), and sec-butylbenzene (4 ppb). For the Hunting Ridge Mall site, the maximum VOC concentrations in June 2001 were: PCE (800 ppb), TCE (32 ppb), DCE (68 ppb), and vinyl chloride (9 ppb). In June 2001, only one monitoring well at each site had total VOC concentrations exceeding 100 ppb. MW-3M at the Shopping Arcade site and MW-3M at the Hunting Ridge Mall site had total VOC concentrations of 130 ppb and 909 ppb, respectively. At the Hunting Ridge Mall site, two monitoring wells (MW-6S and 6M) located less than 300 feet downgradient of MW-3M exhibited total VOC concentrations of 7 ppb and 3 ppb. These results indicate that the high VOC concentrations are limited to less than 300 feet from the site. The remaining monitoring wells at the Shopping Arcade and Hunting Ridge Mall sites exhibited VOC concentrations ranging from 8-87 ppb and 3-14 ppb, respectively. Locations of groundwater monitoring wells and sampling results for site-related contaminants for the Shopping Arcade Site and the Hunting Ridge Mall Site are presented in Figures 2 and 3, respectively. Also, 1997-2001 monitoring well data for all VOCs for the Shopping Arcade Site and the Hunting Ridge Mall Site are presented in Tables 1 and 2, respectively.

At the request of the Westchester County Department of Health (WCDOH), the NYSDEC collected additional groundwater samples using a direct push method at a property located east of the Hunting Ridge Mall site. Fifteen samples were obtained from seven borings at depths ranging from 38-60 feet. Only two of the boring samples (F1 and G3) exhibited VOC concentrations exceeding the SCGs. PCE was detected in F1 and G3 at 18 ppb and 7 ppb, respectively. None of the other site-related VOCs were detected in amounts exceeding SCGs. The locations of the sampling points are depicted in Figure 3. The analytical results are presented in Table 3.

2.3 Summary of Human Exposure Pathways

Prior to the installation of the public water supply, the primary pathway of exposure to contaminants was through the use of contaminated groundwater via private wells. Since the affected residences have been connected to the public water supply, there are no current human exposure pathways for the contamination remaining at these sites.

2.4 Summary of Environmental Exposure Pathways

The groundwater beneath these sites has been contaminated with VOCs and cannot be used as a drinking water resource without treatment. Although the NYSDEC will prevent human exposures to the groundwater contaminants, the groundwater resource beneath the sites has been degraded.

SECTION 3: PROPOSED CHANGES

3.1 New Information

Expansion of the Farms public water supply was completed in November 1997 at a total cost of $2,000,000. After drilling the additional water supply well, the water was tested and was found to contain VOC concentrations that were below SCGs. To ensure that the public water supply would continue to meet drinking water standards, an air stripping tower was installed in December 1998 at a cost of $110,000 to remove any VOCs before the water is distributed to the public. The location of the public water supply is shown on Figure 3.

To date, 43 properties that utilized private wells and were affected by site-related contamination have been connected to the public water supply. The WCDOH, NYSDEC, and NYSDOH will continue to monitor private wells still in use near the sites. The NYSDEC will reimburse the WCDOH for the cost of sampling and testing these private wells. The NYSDEC will connect any additional properties to the public water supply if it is determined that their private wells are affected by site-related contamination above drinking water standards. In this manner, human exposures associated with contaminated groundwater from these sites will be effectively addressed.

3.2 Description of Proposed Changes

The original RODs provide for the installation of an extraction and treatment system to remediate the contaminated groundwater at both sites. Several groundwater monitoring wells associated with both sites were sampled in 1997-2001, after the completion of the public water supply.

Shopping Arcade Site (3-60-006)

In 2001, only one monitoring well at the Shopping Arcade site had total VOC concentrations exceeding 100 ppb. The highest VOC concentration at the Shopping Arcade site in 2001 was 130 ppb at MW-3M (see Figure 2 for the location of MW-3M). Since the RODs were signed in 1990, the NYSDEC has gained additional experience regarding the use of extraction and treatment and other active groundwater remediation technologies in remediating contaminated groundwater. Due to the concentrations of total VOCs that are present in the groundwater at this site (non-detect to 130 ppb), it would not be efficient or cost effective to implement extraction and treatment or any other active groundwater remediation technology at the Shopping Arcade site.

As previously discussed, a plan has been successfully implemented to address exposure to residual contaminants. This plan includes treatment and monitoring of the public water supply, monitoring of private wells, and provision of an alternative water source to homes and businesses as necessary. Therefore, the NYSDEC proposes the deletion of the extraction and treatment portion of the remedy at the Shopping Arcade site. Furthermore, the NYSDEC proposes that the Shopping Arcade site be reclassified to a Class 4, indicating that the site is properly closed but

requires continued monitoring. The long-term monitoring program would include semiannual sampling of four groundwater monitoring wells for the first five years and subsequent annual monitoring of these four wells until they achieve drinking water standards, which is estimated at 20 years. The following monitoring wells would be included in the monitoring program for the Shopping Arcade site: MW-3M, MW-4B, MW-6M, and MW-6B. The locations of the monitoring wells are depicted on Figure 2. The Town of Bedford and the WCDOH would continue their annual monitoring of the public water supply.

Hunting Ridge Mall Site (3-60-009)

In 2001, only one monitoring well at the Hunting Ridge Mall site had total VOC concentrations exceeding 100 ppb. The highest VOC concentration at the Hunting Ridge Mall site was 909 ppb at MW-3M (see Figure 3 for the location of MW-3M). Since the RODs were signed in 1990, new technologies have been developed to remediate contaminated groundwater, including in-situ chemical oxidation.

In-situ chemical oxidation is a groundwater remediation technology that was not available for groundwater remediation when the RODs were issued in 1990. Since the RODs were issued, in-situ chemical oxidation has been used to remediate VOCs in groundwater at several sites in New York State. This technology involves injecting an oxidant into the groundwater which reacts with the VOCs and breaks down VOCs into non-toxic products such as carbon dioxide. Oxidants commonly used include potassium permanganate, sodium permanganate, Fenton's Reagent (hydrogen peroxide with a catalyst), and ozone. The specific oxidant would be chosen during the design stage based on pilot tests and/or bench scale tests.

Air sparging/soil vapor extraction (AS/SVE) was also evaluated as a method to remediate the contaminated groundwater at the Hunting Ridge Mall site. AS/SVE is a combination of two technologies. AS injects air into the groundwater below the contaminated zone. As the air rises through the contaminated groundwater and disperses radially, VOCs in the groundwater mix with the air and rise to the surface. SVE applies a vacuum to the vadose zone to capture the air and VOC mixture. This vapor is treated using vapor-phase carbon prior to discharge to the atmosphere.

The VOC contamination at the Hunting Ridge Mall is located at the soil-bedrock interface. AS/SVE would need to be installed into soil several feet below the contaminated depth to develop a radius of influence. Since there is no soil below the contaminated zone, AS/SVE would not be an effective remedy at this site and was dropped from consideration.

Due to the limited areal extent of the high VOC concentrations at the Hunting Ridge Mall site, in-situ chemical oxidation would be a more efficient and cost effective remedy than extraction and treatment. Therefore, the NYSDEC proposes to change the groundwater remedy for the Hunting Ridge Mall site to in-situ chemical oxidation. In this scenario, the oxidant would be injected at a depth of approximately 70 feet below ground surface (bgs) into the groundwater directly upgradient of MW-3M using one to two injection wells. Four new monitoring wells,

including one upgradient well, and MW-3M would be used to monitor the progress and effectiveness of the remediation. The locations of the new injection and monitoring wells would be determined during the Remedial Design. After evaluating the effectiveness of the first injection event, the NYSDEC may conduct additional injection events.

