PROPOSED REMEDIAL ACTION PLAN
Youngstown Cold Storage Site

Environmental Restoration Project
Village of Youngstown, Niagara County, New York
Site No. E932122

August 2006

Prepared by:

Division of Environmental Remediation
New York State Department of Environmental Conservation

A 1996 Clean Water/Clean Air Bond Act
Environmental Restoration Project

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SECTION 1: SUMMARY AND PURPOSE OF THE PROPOSED PLAN

The New York State Department of Environmental Conservation (NYSDEC), in consultation with the New York State Department of Health (NYSDOH), is proposing a remedy for the Youngstown Cold Storage site. The presence of hazardous substances has created threats to human health and/or the environment that are addressed by this proposed remedy.

The 1996 Clean Water/ Clean Air Bond Act provides funding to municipalities for the investigation and cleanup of brownfields. Brownfields are abandoned, idled or under-used properties where redevelopment is complicated by real or perceived environmental contamination. They typically are former industrial or commercial properties where operations may have resulted in environmental contamination. Brownfields often pose not only environmental, but legal and financial burdens on communities. Under the Environmental Restoration (Brownfields) Program, the state provides grants to municipalities to reimburse up to 90 percent of eligible costs for site investigation and remediation activities. Once remediated the property can then be reused.

As more fully described in Sections 3 and 5 of this document, poor housekeeping practices associated with historic operations, spills or leaks, and/or filling activities at the site have resulted in the contamination of surface and subsurface soil/fill and building components. The contaminants of concern consist of volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), polychlorinated biphenyls (PCBs) and metals. Additionally, the structures at the site contain both friable and non-friable asbestos containing building materials (ACMs). These hazardous substances/ACMs at the site have resulted in:

- A threat to human health associated with potential exposure to contaminated surface and subsurface soil/fill and building components.

- An environmental threat associated with the impacts of contaminants to wildlife utilizing the project site (e.g., rodents, birds, etc.), which have the potential to be exposed to the surface and subsurface soil/fill.

To eliminate or mitigate these threats, the NYSDEC proposes the following remedy to allow for the unrestricted residential re-development of the site:

- Excavation and off-site disposal of contaminated surface and subsurface soil/fill;
- Demolition of the spray wash structure and partial demolition of warehouse building (Compressor Room & block addition) to facilitate remediation;
- Removal and off-site disposal of sediments in the valve pit,
- Removal and off-site disposal of compressors and other PCB-contaminated equipment/concrete,
- Removal and off-site disposal of contaminated sub-slab material from under the compressor room,
- Removal and off-site disposal of the aboveground storage tank (AST) and any contents, and any impacted soil under the AST within the onsite structures
- Backfilling of excavations and valve pit with clean material.

The proposed remedy, discussed in detail in Section 8, is intended to attain the remediation goals identified for this site in Section 6. The remedy must conform with officially promulgated standards and criteria that are directly applicable, or that are relevant and appropriate. The selection of a remedy must also take into consideration guidance, as appropriate. Standards, criteria and guidance are hereafter called SCGs.

This Proposed Remedial Action Plan (PRAP) identifies the preferred remedy, summarizes the other alternatives considered, and discusses the reasons for this preference. The NYSDEC will select a final remedy for the site only after careful consideration of all comments received during the public comment period.

The NYSDEC has issued this PRAP as a component of the Citizen Participation Plan developed pursuant to the New York State Environmental Conservation Law and Title 6 of the Official Compilation of Codes, Rules and Regulations of the State of New York (6 NYCRR) Part 375. This document is a summary of the information that can be found in greater detail in the August 2006 "Remedial Investigation/Alternatives Analysis (RI/AA) Report" and other relevant documents. The public is encouraged to review the project documents, which are available at the following repositories:

Youngstown Free Library
240 Lockport Street
P.O. Box 168
Youngstown, New York 14174

or

NYSDEC Region 9 Office
270 Michigan Avenue
Buffalo, N.Y. 14203
Michael J. Hinton, P.E., Project Manager
716-851-7220
8:30 am – 3:30 pm by appointment only

The NYSDEC seeks input from the community on all PRAPs. A public comment period has been set from August 11, 2006 thru September 25, 2006 to provide an opportunity for public participation in the remedy selection process. A public meeting is scheduled for September 7, 2006 at the Youngstown Village Hall beginning at 6:30 PM.

At the meeting, the results of the RI/AA will be presented along with a summary of the proposed remedy. After the presentation, a question-and-answer period will be held, during which verbal or written comments may be submitted on the PRAP. Written comments may also be sent to Mr. Michael J. Hinton at the above address through September 25, 2006.

The NYSDEC may modify the preferred alternative or select another of the alternatives presented in this PRAP, based on new information or public comments. Therefore, the public is encouraged to review and comment on all of the alternatives identified here.

Comments will be summarized and addressed in the responsiveness summary section of the Record of Decision (ROD). The ROD is the NYSDEC's final selection of the remedy for this site.

SECTION 2: SITE LOCATION AND DESCRIPTION

The Youngstown Cold Storage site consists of approximately 2.4 acres located within the Village of Youngstown limits. The location of the project site is shown on Figure 1, the layout of the project site is shown on Figure 2, and site map and vicinity is shown on Figure 3. The project site is occupied by three structures that include: a deteriorating three-story stone building (warehouse) occupying approximately 23,000 square-feet; a single-story brick building (ice house) approximately 4,500 square-feet in size; and a residence that is approximately 875 square feet. The largest building contains a compressor room from which anhydrous ammonia was pumped through a pipe network throughout the cold storage portions of the facility. In addition, a spray wash area was present in the southeast corner of the project site where apples were reportedly washed prior to storage within facility buildings.

Immediately beyond Nancy Price Drive, Veteran's Park is located to the east of the project site. Elliot Street and 2nd Street bound the site to the north and west, respectively. Residential properties are located beyond these two streets. A National Grid substation, undeveloped land, and a residential property lie to the south of the project site.

The topography of the project site is generally flat with an approximate elevation of 300 feet above mean sea level (AMSL) based upon USGS topographic mapping of the area. The majority of the storm water on the project site is either conveyed by overland flow off the project site or infiltrates into the subsurface of the project site.

SECTION 3: SITE HISTORY

3.1: Operational/Disposal History

The project site was first developed as early as 1910 and was operated until 1996. The project site was used during this time period primarily for the storage, washing and packing of locally grown apples. The facility utilized a network of piping to chill the stored apples via anhydrous ammonia. Two large compressors located in the southeastern portion of the main building were used to pump the ammonia throughout the facility. The site has been vacant following cessation of activities at the project site in 1996. Potential sources of contaminants detected in surface and subsurface soil/fill and building components include:

Poor housekeeping practices resulting in past releases of petroleum products and/or wastes used in connection with heating and operating equipment including:

- The fuel oil tank located in the northeast corner of the basement crawl space of the warehouse building; and
- The underground fuel tank identified on the 1927 Sanborn Map to the east of the compressor room.

The contamination present is potentially related to:

- The former storage and processing of apples at the project site;
- The washing of apples in the outdoor wash located in the southeast portion of the site; and
- The possible on-site disposal of processing waste.

Polychlorinated biphenyls (PCBs) stemming from the probable historic operation and maintenance of electrical equipment with PCB-containing dielectric fluid within the compressor room; and

The presence of asbestos-containing building materials due to the age of the project site structures.

3.2: Remedial History

The Village notified the United States Environmental Protection Agency (USEPA) of an anhydrous ammonia leak at the project site on September 5, 2003. After conducting a removal assessment, the USEPA determined that a removal action would be required. The removal action was initiated on September 9, 2003 and completed on December 19, 2003. The removal action included the identification, removal, and disposal of hazardous substances from the project site. Materials removed from the site consisted of:

138 containers of miscellaneous chemicals that included, but may not have been limited to:

- Ammonium hydroxide;

- Potassium hydroxide;
- Hydrochloric acid;
- Phosphoric acid;
- Lead acid batteries;
- 500 pounds of anhydrous ammonia;
- Eight drums of ammoniated refrigeration oil collected from the ammonia system; and
- 250 gallons of No. 2 fuel oil from a heating tank.

Following the removal activities, the USEPA collected four soil samples and one sump sediment sample from around the spray wash area. Based on the results of these samples, the USEPA determined that additional removal activities were not warranted. It should be noted that the Administrative Record indicated that an asbestos survey was not performed in the buildings.

SECTION 4: ENFORCEMENT STATUS

Potentially Responsible Parties (PRPs) are those who may be legally liable for contamination at a site. This may include past owners and operators, waste generators, and haulers. Since no viable PRPs have been identified, there are currently no ongoing enforcement actions. However, legal action may be initiated at a future date by the state to recover state response costs should PRPs be identified. The Village of Youngstown will assist the state in its efforts by providing all information to the state which identifies PRPs. The Village of Youngstown will also not enter into any agreement regarding response costs without the approval of the NYSDEC.

SECTION 5: SITE CONTAMINATION

The Village of Youngstown has recently completed a site investigation/ alternatives analysis report (RI/AA) to determine the nature and extent of any contamination by hazardous substances at this environmental restoration site.

