EVALUATION AND CONCEPTUAL DESIGN FOR ADDITIONAL REMEDIAL ACTION

WORK ASSIGNMENT D003825-09

NORTH FRANKLIN STREET SITE
WATKINS GLEN (V)

SITE NO. 8-49-002
SCHUYLER (C), NY

Prepared for:
NEW YORK STATE
DEPARTMENT OF ENVIRONMENTAL CONSERVATION
50 Wolf Road, Albany, New York

John P. Cahill, Commissioner

DIVISION OF ENVIRONMENTAL REMEDIATION

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G2827A

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EVALUATION AND CONCEPTUAL DESIGN FOR ADDITIONAL REMEDIAL ACTION

AT THE

NORTH FRANKLIN STREET SITE
WATKINS GLEN, NEW YORK

PREPARED FOR:

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF HAZARDOUS WASTE REMEDIATION
WORK ASSIGNMENT D003825-09

FEBRUARY 1999

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1.0 INTRODUCTION

This report was prepared as required by Task 3: Supplemental Investigations, for Work Assignment D003825-09, at the North Franklin site. In keeping with the Work Assignment requirements, the objectives of the report are as follows:

1. Evaluate soil sampling data and determine the extent and quantity of contamination remaining on site.

2. Evaluate and select appropriate remedial technologies for soil and groundwater remediation based on sampling data.

The North Franklin Street Class 2 inactive hazardous waste site is an approximately 0.3-acre parcel of land situated in the Village of Watkins Glen, Schuyler County. The site is located in an urban area nearly 300 feet south of Seneca Lake, as shown on Figure 1. Two structures currently exist on site (shown on Figure 2). One is currently occupied by a small store (former auto museum), and the second is currently unoccupied (former dry cleaner and antique shop). The structures have housed a variety of businesses in the past, including a machine shop and dry cleaning operations.

A state funded Remedial Investigation (RI) completed in April 1993 concluded that both groundwater and soil in the vicinity of the site had been contaminated by volatile organic compounds associated with the former dry cleaning operations. Dumping of tetrachloroethylene (PCE) contaminated water in an alley between the antique car museum and the dry cleaners was identified as the major source of contamination.

After a Feasibility Study (FS) was completed in November 1993, a Record of Decision (ROD) was signed on January 18, 1994. In accordance with the ROD, an SVE system was designed to treat shallow soils above the clay layer and a groundwater treatment system was designed to extract and treat groundwater for five years or until asymptotic contaminant concentrations were detected in monitoring wells.

The remedial design for the site was completed in June 1995, and Terra Vac was subsequently awarded the contract to construct and operate the SVE and groundwater treatment systems. Construction of the treatment systems was completed and operations began in the fall of 1996. During remediation, soil analysis indicated that SVE had effectively cleaned up soil near the extraction wells (Figure 2), but that SVE had not effectively cleaned up highly contaminated soil located immediately north of the former dry cleaner building (Figure 2). Operation of the SVE system was suspended in March 1998 and operation of the groundwater treatment system was suspended at the end of April 1998, pending the results of further investigations which are discussed below.

2.0 SUMMARY OF RECENT SOIL INVESTIGATIONS

2.1 Sampling Events

Table 1 summarizes the results for all soil samples collected after remediation systems were installed. Sample locations are shown in Figure 2.

Terra Vac collected and analyzed a total of 28 soil samples (designated as "TV-") to confirm whether soil cleanup goals were being achieved by the SVE system. These samples were collected in four separate events in 1997. The fourth Terra Vac sampling event, in December 1997, included 16 samples, collected with the intent of demonstrating that all or most of the contaminated areas had been remediated. However, many of these samples, especially samples immediately north of the former dry cleaner building, showed higher concentrations of PCE than had ever been detected in soil samples at the site.

To evaluate the unexpectedly high results reported by Terra Vac, URSG collected 13 shallow samples using hand-driven sampling rods (designated as "NFS"). Based on screening with a photoionization meter, seven of the samples were sent offsite for laboratory analysis. The results of the samples collected by URSG confirmed the results reported by Terra Vac, indicating that there was an area of high contamination in the alleyway alongside the former dry cleaners.

To determine the extent and depth of contamination in the alleyway, URSG collected a total of 44 shallow and deep samples (designated as "GP-98-, C, D, and E") at depths up to 16 feet. The results of these samples showed that the highest contaminant concentrations were located at the fill/clay interface along the foundation of the former dry cleaners building. However, contamination was also detected in the clay at depths up to 16 feet below the ground surface.

Based on the results described above, seven test pits were excavated directly at the foundation of the former dry cleaners building to further evaluate soil contamination there and assess the building foundation. Eight soil samples (designated TP) were collected from the trenches (Table 1). The test trenches showed that the foundation of the building consists of unmortared stones to a depth of approximately 5 feet (at or close to the fill/clay interface). During test pit excavation, water seeped into the pits from behind the building foundation (underneath the former dry cleaners building). This water was believed to be contaminated based on appearance and odor. Samples (Table 4) confirmed that the water was contaminated.

In order to evaluate potential contamination underneath the former dry cleaners building, URSG collected 16 samples at varying depths from beneath the floor of the building in September 1998. These samples (F, G, H, J, K, K-1, and SH-1) indicated that the area of contaminated soil extends below a small portion of the building. Contamination extended from the surface to 15 feet below the surface into clay, although most contamination was detected in the clay layer (depth greater than 6 feet).