The long-term monitoring program for the Hunting Ridge Mall would include six monitoring wells sampled for VOCs on a semiannual basis until drinking water standards are achieved for site-related compounds. The specific wells to be sampled would be identified in the operation and maintenance plan after the remedy is implemented. The remedy duration is estimated at three years and includes six months to construct the remedy and 2½ years of operation and maintenance.

Also, since the May 2000 surface water sampling revealed contaminant concentrations that marginally exceeded surface water standards, the NYSDEC also proposes that the monitoring plan for the Mianus River and adjacent tributaries be amended to the following: collection of surface water samples from the Mianus River and adjacent tributaries before and after implementation of groundwater remediation at the Hunting Ridge Mall site. The results of the surface water sampling would be used in conjunction with the groundwater monitoring data to determine the effectiveness of the groundwater remedy.

SECTION 4: EVALUATION OF PROPOSED CHANGES

4.1 Remedial Goals

Goals for the cleanup of the sites were established in the original ROD. The goals selected for this site are:

- Eliminate, to the extent practicable, ingestion of groundwater affected by the site that does not attain NYSDOH drinking water standards.
- Eliminate, to the extent practicable, further off-site migration of groundwater that does not attain NYSDEC Class GA Ambient Water Quality Criteria.

4.2 Evaluation Criteria

The criteria used to compare the proposed changes to the original remedies are defined in the regulation that directs the remediation of inactive hazardous waste disposal sites in New York State (6 NYCRR Part 375). For each criterion, a brief description is provided followed by an evaluation of the proposed changes with respect to that criterion.

The first two evaluation criteria are called threshold criteria and must be satisfied in order for the proposed changes to be considered for selection.

1. Protection of Human Health and the Environment. This criterion is an overall evaluation of the health and environmental impacts to assess whether each alternative is protective. It incorporates several of the criteria listed below with an emphasis on achieving the remediation goals described above.

The proposed changes would continue to protect human health and the environment. Private wells in the vicinity of the sites that are still used for drinking water would be tested regularly for site-related contaminants. Properties with private wells affected by site-related contaminants at concentrations exceeding drinking water standards have been connected to public water. If testing reveals that additional private wells are similarly impacted, these properties would be connected to the public water supply.

The chemical oxidation remedy would remediate the high VOC concentrations in groundwater at the Hunting Ridge Mall, which would result in further protection of the environment.

2. Compliance with New York State Standards, Criteria, and Guidance (SCGs). Compliance with SCGs addresses whether a remedy will meet applicable environmental laws, regulations, standards, and guidance.

The SCGs of concern for this site are the New York State drinking water and groundwater standards (6 NYCRR Part 703). Removing the groundwater treatment system from the remedy may increase the time required for the groundwater to meet drinking water standards at the Shopping Arcade site. However, a plan has been successfully implemented to address exposures associated with the contaminated groundwater. Since chemical oxidation is a more aggressive remedy than extraction and treatment, the groundwater at the Hunting Ridge Mall site would be expected to meet SCGs in a shorter period of time.

The next five "primary balancing criteria" are used to compare the positive and negative aspects of each of the remedial strategies.

3. Short-term Effectiveness. The potential short-term adverse impacts of the remedial action upon the community, the workers, and the environment during construction and operation are evaluated. The length of time needed to achieve the remedial objectives is also estimated and compared with the original remedies.

The original RODs estimated a three year cleanup for the Shopping Arcade site and a ten year cleanup for the Hunting Ridge Mall site. The remediation time for natural attenuation at the Shopping Arcade site has been estimated at a maximum of 20 years. The Hunting Ridge Mall remediation using in-situ chemical oxidation would be completed in approximately three years.

4. Long-term Effectiveness and Permanence. This criterion evaluates the long-term effectiveness of the proposed changes after implementation of the response actions. 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.

The chemical oxidation remedy at the Hunting Ridge Mall would destroy the contaminants and replace them with nontoxic materials. This would therefore be a permanent remedy.

Contaminated groundwater would remain on the Shopping Arcade site following implementation of the proposed change. Since public water has been provided to affected residents, the contamination does not pose a risk to the public. The public water supply is treated by an air stripper to remove any VOCs before distribution. Unaffected private wells are tested to minimize the potential of exposure to contaminated groundwater. The reliability of the controls would not be affected by the deletion of the extraction and treatment system.

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

The chemical oxidation remedy at the Hunting Ridge Mall site would actively reduce the toxicity, mobility and volume of contaminated groundwater. These goals would be accomplished by passive means at the Shopping Arcade site.

6. Implementability. The technical and administrative feasibility of implementing the proposed changes is evaluated. Technically, this includes the difficulties associated with the construction, the reliability of the technology, and the ability to monitor the effectiveness of the remedy. Administratively, the availability of the necessary personnel and equipment is evaluated along with potential difficulties in obtaining specific operating approvals, access for construction, etc.

The chemical oxidation remedy at the Hunting Ridge Mall would be easily implementable. The materials are widely accessible and several vendors have experience in implementing the technology. The only operation and maintenance requirements for this remedy would be additional monitoring. Since no additional remedial actions at the Shopping Arcade site would be instituted, there would be no implementability issues with the proposed change.

7. Cost. Capital and operation and maintenance costs are estimated for the proposed changes and the original remedies and are compared on a present worth basis. Although cost is the last balancing criterion evaluated, where the original remedies and proposed changes have met the requirements of the remaining criteria, cost effectiveness can be used as the basis for the final decision.

The proposed change would reduce the cost of the remedy. The entire extraction and treatment capital costs for Shopping Arcade site of $872,750 would be saved by the change. For the Hunting Ridge Mall site, replacing the extraction and treatment system with in-situ chemical oxidation would reduce the capital costs from $688,875 to $212,200, for a savings of $476,675. Present worth operation and maintenance (O&M) cost savings for the Shopping Arcade would be

$542,431. Present worth operation and maintenance (O&M) costs for the Hunting Ridge Mall site would be reduced from $1,019,125 to $25,705, for a savings of $993,420. Total present worth cost savings for the proposed changes would be $2,885,276.

This final criterion is considered a modifying criterion and is considered after evaluating those above. It is focused upon after public comments on the proposed ROD amendment have been received.

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

In general the public comments received were supportive of the selected remedy. However, several members of the public were concerned about petroleum contamination that was recently discovered at a former gasoline service station, located adjacent to the Shopping Arcade site. The NYSDEC is currently overseeing an investigation which will determine the extent of petroleum contamination at the former service station under the petroleum spill program. After the results of the investigation are received, the NYSDEC will determine if remediation is required. This Amended ROD does not affect the investigation and remediation, if necessary, of the neighboring former service station.

SECTION 5: SUMMARY OF SELECTED CHANGES

The NYSDEC is amending the RODs for the Bedford Village Wells Sites. The change includes deletion of the extraction and treatment portion of the remedy for the Shopping Arcade site. The Shopping Arcade site will also be reclassified to a Class 4, indicating that the site is properly closed but requires continued monitoring. The long-term monitoring program for the Shopping Arcade site includes semiannual sampling of four groundwater monitoring wells for the first five years and subsequent annual monitoring of these four wells until they achieve groundwater standards for site-related contaminants, which is estimated at 20 years.

The remedy at the Hunting Ridge Mall site will be changed from extraction and treatment to in-situ chemical oxidation of contaminated groundwater. A chemical oxidant will be injected into the groundwater upgradient of MW-3M and will react with the VOCs in the groundwater to form nontoxic products. The long-term monitoring program for the Hunting Ridge Mall will include six monitoring wells sampled for VOCs on a semiannual basis until groundwater standards are achieved for site-related contaminants. The remedy duration is estimated at three years, which includes six months of construction and 2½ of operation and maintenance.

The public water supply has been constructed and all of the affected residences and businesses have been connected to public water. Properties in the vicinity of the affected area that continue to utilize private wells are tested periodically by the WCDOH. If any of these properties are

found to be contaminated with site related compounds above drinking water standards, they will be connected to the public water supply. The NYSDEC will reimburse the WCDOH for the cost of sampling and testing these private wells.