5.1: Summary of the Remedial Investigation

The purpose of the Remedial Investigation (RI) was to define the nature and extent of any contamination resulting from previous activities at the site. The RI was conducted between February and March 2006. An August 2006 report entitled "Final Remedial Investigation/Alternatives Analysis (RI/AA) Report for Youngstown Cold Storage Site" was prepared to describe the field activities and findings of the RI in detail.

The following activities were conducted during the RI:

- Research of historical information;

- Site survey to develop a base map and to locate the horizontal and vertical positions (where appropriate) of sample locations and relevant site features;

- Excavation of thirteen test pits to characterize the near-surface geology across the project site; investigate the potential presence of an underground fuel oil storage tank; and identify and delineate areas of subsurface contamination via the field screening and chemical analysis of soil/fill samples;

- Advancement of 16 soil probes to more broadly characterize near-surface geology across the site and define the extent of subsurface contamination encountered during the test pit activities;

- Collection of surface soil samples from areas of concern (e.g., the spray wash area, loading docks, adjacent transformer substation and underneath the fill port to the fuel oil tank located in basement of the warehouse building as well as from locations along western along the western property line;

- Collection of background soil samples to characterize background levels in the vicinity of the project site and facilitate the evaluation of the analytical results generated from on-site sampling;

- The completion of three soil probes as micro-wells to facilitate the determination of the gradient and flow direction of the groundwater in the upper-most water-bearing zone, as well as the collection of groundwater samples for chemical analysis;

- The performance of a sampling and analysis program to characterize areas of potential concern identified within the warehouse building as well as exterior drainage features associated with the warehouse building. This program included the collection of: soil/fill samples from below the concrete floor slabs; PCB wipe samples from stained surfaces within the compressor room; standing water samples within elevator shafts; wood flooring samples from storage areas; and

- The performance of a pre-demolition survey for asbestos-containing material (ACM) to evaluate the potential presence of ACMs on and within the three structures located on the project site.

5.1.1: <u>Standards, Criteria, and Guidance (SCGs)</u>

To determine whether the surface and subsurface soil/fill, groundwater and building components contain contamination at levels of concern, data from the investigation were compared to the following SCGs:

- Soil/fill, sediment and wood flooring: NYSDEC's January 1994 Technical and Administrative Guidance Memorandum: Determination of Soil Cleanup Objectives and Cleanup Levels (TAGM HWR-94-4046). The PCB in soil criteria will be 1 ppm regardless of depth due to the unrestricted future use of the site;

- Groundwater and standing water: NYSDEC's June 1998 Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations in the Technical and Operational Guidance Series (TOGS) 1.1.1.

- PCB Wipe Samples: 40CFR Part 761 Subpart G-PCB Spill Cleanup Policy – 761.125 (c)(4)(I – iv).

- Background soil samples were taken from five off-site locations determined to likely be unaffected by historic site operations. These locations included two from Veterans Park, two from Falkner Park and one from Lions Park. The samples were collected from zero to two inches below the vegetative layer. The background samples were analyzed for SVOCs, pesticides, herbicides and PCBs appearing on the Target Compound List (TCL) and the metals appearing on Target Analyte List (TAL). The results of the background sample analysis were compared to relevant RI data to determine appropriate site remediation goals.

Based on the RI results, in comparison to the SCGs and potential public health and environmental exposure routes, certain media and areas of the site require remediation. These are summarized in Section 5.1.2. More complete information can be found in the RI report.

5.1.2: Nature and Extent of Contamination

As described in the RI report, many soil, groundwater, sediment and building component samples were collected to characterize the nature and extent of contamination. As depicted in Figures 4 and 5, the main categories of contaminants that exceed their SCGs are volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), polychlorinated biphenyls (PCBs), and inorganics (metals).

Chemical concentrations are reported in parts per billion (ppb) for all water samples and for the analysis of organics in soil and sediment. The inorganic results for soil and sediment are reported in parts per million (ppm).

Figures 4 and 5 summarize the degree of contamination for the contaminants of concern (COCs) in surface and subsurface soil/fill and building components and identify COCs exceeding the applicable SCGs for the site. The following are the media which were investigated and a summary of the findings of the investigation.

Surface Soil

A total of eight surface soil samples were collected from depths of zero to two inches below the vegetative layer to evaluate the degree of contamination in the surface materials, if any. The analytical results indicate that the contaminants of concern in the surface soil consist of SVOCs, primarily polycyclic aromatic hydrocarbons (PAHs). Specifically, the highest concentrations of SVOCs were detected in SS04 and were generally an order of magnitude higher than in the other samples. As this sample was collected adjacent to a former loading dock, the elevated SVOC concentrations are potentially related to leaks and/or spills from trucks on/off-loaded in this area. The locations of the surface soil/fill samples and the estimated areal extent of contaminated surface soil/fill are indicated in Table 2 and included on Figure 4.

Surface soil contamination identified during the RI/AA will be addressed in the remedy selection process.

Subsurface Soil

Eight subsurface soil/fill samples were collected from test pits and soil probes from across the project site to characterize the subsurface soil/fill material. The locations of the subsurface soil/fill samples and the estimated areal extent of contaminated subsurface soil/fill are indicated in Table 3 and included on Figure 5. Contaminants detected in the subsurface soil/fill at concentrations that exceed applicable regulatory guidance values consist of arsenic and VOCs, primarily petroleum hydrocarbons. VOCs were detected in one or more of the five subsurface soil/fill samples submitted for VOC analysis. None of the samples contained individual VOC parameters at concentrations exceeding the applicable SCG; however, the concentration of total VOCs in the sample collected from TP02 eight feet below the existing ground surface (BEGS) exceeded the SCG value. The elevated VOCs detected in this sample are likely related to the historical operation of an underground fuel oil tank in this portion of the project site. Additionally, the soil/fill from TP04 was found to contain noticeable petroleum odor and staining.

The concentration of arsenic in TP09 at 41.3 ppm was above the SCG (7.5 ppm) and TAGM 4046 Eastern US Background Range (3 to 12 ppm). This sample was collected from approximately three feet below grade from a layer of black, cinder-like material that was approximately three inches thick. A sample of similar material collected from the southeastern portion of the site did not contain elevated concentrations of arsenic.

Subsurface soil contamination identified during the RI/AA will be addressed in the remedy selection process.

Groundwater

Groundwater samples were collected from the three newly installed micro-wells, which are shown on Figure 5. No contaminants of concern were identified in the groundwater. No site-related groundwater contamination of concern was identified during the RI/AA. Therefore, no remedial alternatives need to be evaluated for groundwater.

Building Materials and Associated Components

Contaminants were identified in the sub-slab soil/fill samples and stained surfaces of the compressor room within the warehouse building, as well as in the sediments collected from the on-site sump and adjacent storm sewers. Additionally, friable and non-friable ACMs were identified in all three on-site structures.

Three soil/fill samples were collected from below the concrete floor of the warehouse building, including two from below the basement floor and one from below the compressor room floor. Contaminants of concern detected in these samples are limited to lead, which was detected in the sample collected below the floor of the compressor room (Subslab01) at a concentration of 1,830 ppm. This concentration is more than ten times the average site background value, and is almost four times the lead concentration in any of the other soil/fill and sediment samples collected at the site. The elevated lead concentration appears to be confined to the subbase material underlying the compressor room.

Sediment samples were collected from two storm sewers connected to the project site and one valve pit located adjacent to the northeast corner of the warehouse building. Contaminants of concern detected in these samples were limited to PAHs. With the exception of an opening at the top of the structure, the on-site valve pit appears to be an isolated and enclosed structure. Therefore, the PAHs within it are not anticipated to migrate off-site. Because the source of contaminants in the off-site storm sewer sediments is urban runoff from the roads rather than an on-site source, these storm water sediments will not be addressed during the remediation of the project site.

Four wipe samples were collected within the compressor room including three from oil-stained floor surfaces and one from an oil-stained compressor. PCBs were detected in all four wipe samples. The results for the sample collected from the compressor and from the floor in the center of the room contravened the SCG. The concentrations of PCBs in the other two wipe samples were below the applicable SCG. PCB-containing oil was often used in compressors, and the presence of elevated PCBs on the equipment and floor surfaces in the compressor room is likely related to spills and/or leaks from the compressors.

As described in the Pre-Demolition Survey of Asbestos Containing Materials report, included in Appendix B of the RI/AA report, substantial quantities of non-friable (approximately 15,875 square feet) and limited quantities of friable (approximately 575 square feet and 160 linear feet) asbestos containing materials (ACMs) were identified throughout the on-site structures. The majority of the friable ACM that was identified in the warehouse building consisted of gray cement on the copper flashing associated with the roof of the warehouse building. The remainder of the friable ACM within the warehouse consisted of cloth wrap surrounding the cork pipe and tank insulation. Limited quantities of friable ACM consisting of a paper wrap were identified on ductwork within the basement of the house. The majority of the non-friable ACMs consisted of roofing materials on the warehouse and icehouse buildings. The remainder of non-friable ACMs consisted of window glaze in the warehouse and floor tiles in the house.