2.2 <u>Estimated Areas of Contamination</u>

URSG input all soil data into a GIS database to evaluate the extent and quantity of contamination remaining at the site. The quantity (mass) of contaminants was estimated from the database by interpolating between data points. The extent of contamination was determined by sample locations where one or more contaminants were above cleanup criteria (i.e., NYSDEC TAGM 4046).

The extent and mass of soil contamination was determined for three discrete depth intervals: 0-4-feet (fill and sandy soil), 4-6-feet (fill/clay interface), and >6 feet (clay). Figures 3, 4, and 5 show the estimated extent of contaminated soil at each depth interval. PCE and its breakdown products of trichloroethylene, 1,2-dichloroethylene, and vinyl chloride were the only contaminants used for the evaluation since these are the contaminants of concern based on sampling data and the site history.

URSG considered the data collected by URSG separately from the data collected by Terra Vac when evaluating soil contamination. This is because much of Terra Vac's data is older and was collected while the system was still in operation. As shown on Figures 3 and 4 by the lighter shaded area, there is an extensive area of contamination indicated by the Terra Vac samples. However, the mass of contamination in this area is very low (Table 2). It should be noted that Terra Vac continued to operate the system after these samples were taken so the area may be cleaner than indicated by these samples. The Terra Vac area was not considered to be contaminated enough to require remediation when evaluating remedial technologies (Section 4).

2.3 Estimated Volume and Mass of Contamination

Based on the areal extent of the contaminated soil estimated using GIS (shown on Figures 3, 4, and 5), and the thickness of the interval (i.e., 2, 4, or 9-feet), the total volume of contaminated soil in each area was calculated. Table 2 presents the contaminated soil volumes. As shown on the table, it is estimated that there is a total of approximately 15,600 ft^3 (580 yd^3) of contaminated soil; with 3800 ft^3 of contaminated soil located under the building, 7100 ft^3 of contaminated soil located outside the building (based on URSG samples), and an additional 4600 ft^3 of potentially contaminated soil located outside the building (based on Terra Vac samples).

The mass of contamination in each area and depth was calculated using GIS, which interpolated data to create a representative concentration for each area and depth. This concentration was then multiplied by the volume and weight of the soil (assuming a soil density of 100 lb/ft^3) to estimate the mass of contamination. As shown on Table 2, it is estimated that there are a total of 370 lbs of contaminants, of which 360 pounds are PCE.

Figures 6, 7, and 8 graphically represent the data presented in Table 2. Figure 6 shows that only 46% of the total contaminated soil volume is located outside the building (using only URSG samples). However, this same area contains 87% of the total contaminant mass. Only 12% of the total contamination is estimated to be located under the building. Figure 7 shows that 75% of the contaminant mass is in the 0-4 foot interval although only 41% of the contaminated soil volume is in this interval.

Figure 8 combines information from Figures 6 and 7. This figure shows that 71% of the contaminant mass is outside the building in the 0-4 foot interval and that an additional 12% of the contaminant mass is in the 4-6 foot depth interval outside the building. The total volume of these two areas is just 2,862 ft^3 (18% of the contaminated soil by volume), but contains 83% of the contaminants mass. The significance of this mass distribution is discussed in the following sections.

3.0 GOALS FOR REMEDIATION

The original remediation goals for the site were outlined in the ROD and are as follows:

- Eliminate the potential for direct human or animal contact with the contaminated soils on site
- Reduce, control, or eliminate the contamination present within the soils on site
- Mitigate the impacts of contaminated groundwater to the environment
- Provide for attainment of SCGs for groundwater quality at the limits of the area of concern

The SVE system was designed to treat shallow soil above the clay layer to address the remediation goals. Based on the sampling that has been conducted at the site, SVE was largely successful in remediating contaminated soil underneath the antique car museum and the eastern portion of the former dry cleaners building. However, significant contamination remains immediately north of the dry cleaner building and underneath the western portion of this building.

As discussed above, it is estimated that there are 370 pounds of contamination remaining at the site, the majority of which is located in a small area directly adjacent to and outside the former dry cleaners. Based on the evaluation of the data, the remedial goals can be addressed by meeting the following objectives:

1) Remove soil contamination from the area immediately north (outside) the former dry cleaners building to a depth of 6 feet (This volume contains 87% of the mass of contamination at the site.

2) Mitigate potential exposure to soil contaminant vapors in the former dry cleaners building, either through vapor control systems or through removal of the source.

3) Monitor and/or control migration of contaminated groundwater seeping through the foundation.

Groundwater and soil remediation technologies are evaluated in subsequent sections based on the three objectives presented above. Contamination in the clay layer was not considered to be a significant threat and therefore was not considered in evaluating remedial technologies. Although contamination may migrate slowly through the clay layer, there are no homes or industries in the vicinity of the site that utilize groundwater. Additionally, no measurable impact to Seneca Lake is expected based on modeling presented in the FS and groundwater data collected to date.

4.0 SOIL REMEDIATION

Potentially applicable remedial technologies for contaminated soil include:

- Monitored Natural Attenuation
- Excavation
- Soil Vapor Extraction / Dual Phase Extraction (DPE)
- Passive Venting

Each of these technologies are briefly described and evaluated in the following sections. Table 3 summarizes each technology, including advantages and disadvantages.

4.1 Monitored Natural Attenuation

Monitored natural attenuation consists of allowing contamination remaining at the site to naturally attenuate (i.e., slowly diminish due to biodegradation, volatilization, etc.) over time. No treatment technology would be implemented. Periodic soil sampling would be performed to assess the progress of remediation.