Also, the NYSDEC is amending the monitoring plan for the Mianus River and adjacent tributaries to the following: collection of surface water samples from the Mianus River and adjacent tributaries before and after implementation of groundwater remediation at the Hunting Ridge Mall site. The results of the surface water sampling will be used in conjunction with the groundwater monitoring data to determine the effectiveness of the groundwater remedy.

A Remedial Design will be prepared 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. The estimated present worth cost savings for the amended remedy is $2,885,276.

SECTION 6: 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:

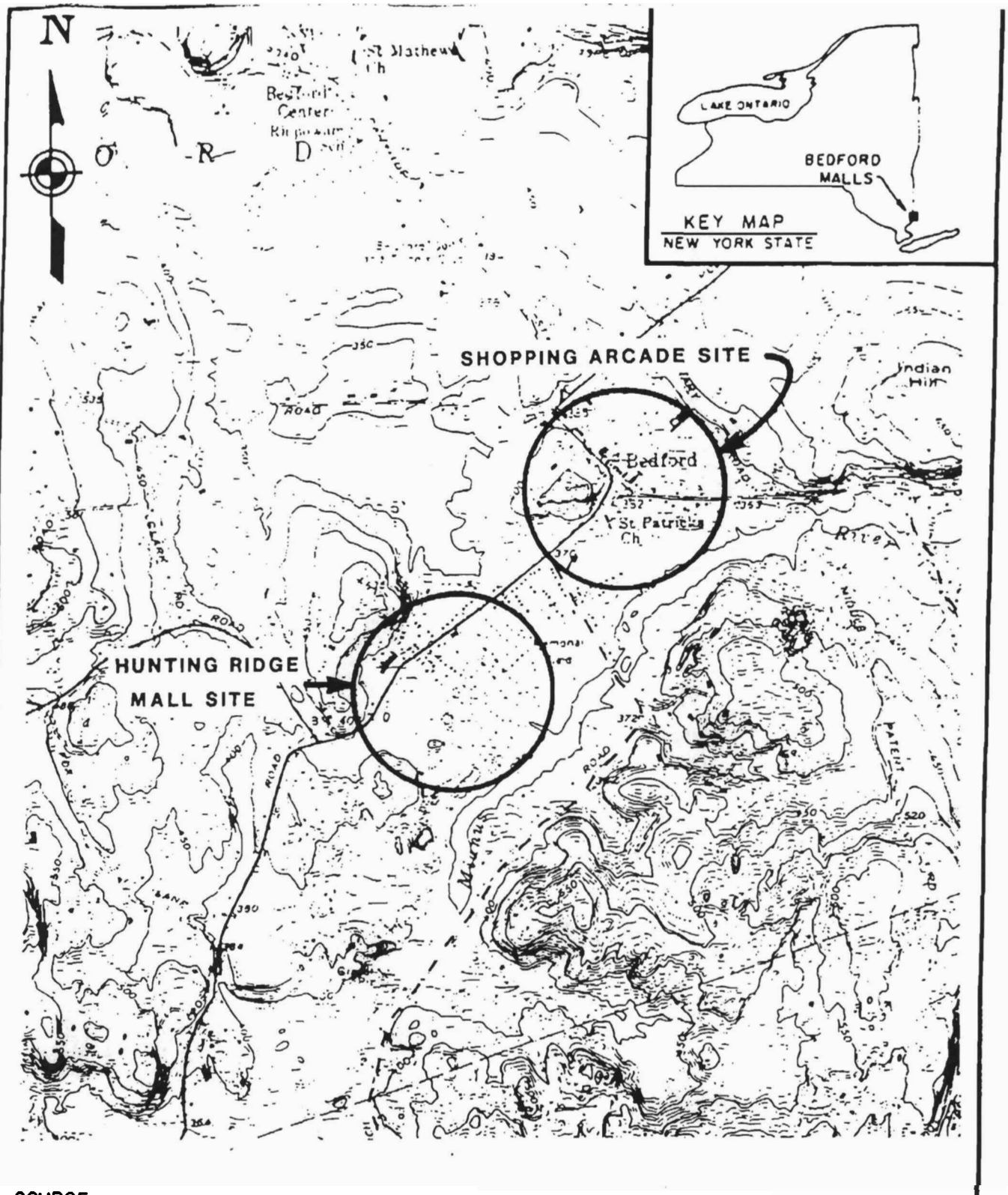
A repository for documents pertaining to the site was established;

A site mailing list was established which included nearby property owners, local political officials, local media and other interested parties;

A public meeting notice and fact sheet were distributed to the mailing list upon publication and release of the Proposed ROD Amendment;

A public meeting was held on December 19, 2001and a public comment period was established to present the Proposed ROD Amendment, answer the public's questions and receive public comments; and

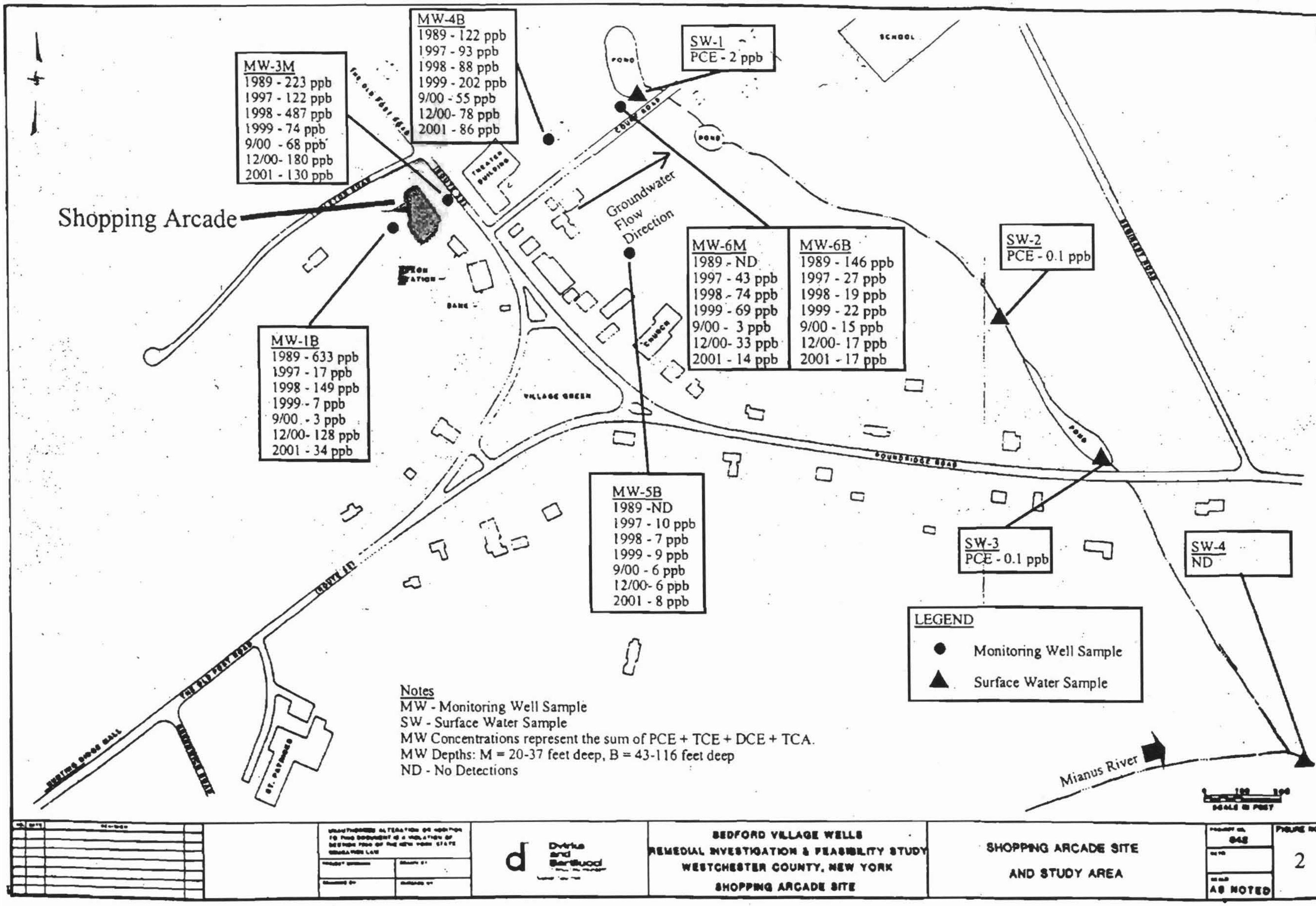
- In February 2002, a Responsiveness Summary was prepared and made available to the public, to address the comments received during the public meeting and public comment period.