With the exception of the ACMs, the suspected areal extent of the contaminated media identified in the building materials and associated components are included in Figures 4 and 5. Further detail on the ACMs is provided in Appendix B of the RI/AA report. The contaminated media identified in the building materials and associated components that was identified during the RI/AA will be addressed in the remedy selection process.

Background Samples

Five background soil samples were collected and analyzed for Target Compound List (TCL) SVOCs, pesticides, herbicides and PCBs and Target Analyte List (TAL) metals to characterize background levels in the vicinity of the project site and facilitate the evaluation of the analytical results generated from on-site sampling. Table 4 summarizes the background soil sampling analytical results. Numerous SVOCs, primarily PAHs, were detected in all of the background samples. Because PAHs are formed through anthropogenic combustion processes such as the burning of coal, oil and gasoline, they are common in soils.

5.2: Interim Remedial Measures

There were no IRMs performed at this site during the RI/AA.

5.3: 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. A more detailed discussion of the human exposure pathways can be found in Section 5.0 of the RI report. An exposure pathway describes the means by which an individual may be exposed to contaminants originating from a site. An exposure pathway has five elements: [1] a contaminant source, [2] contaminant release and transport mechanisms, [3] a point of exposure, [4] a route of exposure, and [5] a receptor population.

The source of contamination is the location where contaminants were released to the environment (any waste disposal area or point of discharge). Contaminant release and transport mechanisms carry contaminants from the source to a point where people may be exposed. The exposure point is a location where actual or potential human contact with a contaminated medium may occur. The route of exposure is the manner in which a contaminant actually enters or contacts the body (e.g., ingestion, inhalation, or direct contact). The receptor population is the people who are, or may be, exposed to contaminants at a point of exposure.

An exposure pathway is complete when all five elements of an exposure pathway exist. An exposure pathway is considered a potential pathway when one or more of the elements currently does not exist, but could in the future.

Under the current use scenario, persons trespassing on the site could be exposed to SVOCs in the surface soil/fill and valve pit sediments via incidental ingestion of, or dermal contact with the contaminated media. In addition to SVOCs, these individuals have the potential to be exposed to asbestos via the inhalation of fibers released from damaged, friable ACMs. Also, site workers and/or persons trespassing in the warehouse could be exposed to PCBs present on stained equipment and floor surfaces within the compressor room via incidental ingestion of, or dermal contact with the contaminated media.

The presence of elevated concentrations of VOCs and arsenic in subsurface soil/fill and the presence of elevated lead concentrations in the soil/fill material below the concrete floor of the compressor room do not represent a human or environmental exposure risk because no complete exposure pathways were identified under the current use scenario for the project site. This is a function of the subsurface disposition of the contamination and limited areal extent of contaminated subsurface soil/fill, which effectively minimize the potential for the incidental ingestion of, or dermal contact with the contaminated media. These factors also reduce the potential for the emission of vapors and particulates that could pose an exposure risk via inhalation. This applies to persons visiting, working or trespassing on the project site.

5.4: Summary of Environmental Impacts

This section summarizes the existing and potential future environmental impacts presented by the site. Environmental impacts include existing and potential future exposure pathways to fish and wildlife receptors, as well as damage to natural resources such as aquifers and wetlands. The RI report presents a detailed discussion of the existing and potential impacts to environmental receptors.

The following environmental exposure pathways and ecological risks have been identified:

- Potential environmental receptors include wildlife utilizing the project site.

SECTION 6: SUMMARY OF THE REMEDIATION GOALS AND THE PROPOSED USE OF THE SITE

Goals for the remedial program have been established through the remedy selection process stated in 6 NYCRR Part 375-1.10. At a minimum, the remedy selected must eliminate or mitigate all significant threats to public health and/or the environment presented by the hazardous substances disposed at the site through the proper application of scientific and engineering principles.

The proposed future use for the Youngstown Cold Storage site is for unrestricted residential re-development.

The remediation goals for this site are to eliminate or reduce to the extent practicable:

- Exposures of persons at or around the site to SVOCs in surface soil/fill and the valve pit sediments; VOCs and metals in the subsurface and sub-slab soil/fill; PCB-stained surfaces in the compressor room; and asbestos within the on-site structures;

- Environmental exposures of flora or fauna to SVOCs in surface soil/fill and the valve pit sediments and the VOCs and metals in the subsurface soil/fill;

- The release of contaminants from soil into groundwater that may create exceedances of groundwater quality standards; and

- The release of contaminants from surface soil into ambient air through wind borne dust.

SECTION 7: SUMMARY OF THE EVALUATION OF ALTERNATIVES

The selected remedy must be protective of human health and the environment, be cost-effective, and comply with other statutory requirements. Potential remedial alternatives for Youngstown Cold Storage site were identified, screened and evaluated in the RI/AA report, which is available at the document repositories identified in Section 1.

A summary of the remedial alternatives that were considered for this site is discussed below. The present worth represents the amount of money invested in the current year that would be sufficient to cover all present and future costa associated with the alternative. This enables the costs of remedial alternatives to be compared on a common basis. As a convention, a time frame of 30 years is used to evaluate present worth costs for alternatives with an indefinite duration. This does not imply that operation, maintenance or monitoring would cease after 30 years if remediation goals are not achieved.

7.1: Description of Remedial Alternatives

The following potential remedies were considered to address the contaminated soil/fill and building components and materials at the site.

Alternative A: No Action

The No Action Alternative is evaluated as a procedural requirement and as a basis for comparison. Under this alternative, the site would remain in its current state and no environmental monitoring, remedial activities, institutional or additional access controls would be implemented. This alternative would leave the site in its present condition and would not provide any additional protection to human health or the environment.

Present Worth: *$0*
Capital Cost: *$0*
Annual OM&M (years 1-30) $0

Alternative B: Removal with Building Demolition

Alternative B would include excavation and off-site disposal of contaminated surface and subsurface soil/fill; demolition of the spray wash structure and all on-site buildings; removal and off-site disposal of sediments in the valve pit, compressors and other PCB-contaminated equipment/concrete, contaminated sub-slab material from under the compressor room, the AST and any contents and any associated impacted soil, and ACMs within the onsite structures. Additionally, remedial activities will include the backfilling of excavations and valve pit with clean material.

This alternative would achieve the RAOs for all contaminated media through proper removal and off-site disposal.

Present Worth: *$859,800*
Capital Cost: *$859,800*
Annual OM&M (years 1-30) $0

Alternative B1: Removal with Partial Building Demolition

Alternative B1 would include excavation and off-site disposal of contaminated surface and subsurface soil/fill; demolition of the spray wash structure and partial demolition (Compressor room and Block addition) of on-site buildings to facilitate remediation; removal and off-site disposal of sediments in the valve pit, compressors and other PCB-contaminated equipment/concrete, contaminated subslab material from under the compressor room, the AST and any contents and any associated impacted soil, and ACMs within the structures to be demolished. Additionally, remedial activities will include the backfilling of excavations and valve pit with clean material.

This alternative would achieve the RAOs for all contaminated media through proper removal and off-site disposal.

Present Worth: *$348,250*
Capital Cost: *$348,250*
Annual OM&M (years 1-30) $0

Alternative C: Removal and Treatment

Alternative C combines the removal of some of the contaminated materials from the project site with the in situ treatment of the subsurface soil/fill. This alternative would include excavation and off-site disposal of contaminated surface soil/fill and the arsenic contaminated subsurface soil/fill; in-situ treatment of VOC-contaminated subsurface soil/fill using a chemical oxidant; demolition of the spray wash structure and on-site buildings to facilitate remediation; removal and off-site disposal of sediments in valve pit, compressors and other PCB-contaminated equipment/concrete, contaminated subslab material from under the compressor room, the AST and any contents and any associated impacted soil, and ACMs within the onsite structures. Additionally, remedial activities will include the backfilling of excavations and valve pit with clean material.

This alternative would achieve the RAOs for all contaminated media through a combination of in-situ treatment, proper removal and off-site disposal.

Present Worth: *$875,200*
Capital Cost: *$875,200*
Annual OM&M (years 1-30) $0

7.2 Evaluation of Remedial Alternatives

The criteria to which potential remedial alternatives are compared are defined in 6 NYCRR Part 375, which governs the remediation of environmental restoration projects in New York State. A detailed discussion of the evaluation criteria and comparative analysis is included in the SI/RA Report.

The first two evaluation criteria are termed "threshold criteria" and must be satisfied in order for an alternative to be considered for selection.

1. 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.

2. Compliance with New York State Standards, Criteria, and Guidance (SCGs). Compliance with SCGs addresses whether a remedy will meet environmental laws, regulations, and other standards and criteria. In addition, this criterion includes the consideration of guidance, which the NYSDEC has determined to be applicable on a case-specific basis.

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 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.

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 engineering and/or institutional controls intended to limit the risk, and 3) the reliability of these controls.

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.

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

7. Cost-Effectiveness. Capital costs and operation, maintenance, and monitoring costs are estimated for each alternative and compared on a present worth basis. Although cost-effectiveness is the last balancing criterion evaluated, where two or more alternatives have met the requirements of the other criteria, it can be used as the basis for the final decision. The costs for each alternative are presented in Section 7.1 and are provided in greater detail in Tables 15 and 16 of the RI/AA report.