This technology is considered to be unacceptable. It does not address the remedial goals, especially the risk associated with direct soil contact, in a reasonable length of time. In addition, the analytical sampling indicates that attenuation at this site is not readily occurring. More than 10 years after the dumping of PCE ceased, the soil analysis showed that of the 370 pounds of contamination in the soil, 360 pounds are still in the form of PCE, with relatively low quantities of breakdown products. Therefore, it is expected that the risk posed by the contamination in the soil would remain for many years. Considering that most of the contaminant mass is located in an area that could very likely be disturbed by future construction activities, this technology was not considered further.

4.2 Excavation

This technology would involve the excavation and offsite treatment and/or disposal of the 106 cubic yards of contaminated soil located outside of the building in the 0-6 foot depth range. Due to the location of the soil directly adjacent to the foundation of the building, and due to the utility lines that run through this area, engineering and construction controls are required for protection of the building structure during excavation. Using H-piles, steel sheeting, and excavating in small segments, the reasonable depth of excavation outside the building is in the range of 6 to 7 feet. Controls required for any deeper excavation would be prohibitively expensive. Excavated soil would be stockpiled according to the estimated level of contamination, analyzed, and then disposed of as appropriate.

The advantage of excavation is that a majority of the contamination, including the contamination with the greatest risk of future exposure, would be quickly and permanently removed from the site. Excavation would partially satisfy the remedial goals for the site and will be considered further.

4.3 Soil Vapor Extraction/Dual Phase Extraction

These technologies consist of installing vacuum extraction wells into the contaminated soil. SVE is the technology that was originally used for site remediation. A relatively low vacuum is applied to the soil for SVE. Since much of the contamination in the area adjacent to the building is adsorbed onto clay and in the clay/soil interface, SVE would have limited effectiveness in this area. DPE is a similar technology except that the applied vacuums are much higher, improving contaminant removal from low permeability soil and clays. DPE also extracts groundwater in conjunction with the soil vapor. At this site, an estimated 15 extraction wells would be installed along the length of the building. The wells would be connected to a high vacuum liquid ring pump system to extract both vapors and groundwater. Air and groundwater would be treated as required for discharge.

Due to the fact that the subsurface conditions are relatively heterogenous, with contamination in both loose fill and clay, and that various utility lines run through the area, this site would be difficult to remediate by SVE/DPE. It is expected that the system could easily require 1-2 years or more of operation to remove contaminants. As shown on Table 6, the cost of DPE is very expensive if operation is required for an extended period of time. Assuming 18 months of system operation were required, the total cost is estimated to be on the order of $310,000. This is much more expensive than excavation. Therefore, SVE/DPE was rejected in favor of less expensive technologies that achieve the same goals. This technology was not considered further.

4.4 Passive Venting

Passive venting addresses contamination under the former dry cleaners building. Passive venting would consist of the installation of slotted piping and a vapor collection layer under the floor of the building to collect vapors as they volatilize from the soil. The piping would be vented outside the building. This technology would not directly address the contaminated soil, but would help to mitigate the risk due to vaporization and buildup of contaminants inside the occupied areas of the building. In order to preserve the stability of the building foundation, it would not be advisable to use horizontal drilling or other methods to install the collection piping. It would be necessary to remove the existing floor inside the building and then install the piping. The majority of the contamination appears to be located under the middle section of the building where the floor is concrete (only the west portion of the building has a plywood on joists floor). While there have not been any contaminant vapors detected during previous limited monitoring events, there is still a risk that a change in the building use could increase the potential for gas migration into the building. The technology will, therefore, be considered further in this report.

5.0 GROUNDWATER REMEDIATION

A groundwater pump and treat system was operated at the site from fall of 1996 to spring of 1998. During that time, PCE and TCE concentrations in groundwater collected by the system have been less than 80 μg/l (ppb) and 10 μg/l, respectively, indicating that groundwater extracted from the sand layer is relatively clean.

Sampling by the NYSDEC Spills Group in August 1997 showed that well MW-5S (screened mostly in fill and clay) was the most contaminated of the onsite monitoring wells, with 1,300 ppb of PCE, 227 ppb of TCE, and 770 ppb of 1,2-Dichloroethylene. This is consistent with previous results. Most other wells contained less than 20 ppb of total chlorinated compounds, relatively consistent with the findings of the RI. These results show that groundwater contamination is mainly in the fill/clay layer, and is not greatly impacting the underlying sand layer.

As part of the test trench program in June 1998, URSG collected groundwater samples from the excavated trenches, as well as from two geoprobe locations inside the former antique shop building. The results of these analyses are summarized on Table 4. These samples show PCE concentrations in groundwater as high as 30,000 ppb. These results indicate that some perched water underneath the former dry cleaners building is highly contaminated. This groundwater may be seeping through the foundation into the fill layer immediately north of the building. The quantity of water seeping through the foundation is unknown, but expected to be small.

In summary, the most contaminated groundwater is perched water in fill above the clay layer which is located underneath the former dry cleaners building and immediately north of the building. This perched water is not apparently having a significant impact on groundwater quality in the sand aquifer.

Potentially applicable remedial technologies for contaminated groundwater include:

- Continued Operation of Existing Pump and Treat System
- Monitored Natural Attenuation

- Barrier Wall
- Treatment Wall

Each of these technologies are described in detail below. Table 5 summarizes advantages and disadvantages to each of these alternatives.