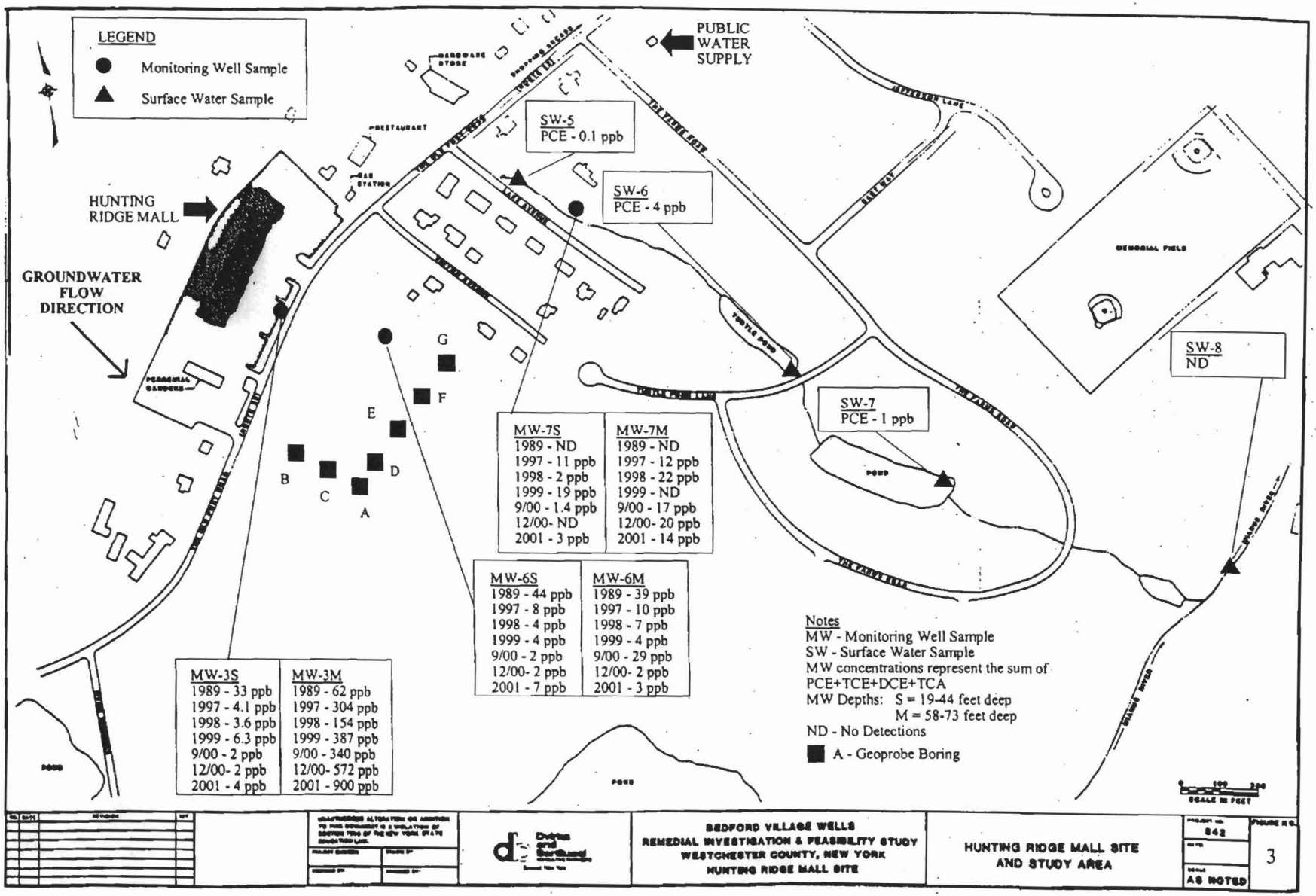


URS CONSULTANTS, INC.

LOCATION OF HUNTING RIDGE MALL AND SHOPPING ARCADE STUDY AREA

FIGURE 1


MW-3M
1989 - 223 ppb
1997 - 122 ppb
1998 - 487 ppb
1999 - 74 ppb
9/00 - 68 ppb
12/00- 180 ppb
2001 - 130 ppb
MW-4B
1989 - 122 ppb
1997 - 93 ppb
1998 - 88 ppb
1999 - 202 ppb
9/00 - 55 ppb
12/00- 78 ppb
2001 - 86 ppb
SW-1
PCE - 2 ppb
SCHOOL
POND
Shopping Arcade
Groundwater Flow Direction
MW-6M
1989 - ND
1997 - 43 ppb
1998 - 74 ppb
1999 - 69 ppb
9/00 - 3 ppb
12/00- 33 ppb
2001 - 14 ppb
MW-6B
1989 - 146 ppb
1997 - 27 ppb
1998 - 19 ppb
1999 - 22 ppb
9/00 - 15 ppb
12/00- 17 ppb
2001 - 17 ppb
SW-2
PCE - 0.1 ppb
MW-1B
1989 - 633 ppb
1997 - 17 ppb
1998 - 149 ppb
1999 - 7 ppb
9/00 - 3 ppb
12/00- 128 ppb
2001 - 34 ppb
VILLAGE GREEN
POUNDRIDGE ROAD
MW-5B
1989 -ND
1997 - 10 ppb
1998 - 7 ppb
1999 - 9 ppb
9/00 - 6 ppb
12/00- 6 ppb
2001 - 8 ppb
SW-3
PCE - 0.1 ppb
SW-4
ND
LEGEND
Monitoring Well Sample
Surface Water Sample
Notes
MW - Monitoring Well Sample
SW - Surface Water Sample
MW Concentrations represent the sum of PCE + TCE + DCE + TCA.
MW Depths: M = 20-37 feet deep, B = 43-116 feet deep
ND - No Detections
Mianus River
ST. PATRICKS
THE OLD POST ROAD
BEDFORD VILLAGE WELLS
REMEDIAL INVESTIGATION & FEASIBILITY STUDY
WESTCHESTER COUNTY, NEW YORK
SHOPPING ARCADE SITE
SHOPPING ARCADE SITE
AND STUDY AREA
FIGURE NO.
2
AS NOTED



	Dvirka and Bartilucci	BEDFORD VILLAGE WELLS REMEDIAL INVESTIGATION & FEASIBILITY STUDY WESTCHESTER COUNTY, NEW YORK HUNTING RIDGE MALL SITE	HUNTING RIDGE MALL SITE AND STUDY AREA	842 / AS NOTED / 3

TABLE 1: MONITORING WELL SAMPLING - ANALYTICAL RESULTS
BEDFORD VILLAGE WELLS - SHOPPING ARCADE (SITE CODE 3-60-006)