This final criterion is considered a "modifying criterion" and is taken into account after evaluating those above. It is evaluated after public comments on the Proposed Remedial Action Plan have been received.

8. Community Acceptance - Concerns of the community regarding the SI/RA reports and the PRAP are evaluated. A responsiveness summary will be prepared that describes public comments received and the manner in which the NYSDEC will address the concerns raised. If the selected remedy differs significantly from the proposed remedy, notices to the public will be issued describing the differences and reasons for the changes.

SECTION 8: SUMMARY OF THE PROPOSED REMEDY

The NYSDEC is proposing Alternative **B1 - Removal with Partial Building Demolition** as the remedy for this site. The elements of this remedy are described at the end of this section.

The proposed remedy is based on the results of the RI and the evaluation of alternatives presented in the AA report.

Alternative B1 is being proposed because it satisfies both the short- and long-term goals for the protection of human health and the environment, as well as providing the best balance of the primary balancing criteria described in Section 7.2. It would achieve the remediation goals for the site through proper removal and off-site disposal of all contaminated media on the project site. Alternative B1 is proposed over Alternative B because the RI did not identify contamination in the on-site buildings that would require complete building demolition.

Alternative A does not address either of the threshold criteria. Therefore, this alternative is not included in the following discussion. Because Alternatives B (Removal & Demolition), Alternative B1 (Removal and Partial Demolition) and C (Removal and Treatment) satisfy the threshold criteria, the five balancing criteria are particularly important in selecting a final remedy for the site.

Alternatives B, B1 and C both have short-term impacts which can easily be controlled. The time needed to achieve the remediation goals would be slightly longer for Alternative C when compared to Alternative B and B1, but the construction component of both could be completed within one year. Alternative B and B1 are more favorable than Alternative C for Short-Term Effectiveness because all contaminated media would be removed under Alternative B and B1, while some material would be treated in situ under Alternative C. Alternative C would require additional time and post-treatment sampling to ensure that the contaminants have been properly remediated, and potentially additional treatment event if some of the concentrations remain high.

All three alternatives would address exposure to site contaminants in the long-term, as the contaminated material will be removed from the project site. Long-term operation, maintenance, and monitoring (OM&M) of the remediation would not be necessary.

Alternative B and B1 would effectively reduce the toxicity, mobility and volume of the contaminants through removal and proper off-site disposal, while Alternative C would meet these criteria through in situ treatment or removal and proper off-site disposal.

Alternatives B, B1 and C are implementable with current construction techniques.

Alternatives B, B1 and C are appropriate for current and future site conditions and uses. Materials and equipment for completing remediation as described are readily available and both could be implemented within one year or less.

Alternatives B, B1 and C would fully satisfy the RAOs developed for the site, would have a high degree of long-term effectiveness and would render the site suitable for use as a residential property. However, based upon the relatively higher degree of cost effectiveness as well as the high degree of protection to human health and the environment afforded by this alternative, Alternative B1 is recommended for implementation.

The cost to construct the remedy is estimated to be $348,250.

The elements of the proposed remedy are as follows:

1. A remedial design program would be implemented to provide the details necessary for the implementation of the remedial program. The remedial goal is to obtain unrestricted use of the site for residential re-development. As such institutional controls, development of a site management plan, annual certifications will not be required;

2. Excavation and off-site disposal of contaminated surface and subsurface soil/fill;

3. Demolition of the spray wash structure and partial demolition of warehouse building to facilitate remediation;

4. Removal and off-site disposal of sediments in the valve pit,

5. Removal and off-site disposal of compressors and other PCB-contaminated equipment/concrete,

6. Removal and off-site disposal of contaminated sub-slab material from under the compressor room,

7. Removal and off-site disposal of the aboveground storage tank (AST) and any contents, any impacted soil under the AST within the onsite structures; and

8. Backfilling of excavations and valve pit with clean material.

Table 1

Remedial Alternative Costs

Remedial Alternative	Capital Cost ($)	Annual Costs ($)	Total Present Worth ($)
Alternative A No Action	$0	$0	$0
Alternative B	$859,800	$0	$859,800
Alternative B1	$328,780	$0	$348,250
Alternative C	$875,200	$0	$875,200

Table 2

Summary of Analytical Results
Surface Soil/Fill Samples

	TAGM REC. SOIL CLEANUP OBJECTIVE	SITE BACKGROUND VALUE	REGULATORY VALUE	YCS-SS01-S-O	YCS-SS02-S-O	YCS-SS03-S-O	YCS-SS04-S-O	YCS-SS05-S-O	YCS-SS06-S-O	YCS-SS07-S-O	YCS-SS08-S-O
Date Collected:				2/21/2006	2/21/2006	2/21/2006	2/21/2006	2/21/2006	2/21/2006	2/21/2006	2/21/2006
Semi-Volatile Organic Compounds (ug/Kg)											
1,1-Biphenyl	-	-	-				150				
2,4-Dimethylphenol	-	-	-				64 J				
2-Methylnaphthalene	36,400	-	36,400				650				
4-Methylphenol	900	-	900				73				
Acenaphthene	50,000	-	50,000				1,100				
Acenaphthylene	41,000	-	41,000				140	68 J			
Acetophenone	-	-	-							56	
Anthracene	50,000	-	50,000				2,100	130 J			92
Benzo(a)anthracene	224	-	224	60		42	4,700 D	300 J		180	310
Benzo(a)pyrene	61	-	61	77		41	4,000 JD	300 J		180	250
Benzo(b)fluoranthene	1,100	-	1,100	130		64	5,600 JD	580 J		300	370
Benzo(g,h,i)perylene	50,000	-	50,000				1,100 J	150 J		140	150
Benzo(k)fluoranthene	1,100	-	1,100	59			2,600 J	200 J		79	120
Butylbenzylphthalate	50,000	-	50,000					530 J			
Carbazole	-	-	-				1,800	71 J			60
Chrysene	400	-	400	92		45 J	5,100 D	450 J		200 J	280 J
Dibenzo(a,h)anthracene	14	-	14				450 J	52 J			49
Dibenzofuran	6,200	-	6,200				990				
Di-n-butylphthalate	8,100	-	8,100							58	
Fluoranthene	50,000	-	50,000	130		94	11,000 D	590 J	48	350	640
Fluorene	50,000	-	50,000				1,200				
Hexachlorobutadiene	-	-	-					89 J			
Indeno(1,2,3-cd)pyrene	3,200	-	3,200				1,300 J	130		130	150
Naphthalene	13,000	-	13,000				1,400				
N-Nitrosodiphenylamine(1)	-	-	-						63	1,200	
Phenanthrene	50,000	-	50,000				9,800 D	320 J		130	380
Pyrene	50,000	-	50,000	110		74	9,600 D	740 J		300	480
Pesticides (ug/Kg)											
4,4-DDD	2,900	-	2,900				3 JP	13 JP			
4,4-DDE	2,100	-	2,100	5.4			47 J	74 D		4.3 JP	3.2 NJP
4,4-DDT	2,100	-	2,100	9			44 J	300 D		5 JP	15
beta-BHC	200	-	200		2.3	1 NJP					
delta-BHC	300	-	300				1.1 NJP				
Endosulfan sulfate	1,000	-	1,000					3 JP			
Endrin	100	-	100					11			
Endrin ketone	-	-	-				4.5 JP				
gamma-Chlordane	540	-	540					6.1			
PCBs (ug/Kg)											
Aroclor-1248	1,000	-	1,000					93 JP			
Aroclor-1260	1,000	-	1,000				110				
Total PCBs	**1,000**	**-**	**1,000**				**110**	**93**			
Herbicides (ug/Kg)											
Dalapon	-	-	-		~~23~~ R	~~21~~ R				20 NJ	
TAL - Metals (mg/Kg)											
Aluminum	SB	8,842	8,842	9,690	12,700	12,000	9,580	5,990	8,240	1,680	11,600
Antimony	SB	ND	ND		0.5 N			0.38 N		1.6 N	
Arsenic	7.5 or SB	7.4	7.5	6.1 J	5.3 J	4.3 J	7.4 J	16.6 J	5.9 J	3.6 J	5.5
Barium	300 or SB	76	300	83.8	102	104	285	208	68.5	33.4	73
Beryllium	0.16 or SB	0.38	0.38	0.47	0.57	0.51	0.96	1	0.34	0.094	0.57
Cadmium	1 or SB	ND	1				0.26 JN	1.1 JN		0.93 JN	
Calcium	SB	11,052	11,052	3,680	57,200	73,700	41,300	17,000	49,200	60,500	18,600
Chromium	10 or SB	13.2	13.2	16.2	21.2	23.8	11.7	12.9	15	9.6	17
Cobalt	30 or SB	6	30	8.5	9.9	9.3	6.5	3.9	7.7	1.7	11.9
Copper	25 or SB	22.2	25.0	32.3	29.4	25.5	28.2	36.1	28.3	22.4	25.3
Iron	2,000 or SB	15,360	15,360	19,700 J*	22,500 J*	21,000 J*	16,500 J*	17,100 J*	16,600 J*	7,530 J*	21,300 J*
Lead	SB	87.1	87.1	57.8 J*	19.6 J*	19.1 J*	216 J*	154 J*	28.8 J*	81.6 J*	38.5 J*
Magnesium	SB	3,940	3,940	3,630	11,600	12,200	12,500	2,490	13,800	30,300	5,920