5.1 Continued Operation of the Existing Pump and Treat System

The existing pump and treat system would be used to remediate contaminated groundwater. The advantage to this alternative is that the equipment is already onsite and operable. However, there may be no significant benefit derived from continued collection and treatment of the groundwater. As described in the previous section, and shown on Figure 9, contaminant concentrations collected by the system have been low. While there was a significant reduction in influent concentrations for the first several months of operation, contaminant concentrations soon became relatively consistent at concentrations less than 100 ppb. Attempting to achieve any further significant contaminant reduction by collecting the groundwater may take many years. In addition, pump and treat does not directly address the contaminated perched water above the clay. This perched water will be addressed by removal of contamination in the fill (Section 4.0). For the above reasons, groundwater pump and treat is not considered further other than as a contingency measure (see Section 6.0).

5.2 Monitored Natural Attenuation

Monitored natural attenuation (MNA) includes continuation of groundwater monitoring, but no active measures to address groundwater. Currently, there are no exposure pathways for groundwater. Until remediation of the groundwater is achieved, any future development and/or reconstruction plans proposed for the site and adjacent parcels will be subject to review and prior approval by both the NYSDEC and NYSDOH. Although, MNA does not address perched water in the fill layer, removal of contaminated soil outside the building will clean up groundwater in this area. There is a possibility that perched water below the building could migrate through the foundation wall and recontaminate this area, but the likelihood of this is uncertain. In light of the above considerations, MNA is considered to be a feasible technology for groundwater remediation, and will be considered further.

5.3 Barrier Wall

A third technology considered to address the groundwater at the North Franklin Street site is a barrier wall. This technology would not directly address the groundwater contamination, but would attempt to prevent recontamination of the clean soil area (following excavation and backfill) by eliminating contaminated perched water migration out from underneath the building. This would be accomplished by installing an impermeable barrier along the north side of the former dry cleaners building.

A barrier wall would most likely be constructed in conjunction with the temporary shoring wall to be used for excavating the contaminated soil. However, it is not expected that the temporary wall as envisioned (see Section 6.0) would achieve the desired goal. The wall would be very difficult to adequately seal, and groundwater would simply migrate around the sheets at each pile. While there are barrier walls that could prevent groundwater movement, they would not provide the support that is required for building stability, nor could they easily be installed at the desired close proximity to the building. Even if an impermeable barrier wall were to be installed, it is probable that contaminated water would simply migrate laterally around the barrier wall.

5.4 Treatment Wall

The fourth technology considered for remediation of groundwater at the North Franklin Street site is a treatment wall. Under this technology, a porous wall would be constructed across the path of contaminated groundwater flow such that all contaminated groundwater would have to pass through the wall. The wall would contain iron filings, which have proven to be a catalyst in the degradation of chlorinated hydrocarbons, especially PCE and TCE. As groundwater flows through the wall, these contaminants are degraded into harmless products. The wall would be designed with a thickness such that the residence time of the groundwater in the treatment wall is sufficient for contaminant removal. Treatability studies may be required in order to design an effective system.

The advantage to this alternative is that little or no maintenance or operation activities are required. There would be periodic monitoring to verify the effectiveness of the system. The treatment wall could be constructed either for treatment of perched groundwater in the shallow zone (fill layer) or for the entire aquifer.

A treatment wall would cut off the source of contamination. However, contamination downgradient of the wall would be addressed by natural attenuation. Since the site is not having a significant impact on the sand aquifer, the cost of installing a wall to depth of approximately 25 feet to address migration in the sand layer does not appear warranted. However, this technology is feasible to prevent perched water from under the former dry cleaners building from recontaminating remediated soil outside the building. The shallow treatment wall is, therefore, considered further in this report.

6.0 DESCRIPTION OF RECOMMENDED ALTERNATIVE

Based on the evaluation of appropriate technologies for both soil and groundwater, URSG has developed the following recommended alternative for continued remediation of the North Franklin site. Our general approach is to focus on the source of the contamination (soil) since it represents the greatest potential risk to humans and will have the greatest impact on the environment (e.g., groundwater). The major components of the recommended alternative are described below. Ancillary tasks that would be completed in conjunction with the remedial action are also identified.

- Contaminated soil (fill and the top 1 foot of clay) from the area outside the antique shop will be excavated. The proposed excavation scheme would consist of excavating the soil in small increments, only exposing a small portion of the building foundation at any one time. Figures 10 and 11 illustrate the conceptual excavation scheme.

  The excavation of the soil will be completed in two phases. In the first phase, the soil will be excavated to a depth of three feet from the surface to expose the buried utilities at the site. The utilities will then be temporarily disconnected. After excavation of the upper three feet, H-piles will be driven 8 feet into the ground (from -3.0) at six foot centers along the building foundation. The H-piles will be driven as close to the building as possible without causing any damage to the building. Steel plates will then be driven between the H-piles as lagging. The steel plates, 6 feet by 7 feet, will be driven into the soil 1 foot deeper than the proposed excavation depth. The steel plates will be pulled and reused as the excavation progresses along the building. No more than 10 to 12 feet of foundation will be exposed at any one time. It is anticipated that the excavation will proceed from east to west along the wall of the building. The total volume of excavated material is estimated to be approximately 300 cubic yards in place.

After excavation, the area will be backfilled with NYSDOT No.1 crushed stone. The stone will be placed in one foot lifts and compacted, up to elevation -3.0. The excavation will then be filled to the surface with clean fill, placed in one foot lifts. The H-piles will be left in place at the site. Table 7 contains the estimated cost for excavation and disposal of the contaminated soil.

- As the soil is excavated, it would be screened with a PID for organic vapors. The excavated soil would be segregated into stockpiles of low and high contamination. After screening and analysis of the stockpiled soil, it would be disposed of as appropriate. It is possible that some of the soil will be considered a hazardous waste. For the cost estimate, it is conservatively assumed that the 106 cubic yards of soil above the cleanup criteria will be hazardous waste, and that the over-excavation soil is non-hazardous.