MW No.	Contaminant	1988	1997	1998	1999	9/2000	12/2000	6/2001
1B	PCE	42	2.6	23	2.8	0.5	44	5
	DCE	520	12	107	3.3	2	45	17
	TCE	71	3	19	0.9	0.9	39	6
	Vinyl Chloride	22	N/A	79	ND	ND	4	6
	Toluene	ND	0.5	0.9	0.5	ND	ND	ND
	Xylenes	ND	0.6	0.7J	0.8	ND	ND	ND
3M	PCE	210	120	480	53	68	170	130
	DCE	ND	0.5	1.8	7.5	ND	ND	ND
	TCE	13	0.6	2.2	1.3	0.3	0.7	ND
	TCA	ND	ND	3	ND	ND	9.7	0.4
	Benzene	ND	ND	ND	4.3	ND	ND	ND
	Toluene	ND	0.5	ND	0.8	ND	ND	ND
4B	PCE	120	90	72	200	30	46	58
	DCE	ND	1	6.3	0.5	7	10	8
	TCE	2	2	7.6	1	18	21	20
	TCA	ND	ND	ND	0.8	ND	ND	ND
	Benzene	ND	ND	2.1	ND	0.6	0.4	0.5
5B	PCE	ND	9.6	7.2	8.7	6	6	7
	DCE	ND	ND	ND	ND	ND	ND	0.5
	TCE	ND	ND	ND	0.6	0.4	ND	0.5
6M	PCE	ND	39	67	60	3	25	8
	DCE	ND	ND	0.6	2.6	ND	2	2
	TCE	ND	3	5.5	5.6	ND	6	4
	Benzene	ND	0.9	0.8	ND	ND	0.5	0.5
	sec-Butylbenzene	N/A	N/A	5.2	4.9	ND	4	4
6B	PCE	140	22	15	16	12	12	12
	DCE	ND	1.5	1.3	2.8	0.7	2	2
	TCE	6	3.3	2.6	3.5	2	3	3
	Toluene	ND	0.5	0.8	ND	ND	ND	ND

All Values are in Parts per Billion

Sampling Dates: March & October 1988; June 1997; December 1998; December 1999; September 2000; December 2000; June 2001

TABLE 2: MONITORING WELL SAMPLING - ANALYTICAL RESULTS
BEDFORD VILLAGE WELLS - HUNTING RIDGE MALL (SITE CODE 3-60-009)

MW No.	Contaminant	1988-1989	1997	1998	1999	9/2000	12/2000	6/2001
3S	PCE	38	41	3.6	6.3	2	2	4
3M	PCE	59	260	130	340	300	500	800
	DCE	ND	32	17.7	31	17	49	68
	TCE	3	12	5.9	16	23	23	32
	Vinyl Chloride	ND	N/A	6.6	3.9	6	9	9
6S	PCE	38	7.2	3.6	4.3	2	2	6
	DCE	4	0.7	ND	ND	ND	ND	0.6
	TCE	2	0.8	ND	ND	ND	ND	0.6
6M	PCE	33	8.3	5.5	3.6	20	2	3
	DCE	4	1.1	5	ND	4	ND	ND
	TCE	2	1	0.6	ND	5	ND	ND
	Toluene	ND	ND	0.7	ND	ND	ND	ND
7S	PCE	ND	2.7	1	0.7	0.8	ND	2
	DCE	ND	6.3	0.9	17	ND	ND	ND
	TCE	ND	2.2	ND	1.2	0.6	ND	0.8
	Vinyl Chloride	ND	N/A	ND	0.7	ND	ND	ND
7M	PCE	ND	0.5	ND	ND	0.3	0.5	0.7
	DCE	ND	11	21	ND	16.4	19	11
	TCE	ND	0.7	1	ND	3	4	2
	Vinyl Chloride	ND	N/A	1	ND	0.5	ND	ND

All Values are in Parts per Billion

Sampling Dates: January 1988; February 1989; June 1997; December 1998; December 1999; September 2000; December 2000; June 2001

TABLE 3
BEDFORD WELLS - HUNTING RIDGE MALL SITE (3-60-009)
GEOPROBE GROUNDWATER SAMPLING RESULTS

Sample ID	A1	B1	B2	B3	C1	D1	D2	NY State Groundwater Standard
Depth (feet)	45	55	45	40	38	55	45	
Date Collected	02/05/01	02/05/01	02/05/01	02/05/01	02/05/01	02/15/01	02/15/01	
COMPOUND NAME	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1,2-Dichloroethylene	ND	ND	ND	ND	ND	ND	ND	5
Trichloroethylene	ND	ND	ND	ND	ND	ND	ND	5
Tetrachloroethylene	ND	ND	ND	ND	ND	ND	ND	5
Acetone	ND	ND	ND	ND	ND	ND	ND	50

Sample ID	E1	E2	F1	F2	F3	G1	G2	G3	NY State Groundwater Standard
Depth (feet)	48	40	60	50	40	59	50	40	
Date Collected	02/15/01	02/15/01	02/15/01	02/15/01	02/15/01	02/16/01	02/16/01	02/16/01	
COMPOUND NAME	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1,2-Dichloroethylene	ND	ND	2J	ND	1J	ND	ND	4J	5
Trichloroethylene	ND	ND	ND	ND	ND	ND	ND	1J	5
Tetrachloroethylene	ND	ND	**18**	3J	3J	4J	ND	**7J**	5
Acetone	ND	ND	ND	ND	ND	ND	17	ND	50

NOTES
ND: Not Detected; please see Figure 4 for GeoProbe locations
Concentrations exceeding groundwater standards are in bold typeface.
J: Estimated Value - below detection limit

Table 4
Cost Comparisons for Selected Changes

Site Name	Decision Document	Capital Costs	Present Worth Operation and Maintenance Costs	Total Costs
Shopping Arcade	1990 ROD	$872,750	$604,741	$1,477,491
Shopping Arcade	2001 Amended ROD	$0	$62,310	$62,310
Shopping Arcade	**Savings**	**$872,750**	**$542,431**	**$1,415,181**
Hunting Ridge Mall	1990 ROD	$688,875	$1,019,125	$1,708,000
Hunting Ridge Mall	2001 Amended ROD	$212,200	$25,705	$237,905
Hunting Ridge Mall	**Savings**	**$476,675**	**$993,420**	**$1,470,095**
Total	**Savings**	**$1,349,425**	**$1,535,851**	**$2,885,276**

APPENDIX A

Responsiveness Summary

RESPONSIVENESS SUMMARY

Bedford Village Wells Sites: Shopping Arcade and Hunting Ridge Mall
Amended Record of Decision (ROD)
Town of Bedford, Westchester County
Site Nos. 3-60-006 and 3-60-009

The Proposed Record of Decision (ROD) Amendment for the Bedford Village Wells sites, was prepared by the New York State Department of Environmental Conservation (NYSDEC) and issued to the local document repository on December 5, 2001. This document outlined the proposed changes to the remedies selected in the original RODs, which were published in 1990. . .

The release of the Proposed ROD Amendment was announced via a notice to the mailing list, informing the public of the Proposed ROD Amendment's availability. The amended remedy is described in Section 5 of the Amended ROD.

A public meeting was held on December 19, 2001 at the Bedford Historical Hall, which discussed the original investigation and remedies, remedial measures implemented to date, additional sampling data, and proposed changes to the original RODs. The meeting provided an opportunity for citizens to discuss their concerns, ask questions and comment on the proposed changes. These comments have become part of the Administrative Record for this site. Written comments were received from Mr. Donovan Craven on January 4, 2002. The public comment period for the Proposed ROD Amendment ended on January 4, 2002.

This Responsiveness Summary responds to all questions and comments raised at the December 19, 2001 public meeting and to the written comments received.

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

COMMENT 1: About six weeks ago, the Town of Bedford was repairing the sidewalk in front of a former gasoline service station located adjacent to the Shopping Arcade site. The soil beneath the sidewalk was contaminated with petroleum. What is the NYSDEC doing to address this problem?

RESPONSE 1: The NYSDEC is overseeing the investigation of the former service station. Once the investigation determines the extent of the petroleum contamination, the NYSDEC will determine if remediation is required.

COMMENT 2: Has the spill at the adjacent gas station been factored into the Proposed ROD Amendment?