Table 2

Summary of Analytical Results
Surface Soil/Fill Samples

	TAGM REC. SOIL CLEANUP OBJECTIVE	SITE BACKGROUND VALUE	REGULATORY VALUE	YCS-SS01-S-O	YCS-SS02-S-O	YCS-SS03-S-O	YCS-SS04-S-O	YCS-SS05-S-O	YCS-SS06-S-O	YCS-SS07-S-O	YCS-SS08-S-O
Date Collected:				2/21/2006	2/21/2006	2/21/2006	2/21/2006	2/21/2006	2/21/2006	2/21/2006	2/21/2006
Manganese	SB	484	484	821	607	529	697	207	628	394	694
Mercury	0.1	0.1	0.1	0.074		0.13	0.082	0.25		0.24	
Nickel	13 or SB	15.7	15.7	20.5	26.5	24.4	27.6	12	20	6.1	20.1
Potassium	SB	1,065	1,065	1,160 JE	2,000 JE	2,000 JE	1,110 JE	598 JE	1,580 JE	439 JE	1,450 JE
Silver	SB	0.18	0.18	0.17	0.93	0.7	0.7	1.2	0.8	0.85	0.38
Sodium	SB	96	96	78 J	141	150	165	178	133	92.8	2,020
Thallium	SB	1.3	1.3	1.3	1.3	1.5	1.3	0.88	1.2	0.76	1.4
Vanadium	150 or SB	18.8	150	21.7	25.3	23.4	15.1	20.5	17.3	4.7	24.1
Zinc	20 or SB	54.4	54.4	100 JE	72.9 JE	63.4 JE	167 JE	256 JE	97.1 JE	295 JE	77.8 JE

Notes:
1. TAGM Recommended Soil Cleanup Objective source is NYSDEC Technical and Administrative Guidance Memorandum (TAGM): Determination of Soil Cleanup Objectives and Cleanup Levels (HWR-92-4046) revised January 24, 1994.
2. SB stands for "Site Background" under the TAGM soil cleanup objectives column.
3. Average Site Background from calculated from five surface soil samples collected from off-site.
4. The regulatory values for inorganic analytes were determined by using the higher of the TAGM and average site background values.
5. Eastern USA Background values were obtained from TAGM 4046.
6. USGS Background values obtained from Table 1 in "Elemental Concentrations in Soils & Other Surficial Materials of the Conterminous
7. Shaded boxes represent exceedances of the regulatory value and/or highest listed background range.
8. (-) = No regulatory value is associated with this analyte.
9. mg/Kg = milligrams per Kilogram (equivalent to parts per million (ppm)).
10. ug/Kg = micrograms per Kilogram [equivalent to parts per billion (ppb)].
11. Only compounds with one or more detections are shown.
12. Blank spaces indicate that the analyte was not detected.
13. TICs = Tentatively Identified Compounds.
14. Definitions of data qualifiers are presented in Table 12.

Table 3

Summary of Analytical Results
Subsurface Soil/Fill Samples

	TAGM REC. SOIL CLEANUP OBJECTIVE	SITE BACKGROUND VALUE	REGULATORY VALUE	YCS-TP02-D8-S-O	YCS-TP04-D23.5-S-O	YCS-TP04-D6-S-O	YCS-TP09-D3-S-O	YCS-TP09-D3.2-S-O	YCS-TP13-D3-S-O	YCS-TP15-D4-S-O	YCS-SP04-D11.2-S-O
Interval Sampled (feet bgs):				8	2 - 3.5	6	3	3.2	3	4	1 - 1.2
Date Collected:				2/15/2006	2/15/2006	2/15/2006	2/16/2006	2/16/2006	2/16/2006	2/16/2006	2/20/2006
Volatile Organic Compounds (ug/Kg)											
Acetone	200	-	200	32 J		28	NA	NA	9	15	NA
Carbon Disulfide	2,700	-	2,700	4 J	3		NA	NA		2	NA
Methylcyclohexane	-	-	-	140 D			NA	NA			NA
Total TICs	-	-	**-**	**12,360**	**0**	**1,939**			**0**	**1,173**	
Total VOCs	**10,000**	-	**10,000**	**12,536**	**3**	**1,967**			**9**	**1,190**	
Semi-Volatile Organic Compounds (ug/Kg)											
1,1-Biphenyl	-	-	-				63			75	
2-Methylnaphthalene	36,400	-	36,400		93		440	130		190	330
Acenaphthene	50,000	-	50,000							150	
Acetophenone	-	-	-				63				
Anthracene	50,000	-	50,000		44					280	
Benzo(a)anthracene	224	-	224		140				43		
Benzo(a)pyrene	61	-	61		110					360 J	130 J
Benzo(b)fluoranthene	1,100	-	1,100		200				52		
Benzo(g,h,i)perylene	50,000	-	50,000								57 J
Benzo(k)fluoranthene	1,100	-	1,100		64						
bis(2-Ethylhexyl)phthalate	50,000	-	50,000	380 U	400 U	400 U	480 U	450 U	390 U	560 U	
Caprolactam	-	-	-								71
Carbazole	-	-	-							290	
Chrysene	400	-	400		180		94		47		
Dibenzofuran	6,200	-	6,200				100			200	110
Fluoranthene	50,000	-	50,000		260		50		74	990	100
Fluorene	50,000	-	50,000							240	
Indeno(1,2,3-cd)pyrene	3,200	-	3,200							160 J	53 J
Naphthalene	13,000	-	13,000		69		230	64		260	220
N-Nitrosodiphenylamine(1)	-	-	-		700	210					
Phenanthrene	50,000	-	50,000		240		250	83		1,300	270
Pyrene	50,000	-	50,000		250		57		58	3,700 J	390 J
Pesticides (ug/Kg)											
4,4-DDD	2,900	-	2,900								2.5 NJP
4,4-DDE	2,100	-	2,100					2.9			2.3 NJP
4,4-DDT	2,100	-	2,100					4.1			3.3 NJP
Herbicides (ug/Kg)											
Dalapon	-	-	-		12 NJ			~~19~~ R			
TAL - Metals (mg/Kg)											
Aluminum	SB	8,842	8,842	10,800	7,680	8,230	5,100	2,790	12,500	4,940	14,600
Antimony	SB	ND	ND		0.42 N					1.4 N	
Arsenic	7.5 or SB	7.4	7.5	4.5 J	17.1 J	2.6 J	41.3 J	8.7 J	8.9 J	12.5 J	7.8 J
Barium	300 or SB	76	300	75.1	96.7	50.6	80.3	36.1	106	46.2	69.9
Beryllium	0.16 or SB	0.38	0.38	0.47	0.71	0.34	1.4	0.36	0.56	0.44	1.2
Cadmium	1 or SB	ND	1		0.33 JN			0.12 JN		0.098 JN	0.16 JN
Calcium	SB	11,052	11,052	3,860	8,600	50,300	7,780	3,930	25,000	6,590	1,790
Chromium	10 or SB	13.2	13.2	16.6	22.4	12.5	10.7	10.3	19.1	15.4	11.2
Cobalt	30 or SB	6	30	9.4	7.3	8.8	5.8	3.8	8.1	5.6	28.3
Copper	25 or SB	22.2	25.0	32.7	50	20.7	29.4	25.5	41.6	67.8	79.6
Iron	2,000 or SB	15,360	15,360	19,100 J*	34,700 J*	15,600 J*	12,800 J*	6,240 J*	20,800 J*	38,700 J*	16,900 J*
Lead	SB	87.1	87.1	7.7 J*	99.6 J*	7 J*	12 J*	22.6 J*	44.8 J*	65.8 J*	86.7 J*
Magnesium	SB	3,940	3,940	4,230	2,850	10,200	1,370	1,570	8,410	4,210	2,560
Manganese	SB	484	484	628	370	871	118	92.5	688	113	1,080
Mercury	0.1	0.1	0.1		0.09				0.056	0.081	
Nickel	13 or SB	15.7	15.7	22	23.1	18.7	14.3	12.3	20.8	22.4	47.7
Potassium	SB	1,065	1,065	1,050 JE	738 JE	945 JE	661 JE	398 JE	1,180 JE	487 JE	666 JE
Selenium	2 or SB	ND	2								
Silver	SB	0.18	0.18	0.22	0.38	0.44	0.21	0.17	0.21	0.72	
Sodium	SB	96	96	150	151	157	157	114	108	202	276
Thallium	SB	1.3	1.3	1.9	1.4	1.7	0.96		1.4	0.81	2