- Perched water that collects in the excavated area will be pumped to the equalization tank of the existing groundwater extraction and treatment (GWET) system for treatment and discharge.

- A shallow groundwater treatment wall (approximately 60 feet long) parallel to the foundation of the building will be constructed to address the migration of contaminants from underneath the building. Figure 12 shows the approximate location of the wall. The depth of the wall will be approximately 6 feet. Construction will include the installation of several piezometers to monitor groundwater flow patterns and treatment efficiency. Table 8 includes the estimated cost for construction of the treatment wall. In all likelihood, the treatment wall would be constructed in conjunction with the excavation of contaminated soil from outside the building. While the remainder of the excavated area is backfilled with stone, the area of the treatment wall would be backfilled with iron fillings. Thus, there may be some construction cost savings that are not included in this estimate.

- Existing monitoring wells will be sampled semiannually. Estimated costs for monitoring are shown on Table 9.

- Deed restrictions will be implemented that permit continued monitoring and require state approval for any onsite construction activities

- A passive venting system will be constructed underneath the floor of the former dry cleaners. The venting system will consist of approximately 250 feet of slotted pipe installed under the concrete floor and then vented to the atmosphere. Estimated costs for installation of a passive venting system in the existing structure are shown on Table 10.

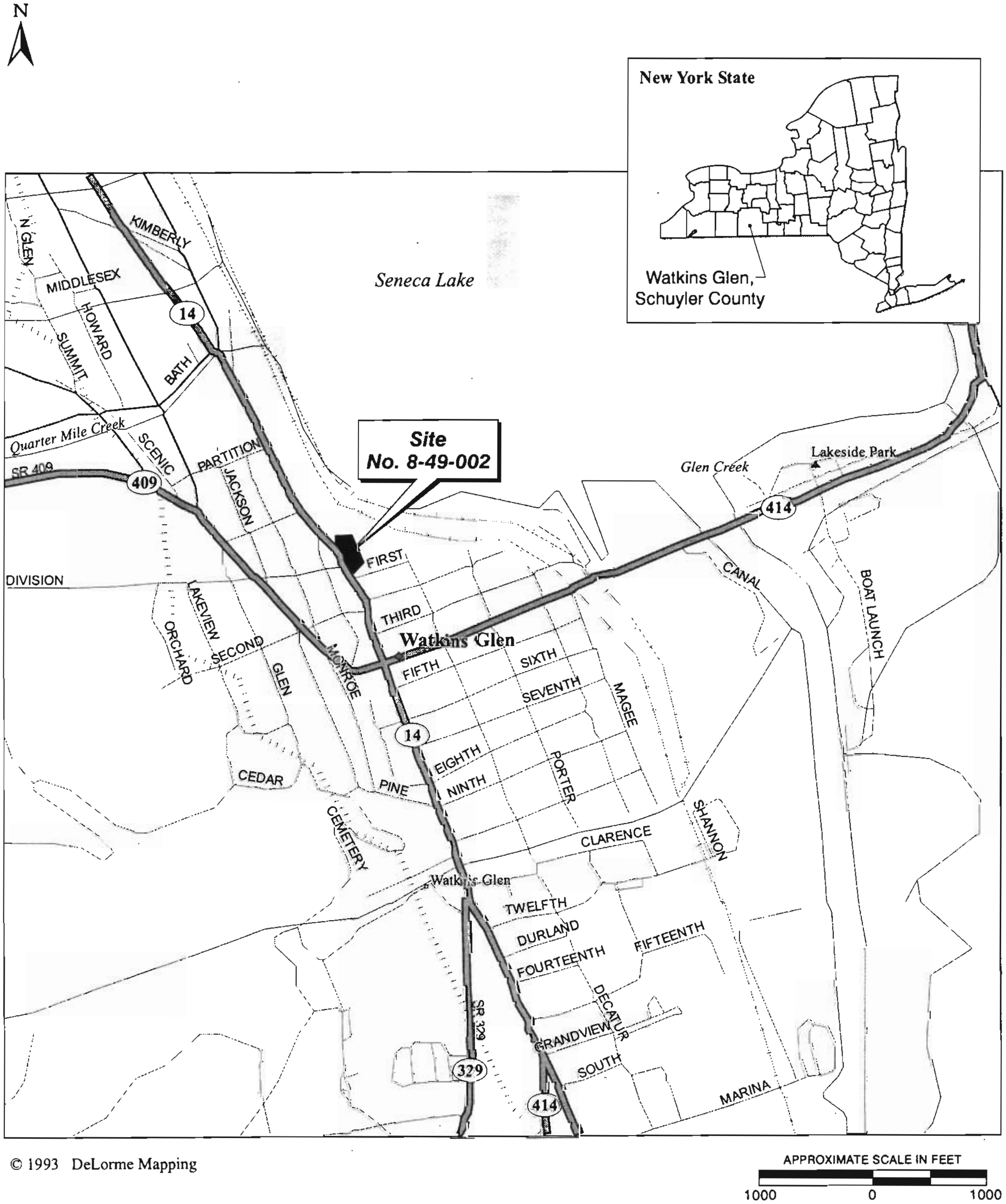
- The existing groundwater treatment system will be demobilized and stored offsite so that it can be used in the future if monitoring results indicate the need for it.

- Remaining SVET wells, GWET wells, pressure monitors, etc. (it is assumed that all GWET, and SVET piping would remain buried) will be decommissioned.

- Site fencing will be removed.