RESPONSE 2: The investigation and remediation of the gas station spill is being performed independently of the remedial activities at the Shopping Arcade site. The Proposed ROD Amendment only applies to contamination that originated at the Shopping Arcade and Hunting Ridge Mall sites.

COMMENT 3: Isn't it premature to decide on the remedy for either site if we don't know how the gas station spills will affect the groundwater? Until we know the petroleum levels at the Arcade site, is it premature to reclassify the site to a Class "4"?

RESPONSE 3: The contaminants originating at the Shopping Arcade site are different from the contaminants found at the former service station. The Shopping Arcade formerly contained a dry cleaner, which discharged chlorinated solvents such as tetrachloroethylene (PCE). The petroleum contamination at the service station exhibits different contaminants including benzene, toluene, ethylbenzene, and xylene. Also, different parties are responsible for the contamination originating at each site.

The Proposed ROD Amendment only addresses contamination originating at the Shopping Arcade and Hunting Ridge Mall sites. Reclassification of the Shopping Arcade site does not preclude the NYSDEC from investigating and remediating contamination originating at the adjacent former service station.

COMMENT 4: The NYSDEC should make sure to coordinate the remediation of the two Bedford Village Well sites with other sites in the area.

RESPONSE 4: In addition to the former service station, the NYSDEC is performing a Preliminary Site Assessment (PSA) at the Bedford Highway Garage, located ½ mile southeast of the Hunting Ridge Mall site. The PSA will determine if the Bedford Highway Garage will be listed in the New York State Registry of Inactive Hazardous Waste Disposal Sites. The NYSDEC will coordinate remedial efforts at all of the sites in Bedford and will avoid duplication of effort.

COMMENT 5: Are the same remediation techniques used for chlorinated solvents and gasoline spills?

RESPONSE 5: Since gasoline and chlorinated solvents are volatile organic compounds (VOCs), some technologies would remediate both types of contaminants. However, the selection of remedial technologies is dependent on site conditions, including contaminant types, concentrations and geology.

COMMENT 6: The groundwater flow direction depicted on Figure 2 of the Proposed ROD Amendment is accurate for groundwater near the Shopping Arcade site. However, the groundwater at the location of the groundwater flow arrow flows in a different direction.

RESPONSE 9: Although the public water supply is divided into two administrative water districts, there is only one public water supply system. When the NYSDEC provided funds to purchase the Farms water supply, the system only had one supply well. A second well was drilled and pumped water at a depth deeper than contamination was known to exist. Also, the pump house was upgraded and the distribution system was expanded to properties with contaminated private wells. The total cost to purchase and expand the public water supply was approximately $2 million. The text of the Amended ROD has been changed to clarify this information.

A letter dated January 4, 2002 was received from Mr. Donovan Craven which included the following comments:

COMMENT 1: The NYSDEC should not have installed the new water supply well adjacent to the Farms well. The new well increased the area of influence of the system and captured contamination from the Hunting Ridge Mall site. The Remedial Investigation/Feasibility Study (RI/FS) Report indicated that the increased pumping at the Farms location could cause an increase in VOC concentrations, thus requiring treatment. The RI/FS also indicated that Memorial Field would have been a better location for the new well. However, the NYSDEC decided to locate the additional well adjacent to the Farms well anyway.

RESPONSE 1: After the ROD was signed in 1990, the NYSDEC conducted an aquifer test at Memorial Field, the selected location of the new public water supply, to determine the maximum pumping rate of the aquifer at that location. The results of the pumping test revealed that the aquifer at Memorial Field would not provide enough water to be used as a public water supply. The NYSDEC also determined that there were no other suitable locations to install a new public water supply.

In 1991, the Town of Bedford was given the opportunity to purchase the Farms public water supply and extend the distribution system to properties that were affected by site-related contaminants. When the RI/FS report was issued and the ROD was signed in 1990, this option was not chosen because the Farms water supply was privately owned. After an engineering study was completed by the NYSDEC's standby consultant, the NYSDEC decided to provide funds for the Town of Bedford to purchase the Farms water supply and expand its capacity instead of creating a new public water supply. The second well was screened to pump water at a deeper depth than contamination was known to exist.

After the new water supply well was installed, VOCs were detected in the groundwater at concentrations that were below drinking water standards. An air stripping tower was installed to insure that water distributed to the public continues to meet drinking water standards.

RESPONSE 6: The arrow depicting groundwater flow direction on the Shopping Arcade site map has been moved closer to the site in the Amended ROD.

COMMENT 7: The NYSDEC should not have placed the second public water supply well at the location of the Bedford Farms water supply well. The new well increased the area of influence of the system and captured contamination from the Hunting Ridge Mall site.

RESPONSE 7: After the ROD was signed in 1990, the NYSDEC conducted an aquifer test at Memorial Field, the selected location of the new public water supply, to determine the maximum pumping rate of the aquifer at that location. The results of the pumping test revealed that the aquifer at Memorial Field would not provide enough water to be used as a public water supply. The NYSDEC also determined that there were no other suitable locations to install a new public water supply.

In 1991, the Town of Bedford was given the opportunity to purchase the Farms public water supply and extend the distribution system to properties that were affected by site-related contaminants. After an engineering study was completed by the NYSDEC's standby consultant, the NYSDEC decided to provide funds for the Town of Bedford to purchase the Farms water supply and expand its capacity instead of creating a new public water supply. The second well was screened to pump water at a deeper depth than contamination was known to exist.

After the new water supply well was installed, VOCs were detected in the groundwater at concentrations that were below drinking water standards. An air stripping tower was installed to insure that water distributed to the public continues to meet drinking water standards.

COMMENT 8: If future water supply needs warrant the installation of an additional public water supply well, can the well be drilled at a more suitable location than adjacent to the Bedford Farms wells?

RESPONSE 8: When the NYSDEC funded the expansion of the Farms water supply, there were no other feasible locations to locate a public water supply. The NYSDEC installed the new supply well at a deeper depth than contamination was known to exist at that time.

The NYSDEC will connect additional properties to the public water supply if their private wells contain site-related contaminants exceeding drinking water standards. In the unlikely event that the needs of the properties with impacted private wells exceed the public water supply capacity, the NYSDEC would evaluate all available options and provide these properties with a source of drinking water that meets New York State drinking water standards.

COMMENT 9: The description of the purchase and expansion of the public water supply in the Proposed ROD Amendment is incorrect. There are actually two separate water districts.

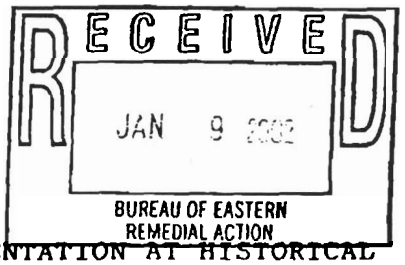
COMMENT 2: The DEC should not ignore the petroleum contamination that exists in the soil and groundwater near the Shopping Arcade site. Reclassification of this site will not solve the problem.

RESPONSE 2: The NYSDEC is overseeing a separate investigation of the former gasoline service station located adjacent to the Shopping Arcade site. This former service station is the source of the petroleum contaminated soil and the likely source of petroleum contaminated groundwater. Since the Shopping Arcade contained a dry cleaner, the Shopping Arcade would not have been a source of petroleum contamination. The reclassification of the Shopping Arcade site will have no effect on the investigation and remediation of soil and groundwater contamination from the adjacent service station.

A copy of Mr. Craven's letter is attached.

January 4th, 2002

Donovan Craven
87 Farms Road
Bedford, N.Y. 10506



Mr. Jeffrey Dyber, P.E., Project Manager
NYSDEC Division of Environ-
mental Remediation.
625 Broadway, 11th Floor
Albany, N.Y. 12233-7015

REF: YOUR DEC PUBLIC MEETING AND PRESENTATION AT HISTORICAL HALL OF DECEMBER 19th, 2001

Dear Jeffrey;

In reference to the meeting of December 19th, your presentation as well as those of Michael Knipfing and John Olm was informative and obviously expressed a willing attitude and some specifics in helping to cleanup several of Bedford's remaining pollution problems which were oncovered by the EPA toxic chemical designations of 1983.