Table 3

Summary of Analytical Results
Subsurface Soil/Fill Samples

	TAGM REC. SOIL CLEANUP OBJECTIVE	SITE BACKGROUND VALUE	REGULATORY VALUE	YCS-TP02-D8-S-O		YCS-TP04-D23.5-S-O		YCS-TP04-D6-S-O		YCS-TP09-D3-S-O		YCS-TP09-D3.2-S-O		YCS-TP13-D3-S-O		YCS-TP15-D4-S-O		YCS-SP04-D11.2-S-O	
Interval Sampled (feet bgs):				8		2 - 3.5		6		3		3.2		3		4		1 - 1.2	
Date Collected:				2/15/2006		2/15/2006		2/15/2006		2/16/2006		2/16/2006		2/16/2006		2/16/2006		2/20/2006	
Vanadium	150 or SB	18.8	150	21.8		25.4		16.9		26.7		15.9		24.7		10.3		14	
Zinc	20 or SB	54.4	54.4	55.8	JE	246	JE	42.7	JE	44	JE	79.3	JE	85.1	JE	126	JE	559	JE

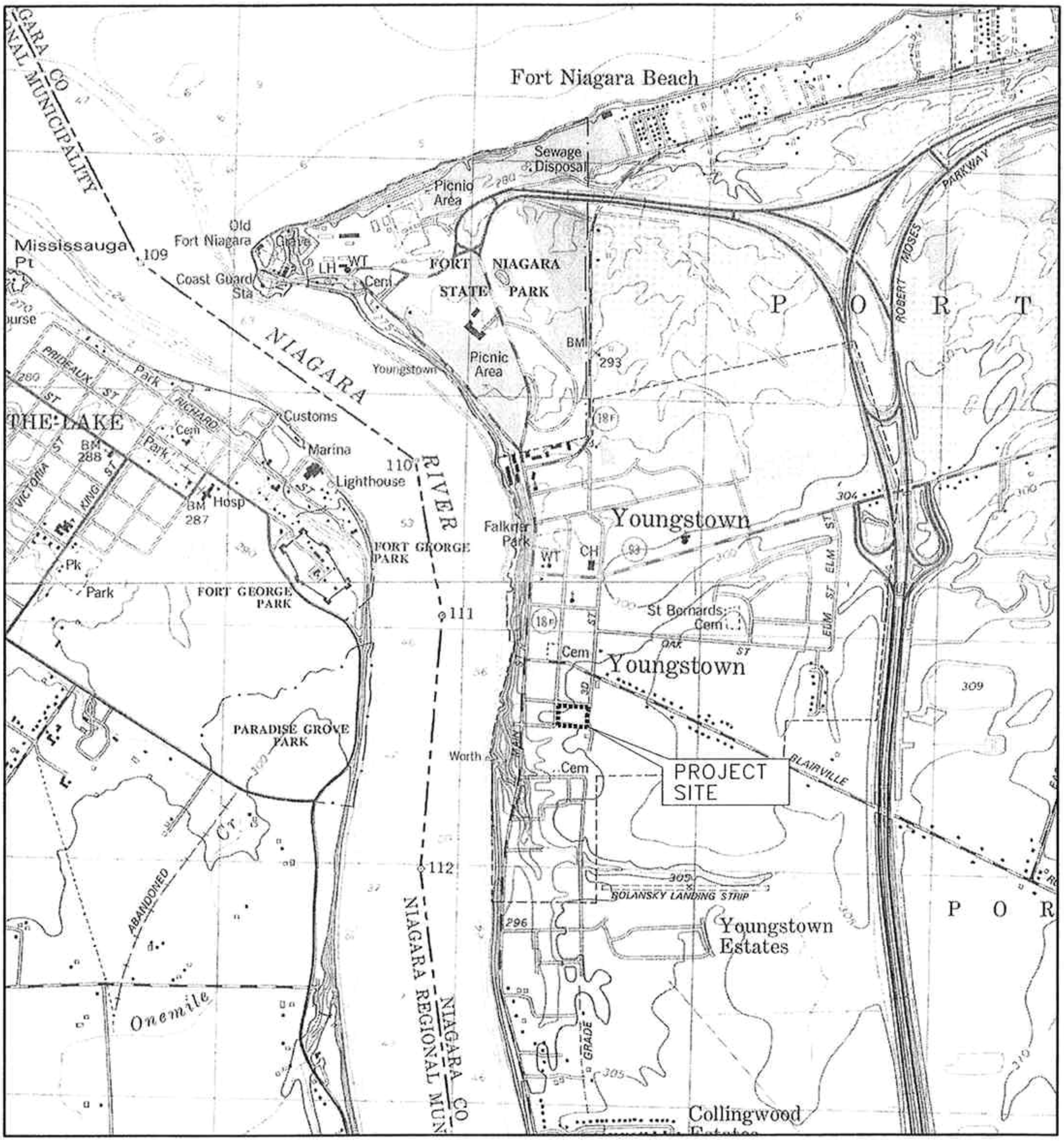
Notes:
1. PCBs were not detected in any of the subsurface soil/fill samples.
2. TAGM Recommended Soil Cleanup Objective source is NYSDEC Technical and Administrative Guidance Memorandum (TAGM): Determination of Soil Cleanup Objectives and Cleanup Levels (HWR-92-4046) revised January 24, 1994.
3. SB stands for "Site Background" under the TAGM soil cleanup objectives column.
4. Average Site Background from calculated from five surface soil samples collected from off-site.
5. The regulatory values for inorganic analytes were determined by using the higher of the TAGM and average site background values.
6. Eastern USA Background values were obtained from TAGM 4046.
7. Shaded boxes represent exceedances of the regulatory value and/or highest listed background range.
8. NA = parameter not analyzed.
9. (-) = No regulatory value is associated with this analyte.
10. mg/Kg = milligrams per Kilogram (equivalent to parts per million (ppm)).
11. ug/Kg = micrograms per Kilogram [equivalent to parts per billion (ppb)].
12. Only compounds with one or more detections are shown.
13. Blank spaces indicate that the analyte was not detected.
14. TICs = Tentatively Identified Compounds.
15. Definitions of data qualifiers are presented in Table 12.

Table 4

Summary of Analytical Results
Background Samples

	TAGM REC. SOIL CLEANUP OBJECTIVE	AVERAGE SITE BACKGROUND VALUE	YCS-BG01-S-O		YCS-BG02-S-O		YCS-BG03-S-O		YCS-BG04-S-O		YCS-BG05-S-O	
Date Collected:			2/21/2006		2/21/2006		3/2/2006		3/2/2006		3/2/2006	
Semi-Volatile Organic Compounds (ug/Kg)												
Benzaldehyde	-								68	J	57	J
Benzo(a)anthracene	224				130						49	
Benzo(a)pyrene	61				130							
Benzo(b)fluoranthene	1,100				180						77	
Benzo(g,h,i)perylene	50,000				87							
Benzo(k)fluoranthene	1,100				73							
bis(2-Ethylhexyl)phthalate	50,000		920	U	490	U	420	U	590	U	690	U
Chrysene	400				150	J					54	
Fluoranthene	50,000				370		57				89	
Indeno(1,2,3-cd)pyrene	3,200				84							
Phenanthrene	50,000				180							
Pyrene	50,000				300		45				74	
Pesticides (ug/Kg)												
4,4-DDD	2,900						23					
4,4-DDE	2,100		6.4				1,200		24		68	
4,4-DDT	2,100		2.1				550		11		11	
Herbicides (ug/Kg)												
Dalapon	-		~~23~~	R	~~26~~	R						
TAL - Metals (mg/Kg)												
Aluminum	SB		8,290		7,730		10,100		10,800		7,290	
Arsenic	7.5 or SB	7.4	3.6	J	3.1	J	19		6.8		4.3	
Barium	300 or SB	76	54.1		52.8		85.7		113		74.2	
Beryllium	0.16 or SB	0.38	0.32		0.34		0.43		0.49		0.33	
Calcium	SB	11,052	1,730		2,540		20,100	*	25,500	*	5,390	*
Chromium	10 or SB	13.2	10.8		11.3		14.8		17.2		12.1	
Cobalt	30 or SB	6	3.8		4.4		7.7	JE	8.2	JE	6.1	JE
Copper	25 or SB	22.2	17.1		16.6		29.6		25.6		22	
Iron	2,000 or SB	15,360	11,900	J*	12,400	J*	17,800		21,500		13,200	
Lead	SB	87	14.1	J*	16.8	J*	323		40.2		41.3	
Magnesium	SB	3,940	2,150		2,470		5,580		6,410		3,090	
Manganese	SB	484	204		248		700	J*	758	J*	508	J*
Mercury	0.1	0.1	0.062		0.14	U	0.053	U	0.064		0.18	
Nickel	13 or SB	16	12.2		11.4		19.2		19.1		16.5	
Potassium	SB	1,065	827	JE	803	JE	885		1,370		1,440	
Silver	SB	0.18	0.17		0.18	E	0.084	U	0.095	U	0.093	U
Sodium	SB	95.6	98.2		104	E	88.6		107		80	
Thallium	SB	1.31	0.95		0.71	E	1.8		2		1.1	
Vanadium	150 or SB	18.8	16.7		16.3		20.3		25.1		15.4	
Zinc	20 or SB	54.4	44.8	JE	47.5	JE	56.6	JE	62.5	JE	60.8	JE

Notes:
1. PCBs were not detected in any of the subsurface soil/fill samples.
2. TAGM Recommended Soil Cleanup Objective source is NYSDEC Technical and Administrative Guidance Memorandum (TAGM): Determination of Soil Cleanup Objectives and Cleanup Levels (HWR-92-4046) revised January 24, 1994.
3. Shaded boxes represent exceedances of the regulatory value.
4. ug/Kg = micrograms per Kilogram [equivalent to parts per billion (ppb)].
5. mg/Kg = milligrams per Kilogram [equivalent to parts per million (ppm)].
6. Average site background values for inorganic analytes were determined by averaging the results from the five background samples.
7. ND=Not Detected above test method detection level.
8. Only compounds with one or more detections are shown.
9. Blank spaces indicate that the analyte was not detected.
10. Definitions of data qualifiers are presented in Table 12.