- Misc. site restoration (e.g., repaving) will be implemented. Table 11 summarizes all of the estimated miscellaneous site work costs.

Figures



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WATKINS GLEN
SITE LOCATION MAP

FIGURE 1

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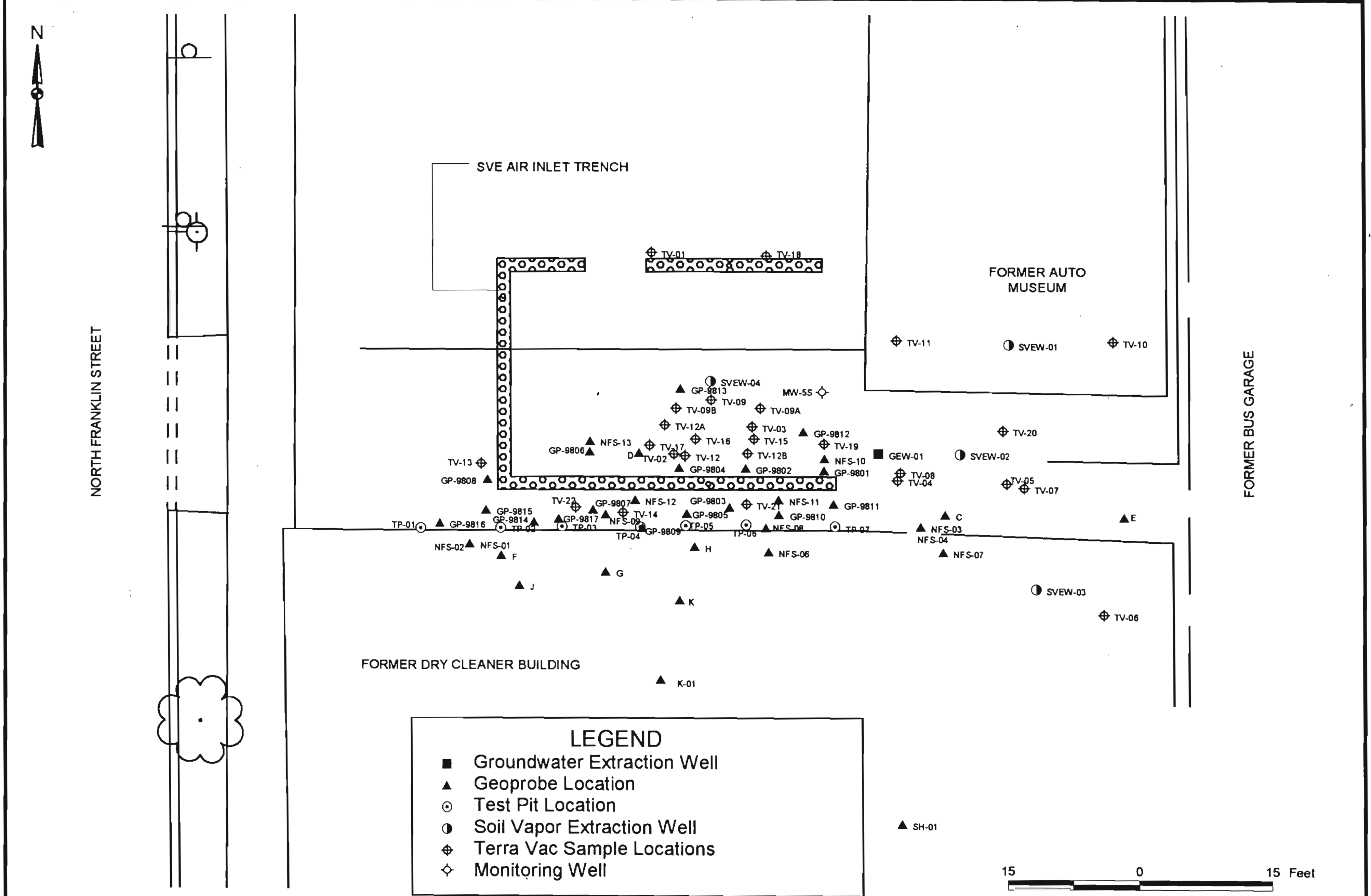