While the N.Y.State DEC being an on-the -site agent for the SUPERFUND PROGRAM has made very significant,vital, installed-water systems a reality for our then severely toxic damaged hamlet of Bedford Village, the DEC's expedient well placement decisions (including some other actions too) that were not endorsed by their own engineering firm; has led to unnecessary comprises. In other words, their credibility has suffered somewhat.

So even though you are a different department from the department that made the decisions on the Superfund new water system well location matter, it is impossible to separate it out and exclude the question whether this is indeed the time to reclassify the Bedford Historical Area (your designation- "The Shopping Arcade Site) to a Class Four Site. Obviously, the recent uncovering of the petroleum presence while digging a hole for a storm drain implacement at the edge of the road by the former gasolene station is the catalyst for raising the issue whether site reclassification should be done now.

The balence of this letter will consist to two parts partly entwined.

The first part shows how the credibility " factor has been related to certain DEC actions and has produced a healthy skepticism on automatic acceptance of a large agency's proposals. The second part has to do with correcting some of of ommissions, errors, etc. on the FACT SHEETS and other DEC materials that are part of this revision/new process material. This will not necessarily be in chronological order, ie.-the well sampling and ground water analysis done in 1988 and incorporating in the DVIRKA AND BARTILUCCI AND SCS ENGINEERS EIGHT VOLUME REPORT DONE FOR THE DEC (PUBLISHED IN 1990) hereafter called "THE SUPERFUND ENGINEERING REPORT", will not be discussed first in reference to the SHOPPING ARCADE.

1. THE LOCATION OF THE NEW SUPERFUND WELLS FOR THE NEW 1o,000 ft. LONG SUPERFUND WATER SYSTEM.

Workwheet # 6, copy attached, of the Superfund Engineering report makes the recommendation for locating the new Superfund Wells at the N.E. forner of Memorial Field. This site would not run the risk of dragging up the toxics just south of the Farms Road at Lake Avenue.

Work sheet # 9, copy attached.
Considered the pros (2) and the cons (5) of locating the new Superfund Wells by the existing Farms Wells.

The engineer's notations referred to the hazards of placing the new wells adjacent to the Farms wells. Such In his view, the combination of having all of these wells in one place would result in their sucking the toxics located nearby right into the wells themselves with the result of polluting both the new and the existing Farms wells for the eighty families within the Farms.

See quote, in part from page 4-39 , copy attached. Paraphrasing--The existing Farms well site is too small for the addition of the Superfund Wells. the small size would preclude it and the addition might overtax the safe yield from the underlying aquifer.

What happened? The DEC"' representatives made it clear that they wanted the Wells and related equipment adjacent to the Farms Wells. Other considerations were waived. The wells were drilled, the system built, and within a very short time

the toxics had entered the holding tank which the Farms system also uses. So the system that was designed to bring in fresh, pure water, wound up bringing in the very toxics that it had been built to eliminate and this avoidable error also polluted the Farms system. As a consequence an in-line water purifier known as a stripper had to be installed as a permanent unit of the system. Strippers are expensive to operate and the inherent high operating costs is reflected in the water bills.

2. The wrong place to look for a high volume supply well water source. Prior to the construction of the Superfund wells and system, the DEC hired a driller to drill for water at the edge of the woods on the Mianus side of Memorial Field. The Superfund Engineering Report had made a specific suggestion and listing it as a desireable approach/ alternative. This was the recommended choice/alternative and the worksheets and text bear this out. This recommended site was on the opposite side (the Route 22,172 side of Memorial Field. The exploratory drilling did not work out. Th ere is no explanation as to why this east, Mianus River side was chosen, again in ~~con~~ NON-alignment with the Superfund Engineering Report.

3. We now look at the present situation for the possible reclassification of most of what we call the Historical District which you have identified as the Shopping Arcade Site. The first part of this is to look at this through the "eyes" of the Engineering Superfund Report. I am referring to figure 1-9 ,copy enclosed, which is two pages after page 1-15 of Volume IV of the Superfund Engineering of the Remedial Investigation for the Arcade/Historic District

Site. The tetra compounds are, per our understanding associated with dry cleaning fluids, sludges, etc. On the other hand, toulene is usually derived from petroleum products, at least this my understanding. There are some toulene locations shown on the map. If a few more locations had been properly prepared and sampled, it is more than likely that more of it would have been noted.

I think that it would be a mistake to take a position that the present uncovering of petroleum ground saturation happen since the time of the original Superfund/EPA activity.

While the digging up of some of the saturated material has taken place, its more of a symbolic cleaning action if one recognizes that these things migrate below ground.

I suggest that you and other interested parties of the DEC walk the site with one of these Superfund Engineering Volumes in hand. By talking with some of our Boards you will see how cautious they are about certain potential sites. Certainly pollution elimination is one of the Superfund's and the DEC's mandated purposes.

Clarity perhaps can be achieved here by stating that no doubt it is true that in general pollution conditions in the area bear out the fact that stripping injection units, or their modern counterparts, are deemed unnecessary, as you explained in the meeting. Be that as it may, the town Boards have recognized that in certain locations there is a problem, and the uncovering of the oil ladened soil points to the fact that there are others, in the immediate area too. Reclassification by itself will not solve the problem.

An aggressive stance by the DEC at this time can save the Town from having to embark on a very expensive, taxpayer financed "solution".

Sincerely,

VARIOUS

APPENDIX B

Administrative Record

Administrative Record

BEDFORD VILLAGE WELLS SITES
Shopping Arcade (Site No. 3-60-006)
Hunting Ridge Mall (Site No. 3-60-009)
Amended Record of Decision
Town of Bedford, Westchester County

1. "Groundwater Assessment, Town of Bedford, New York," Leggette, Brashers and Graham Inc. - December 1985

2. "Technical Proposal to Conduct a Remedial Investigation/Feasibility Study of Bedford Village Wells, Hunting Ridge Mall/Shopping Arcade Sites, Westchester County, New York," Dvirka and Bartilucci - November 1986

3. "Contract Document for a Remedial Investigation/Feasibility Study of the Bedford Village Wells, Hunting Ridge Mall, Shopping Arcade Sites," New York State Department of Environmental Conservation - March1987

4. "Public Participation Plan, Bedford Village Wells, Hunting Ridge Mall Site," New York State Department of Environmental Conservation - July 1987

5. "Remedial Investigation Work Plan - Quality Assurance/Quality Control Plan and Health and Safety Plan, Bedford Village Wells, Hunting Ridge Mall Site," Dvirka and Bartilucci - August 1987

6. "Westchester County-North County, Water Supply Study" for Westchester County Department of Health, Velzy Associates, Inc., - August 1987

7. "Seismic Refraction Investigation, Bedford Village, New York." Delta Geophysical Services - October 1987

8. "Remedial Investigation - Interim Report, Phase IA Sampling Program, Bedford Village Wells, Hunting Ridge Mall, Dvirka and Bartilucci - December 1987

9. "Field Investigation - Phase IIA, Bedford Village Wells, Hunting Ridge Mall," Dvirka and Bartilucci - January 1988

10. "Filed Report - Phase IIA Investigation. Bedford Village Wells, Hunting Ridge Mall," Dvirka and Bartilucci - January 1988

11. "Remedial Investigation - Interim Report, Phase IIA Sampling Program, Bedford Village Wells, Hunting Ridge Mall," Dvirka and Bartilucci - March 1988

12. "Field Report, Phase IIA Investigation (Groundwater Sampling), Bedford Village Wells, Hunting Ridge Mall," Dvirka and Bartilucci - April 1988