U.S.G.S LEWISTON QUADRANGLE

PROJECT SITE LOCATION MAP

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REMEDIAL INVESTIGATION/
ALTERNATIVES ANALYSIS PROGRAM
YOUNGSTOWN COLD STORAGE
VILLAGE OF YOUNGSTOWN, NEW YORK
NIAGARA COUNTY

PROJECT NO. 2004.0279.03	SCALE: 1" = 2000'	DATE: APRIL 2006	FIGURE NO. 1

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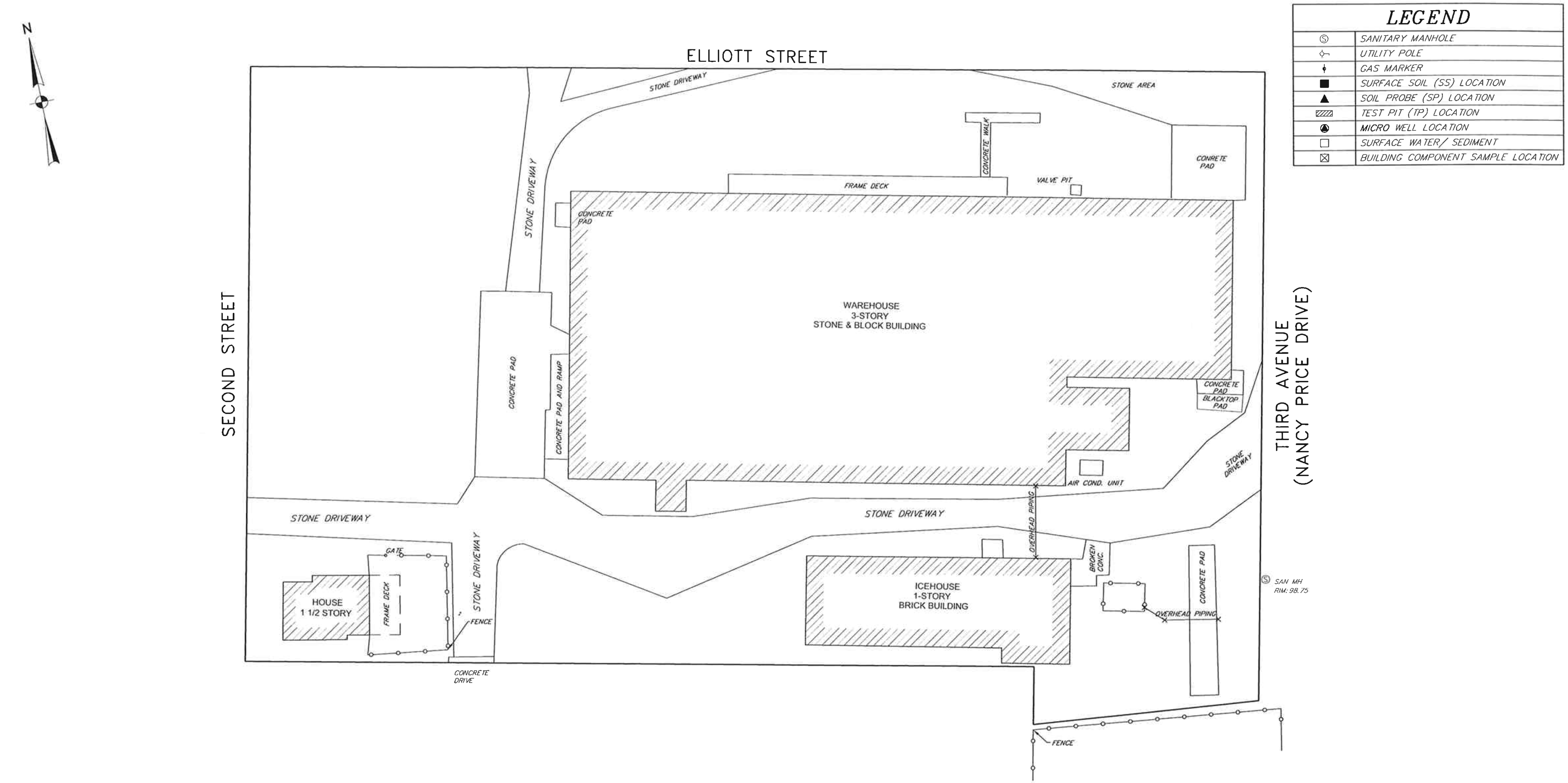

40' 20' 0 40'

SCALE: 1"=40'-0"

SITE PLAN

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NIAGARA COUNTY

PROJECT NO. 2004.0279.03	SCALE: 1" = 40'	DATE: JUNE 2006	FIGURE NO. 2

N:\2004.0279.03-Youngstown Cold Storage\CAD\FIGURE 2.dwg 8/8/2006 9:32:34 AM EDT

S.B.L. 59.06-3-6

TAX MAP

REMEDIAL INVESTIGATION/ ALTERNATIVES ANALYSIS PROGRAM
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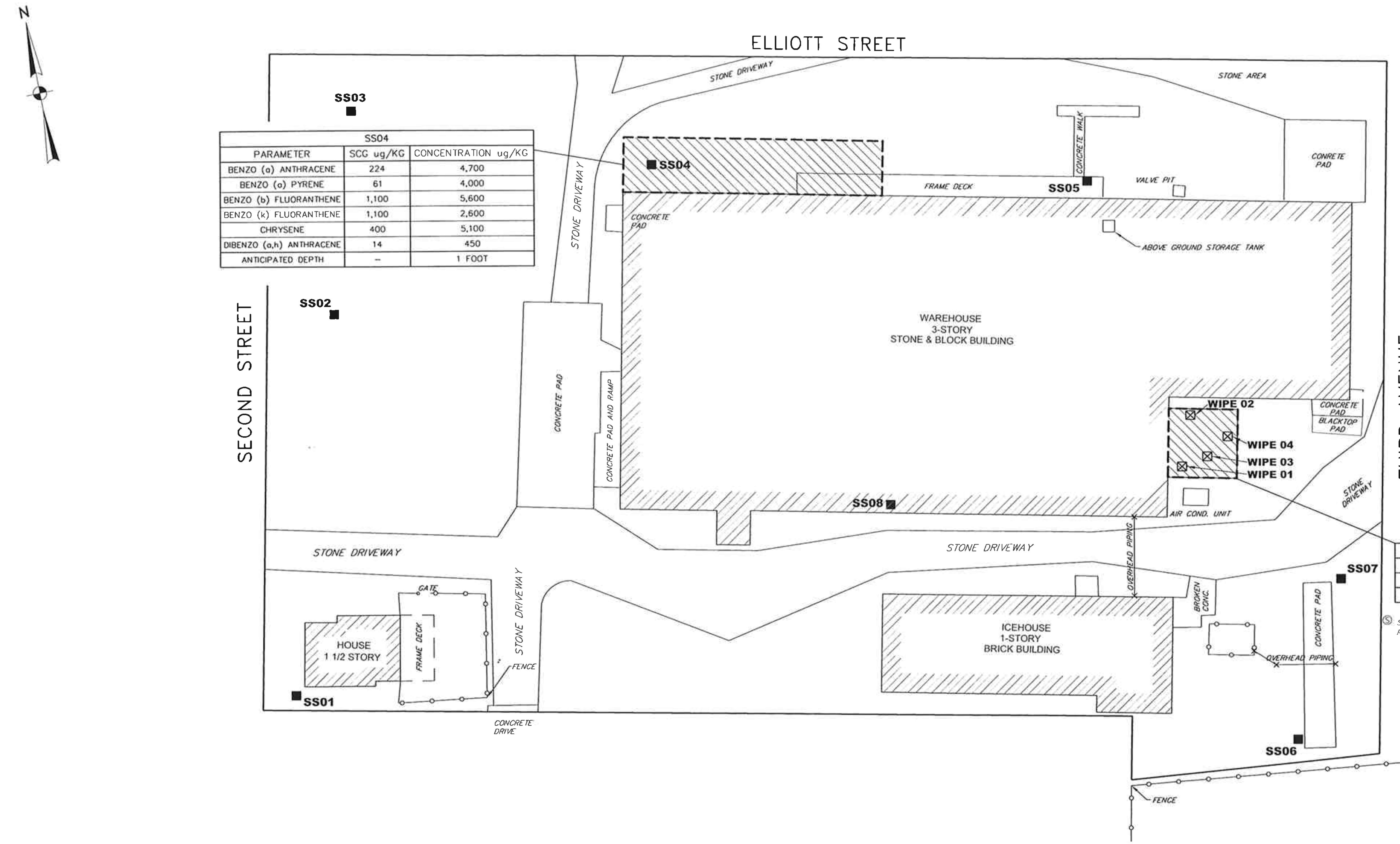
PROJECT NO. 2004.0279.03	SCALE: 1" = 200'	DATE: APRIL 2006	FIGURE NO. 3