URS Greiner	**North Franklin Street** **Site Plan**	**FIGURE 2**

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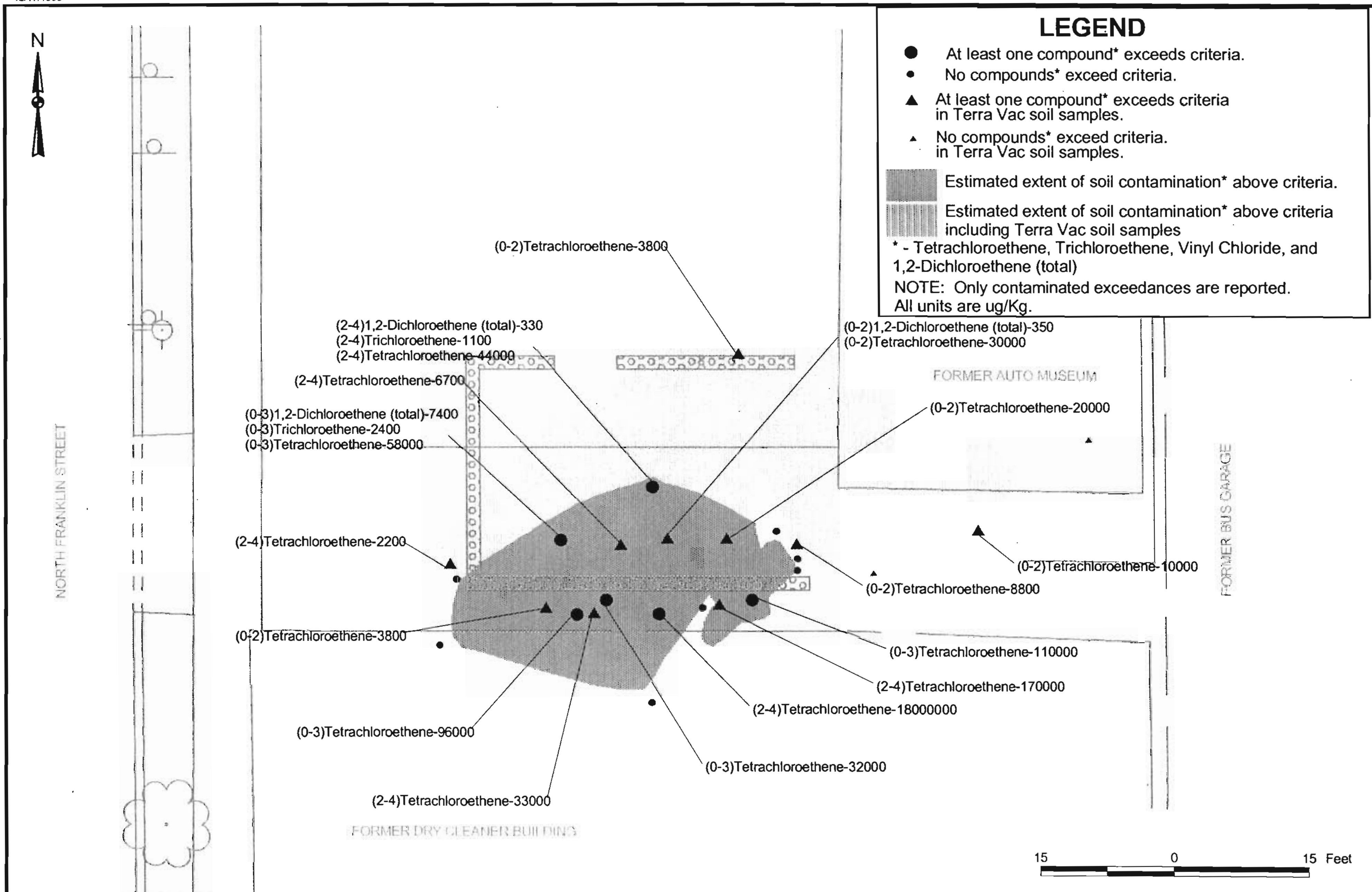
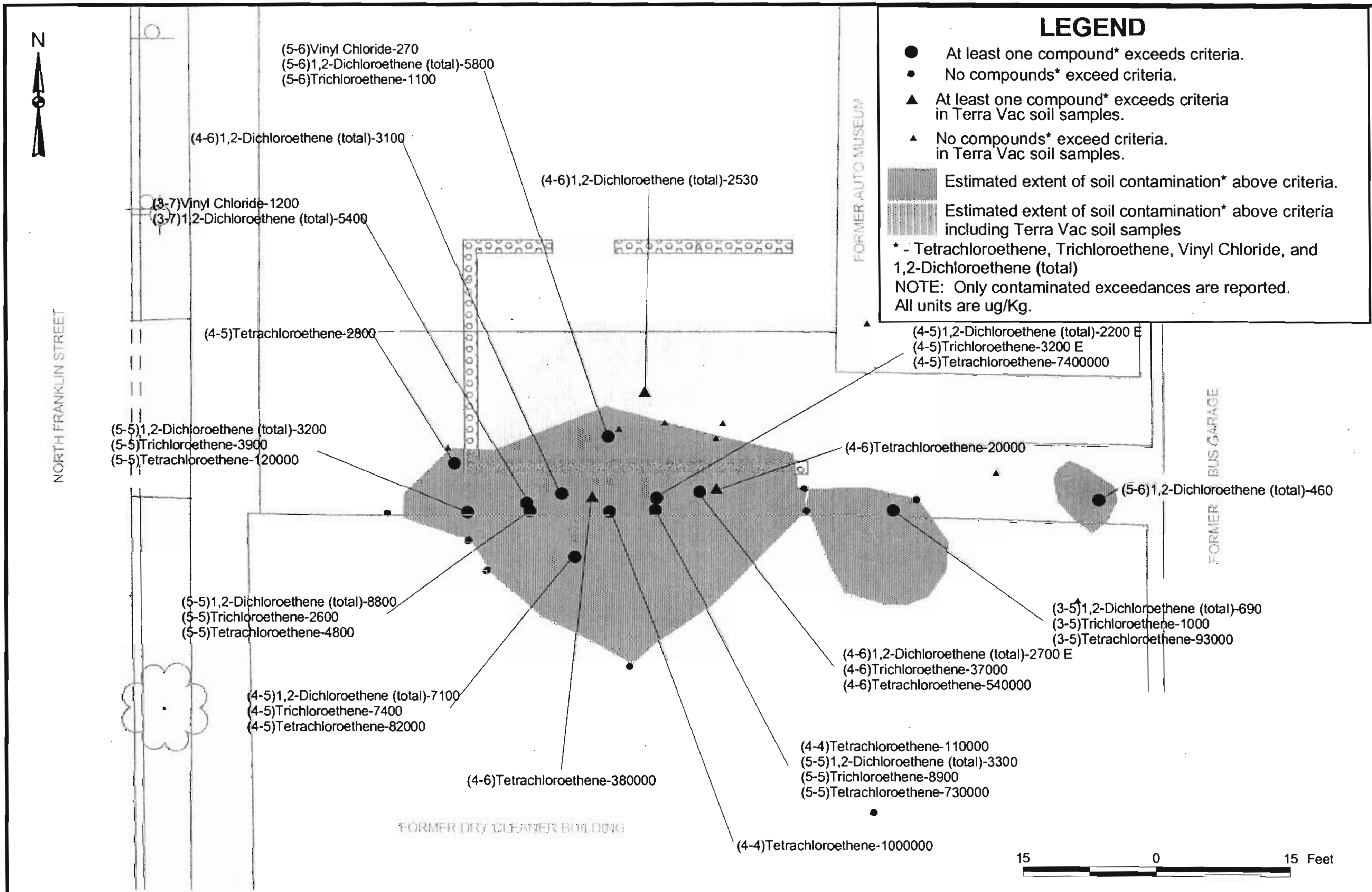