13. "Supplemental Agreement No. 1 - Contract for a Remedial Investigation/Feasibility Study of the Bedford Village Wells, Hunting Ridge Mall, Shopping Arcade Sites," New York State Department of Environmental Conservation - May 1988

14. "Field Report, Phase IB Investigation, Bedford Village Wells, Hunting Ridge Mall," Dvirka and Bartilucci - June 1988

15. "Quality Assurance/Quality Control Data Validation Report, Phase IIA Sampling Program, Bedford Village Wells," Dvirka and Bartilucci - July 1988

16. "Soil Gas Survey, Hunting Ridge Mall and Shopping Arcade, Bedford Village, Westchester County, New York," United States Environmental Protection Agency - August 1988

17. "Filed Report, Phase IIB Investigation (Groundwater Sampling), Bedford Village Wells, Hunting Ridge Mall," Dvirka and Bartilucci - October 1988

18. "Field Report, - Tap Water Sampling Program, Bedford Village Wells, Hunting Ridge Mall," Dvirka and Bartilucci - November 1988

19. "Quality Assurance/Quality Control - Data Validation Report, Phase IA-A and Phase IB Sampling Programs, Bedford Village Wells," Dvirka and Bartilucci - December 1988

20. "Field Report. Phase IA, IB, IIA, IIB Investigation (Resampling Program), Bedford Village Wells, Hunting Ridge Mall," Dvirka and Bartilucci - March 1989

21. "Analytical Data Report Package, Volumes 1-8," NYTEST Environmental, Inc. - April 1989

22. "Remedial Investigation Report, Bedford Village Wells, Shopping Arcade Site," Dvirka and Bartilucci - June 1989

23. "Feasibility Study Report, Bedford Village Wells, Shopping Arcade Site," Dvirka and Bartilucci - June 1989

24. "Remedial Investigation, Bedford Village Wells, Hunting Ridge Mall Site," Dvirka and Bartilucci - February 1990

25. "Remedial Investigation Report Appendices, Bedford Village Wells, Hunting Ridge Mall Site." Dvirka and Bartilucci - February 1990

26. "Remedial Investigation Health Risk Assessment, Bedford Village Wells, Hunting Ridge Mall Site," Dvirka and Bartilucci - February 1990

27. "Feasibility Study, Bedford Village Wells, Hunting Ridge Mall Site," Dvirka and Bartilucci - February 1990

28. "Proposed Remedial Action Plan, Bedford Village Wells, Hunting Ridge Mall Site, Remedial Investigation/Feasibility Study," New York State Department of Environmental Conservation - February 1990

29. "Proposed Remedial Action Plan, Bedford Village Wells, Shopping Arcade Site, Remedial Investigation/Feasibility Study," New York State Department of Environmental Conservation - February 1990

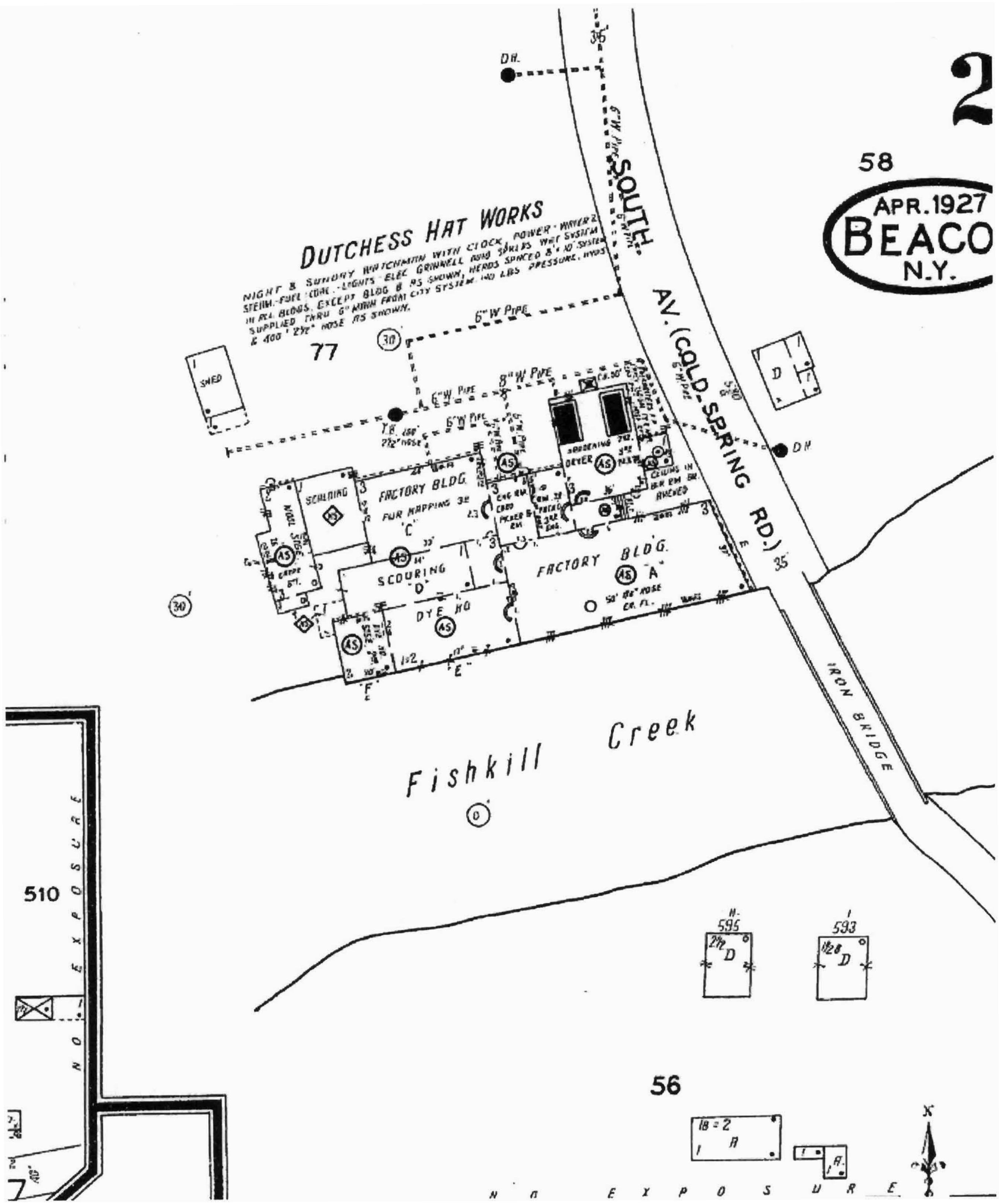
30. "Public Meeting for the Bedford Village Wells, Hunting Ridge Mall - Shopping Arcade Sites, Remedial Investigation/Feasibility Study," Transcript Prepared by Am Court Reporting for New York State Department of Environmental Conservation - March 1990

31. "Responsiveness Summary, Bedford Village Wells, Hunting Ridge Mall, Shopping Arcade Sites, Remedial Investigation/Feasibility Study," New York State Department of Environmental Conservation - March 1990

32. "Record of Decision, Bedford Village Wells, Shopping Arcade Site," New York State Department of Environmental Conservation - March 1990

33. "Record of Decision, Bedford Village Wells, Hunting Ridge Mall Site," New York State Department of Environmental Conservation - March 1990

34. "Proposed ROD Amendment, Bedford Village Wells Sites, Shopping Arcade and Hunting Ridge Mall," New York State Department of Environmental Conservation - November 2001


2
58
APR.1927
BEACO
N.Y.
DUTCHESS HAT WORKS
SOUTH AV. (COLD SPRING RD.)
77
SHED
6" W PIPE
8" W PIPE
SCALDING
FACTORY BLDG
FUR NAPPING 3RD
"C"
SCOURING
"D"
DYE HO
FACTORY BLDG.
"A"
DRYER
IRON BRIDGE
Fishkill Creek
510
NO EXPOSURE
595
593
56
N