N:\2004.0279.03-Youngstown Cold Storage\CAD\101.dwg 10/18/2005 1:08:22 PM EDT



SS04		
PARAMETER	SCG ug/KG	CONCENTRATION ug/KG
BENZO (a) ANTHRACENE	224	4,700
BENZO (a) PYRENE	61	4,000
BENZO (b) FLUORANTHENE	1,100	5,600
BENZO (k) FLUORANTHENE	1,100	2,600
CHRYSENE	400	5,100
DIBENZO (a,h) ANTHRACENE	14	450
ANTICIPATED DEPTH	–	1 FOOT

SAMPLE	PARAMETER	SCG $mg/100cm^2$	CONCENTRATION $mg/100cm^2$
WIPE 03	TOTAL PCBs	10	15.0
WIPE 04	TOTAL PCBs	10	14.4
ANTICIPATED THICKNESS		–	4 INCHES

LEGEND

Ⓢ	SANITARY MANHOLE
	UTILITY POLE
	GAS MARKER
■	SURFACE SOIL (SS) LOCATION
▲	SOIL PROBE (SP) LOCATION
	TEST PIT (TP) LOCATION
	MICRO WELL LOCATION
□	SURFACE WATER/ SEDIMENT
⊠	BUILDING COMPONENT SAMPLE LOCATION

NOTES:
SS05 AND SS08 WERE COLLECTED FROM THE SURFACE SOIL DIRECTLY UNDERNEATH RAISED LOADING DOCKS.

FULL HATCHED AREAS REPRESENT AREAL EXTENT OF SUSPECTED CONTAMINATION

SURFACE SOIL/FILL AREAL EXTENT OF CONTAMINATION

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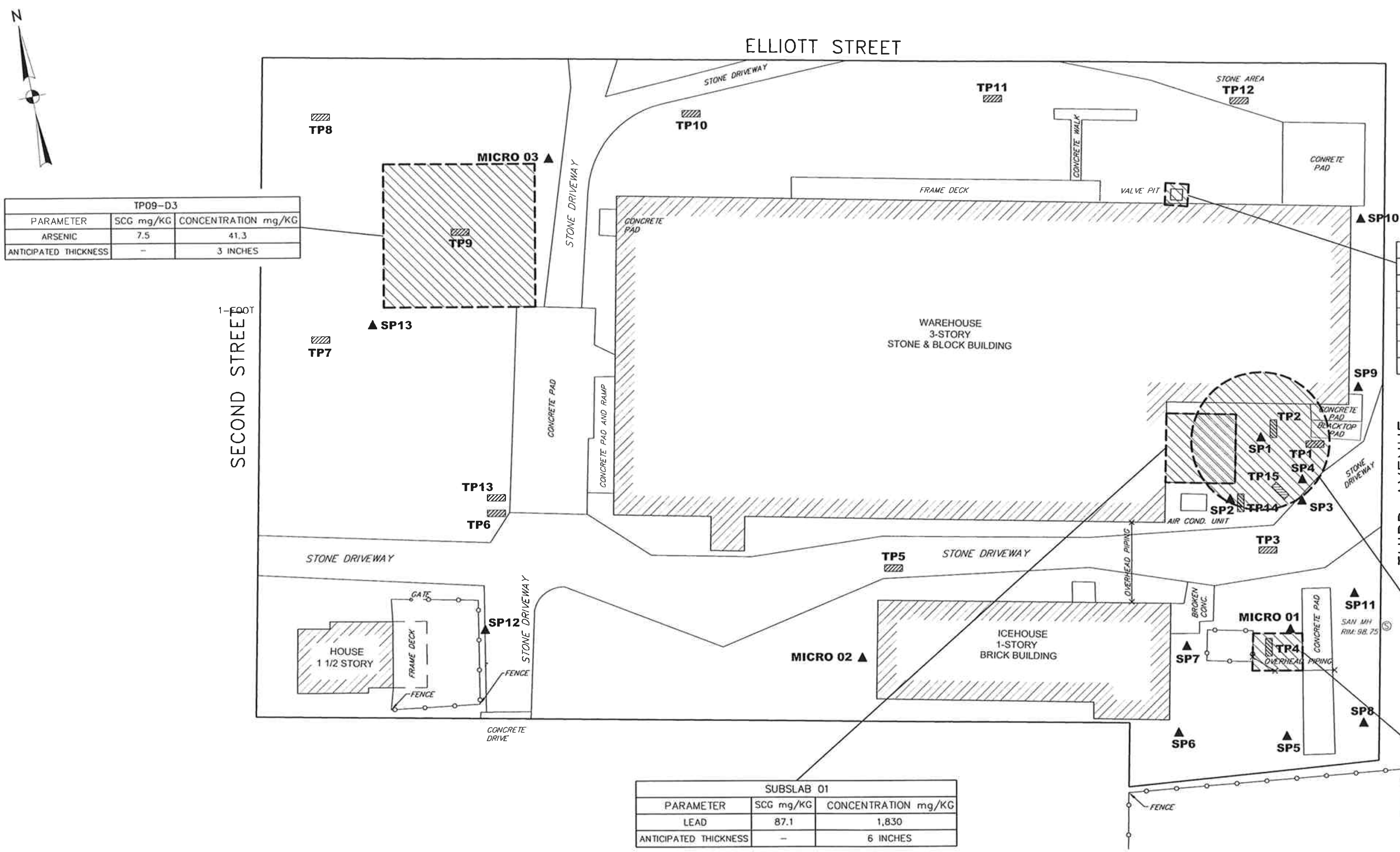
NIAGARA COUNTY

PROJECT NO. 2004.0279.03	SCALE: 1" = 40'	DATE: JUNE 2006	FIGURE NO. 4

N:\2004.0279.03-Youngstown Cold Storage\CAD\FIGURE 4-PRAP.dwg 8/8/2006 9:38:26 AM EDT



LEGEND

Ⓢ	SANITARY MANHOLE
	UTILITY POLE
	GAS MARKER
■	SURFACE SOIL (SS) LOCATION
▲	SOIL PROBE (SP) LOCATION
	TEST PIT (TP) LOCATION
	MICRO WELL LOCATION
□	SURFACE WATER/ SEDIMENT
⊠	BUILDING COMPONENT SAMPLE LOCATION

NOTES:
SCG - STANDARDS, CRITERIA, AND GUIDANCE
FULL HATCHED AREAS REPRESENT AREAL EXTENT OF SUSPECTED CONTAMINATION

TP09-D3

PARAMETER	SCG mg/KG	CONCENTRATION mg/KG
ARSENIC	7.5	41.3
ANTICIPATED THICKNESS	–	3 INCHES

SUMP01-SED

PARAMETER	SCG ug/KG	CONCENTRATION ug/KG
BENZO (a) ANTHRACENE	224	1,200
BENZO (a) PYRENE	61	1,200
BENZO (b) FLUORANTHENE	1,100	2,200
CHRYSENE	400	1,400
DIBENZO (a,h) ANTHRACENE	14	140
ESTIMATED VOLUME	–	2/3 CUBIC YARD

TP02-D8

PARAMETER	SCG ug/KG	CONCENTRATION ug/KG
TOTAL VOCS	10,000	12,536
MAX. PID	–	1,875 ppm @ 8' bgs
VISUAL	NO STAINING	STAINING
OLFACTORY	NO ODOR	PETROLEUM ODOR
ANTICIPATED DEPTH	–	10 FEET

TP04-D235 AND TP04-D6

PARAMETER	SCG ug/KG	CONCENTRATION ug/KG
MAX. PID	–	45 ppm @ 6' bgs
VISUAL	NO STAINING	SLIGHT STAINING
OLFACTORY	NO ODOR	PETROLEUM ODOR
ANTICIPATED DEPTH	–	9 FEET

SUBSLAB 01

PARAMETER	SCG mg/KG	CONCENTRATION mg/KG
LEAD	87.1	1,830
ANTICIPATED THICKNESS	–	6 INCHES

SUB-SURFACE SOIL/FILL AREAL EXTENT OF CONTAMINATION

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PROJECT NO. 2004.0279.03 | SCALE: 1" = 40' | DATE: JUNE 2006 | **FIGURE NO. 5**

N:\2004.0279.03-Youngstown Cold Storage\CAD\FIGURE 5-PRAP.dwg 8/8/2006 9:40:18 AM EDT