URS Greiner	**North Franklin Street** **Tetrachloroethene, Trichloroethene, Vinyl Chloride, 1,2-Dichloroethene (total)** **Depth: 0 - 4 ft.**	**FIGURE 3**

j:\35388\gis\proj1.apr 4 -6 ft
12/17/1998



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North Franklin Street
Tetrachloroethene, Trichloroethene, Vinyl Chloride, 1,2-Dichloroethene (total)
Depth: 4 - 6 ft.

FIGURE 4

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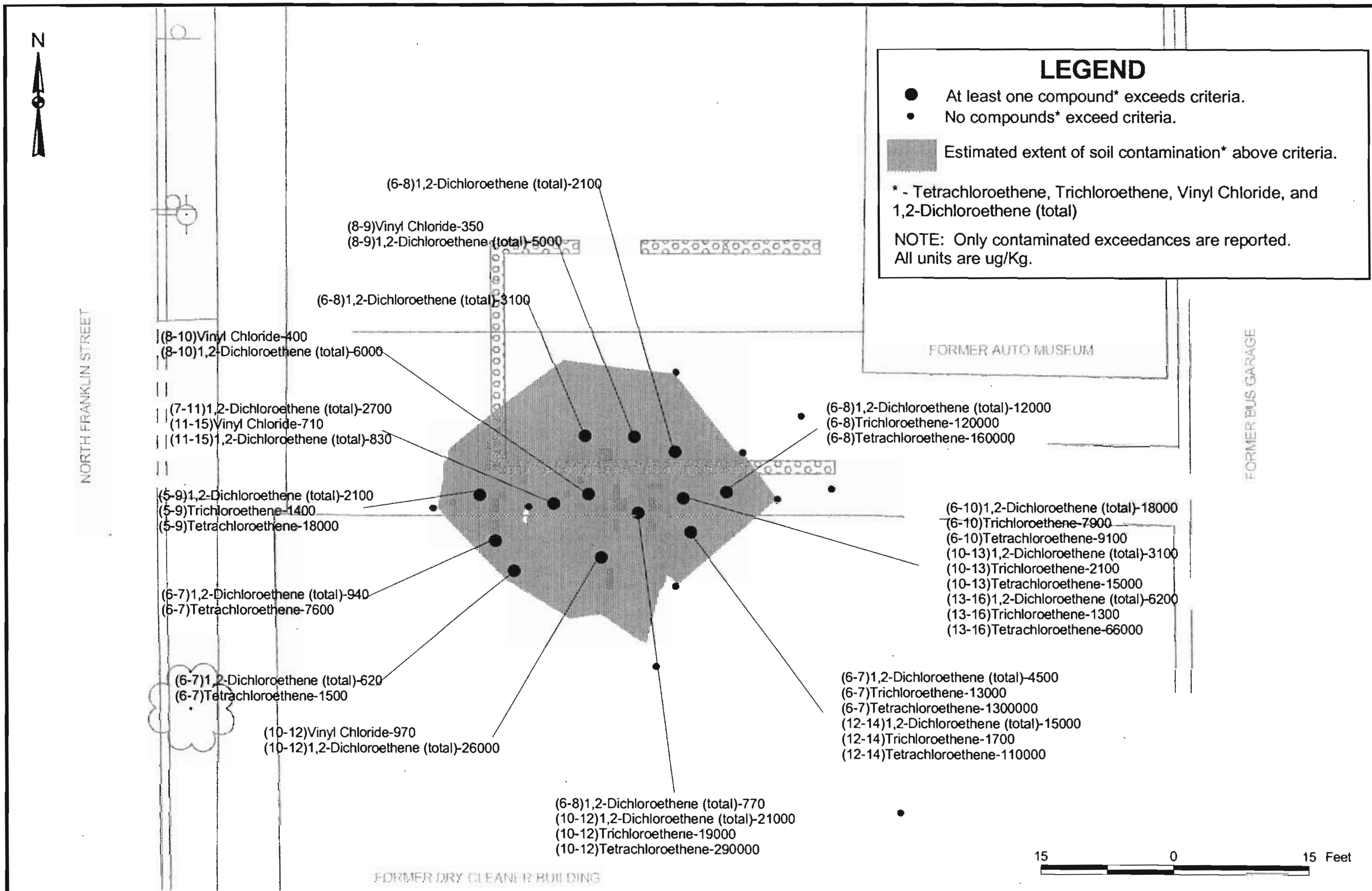


URS Greiner	North Franklin Street Tetrachloroethene, Trichloroethene, Vinyl Chloride, 1,2-Dichloroethene (total) Depth: > 6 ft.	FIGURE 5

Figure 6

Breakdown by Area

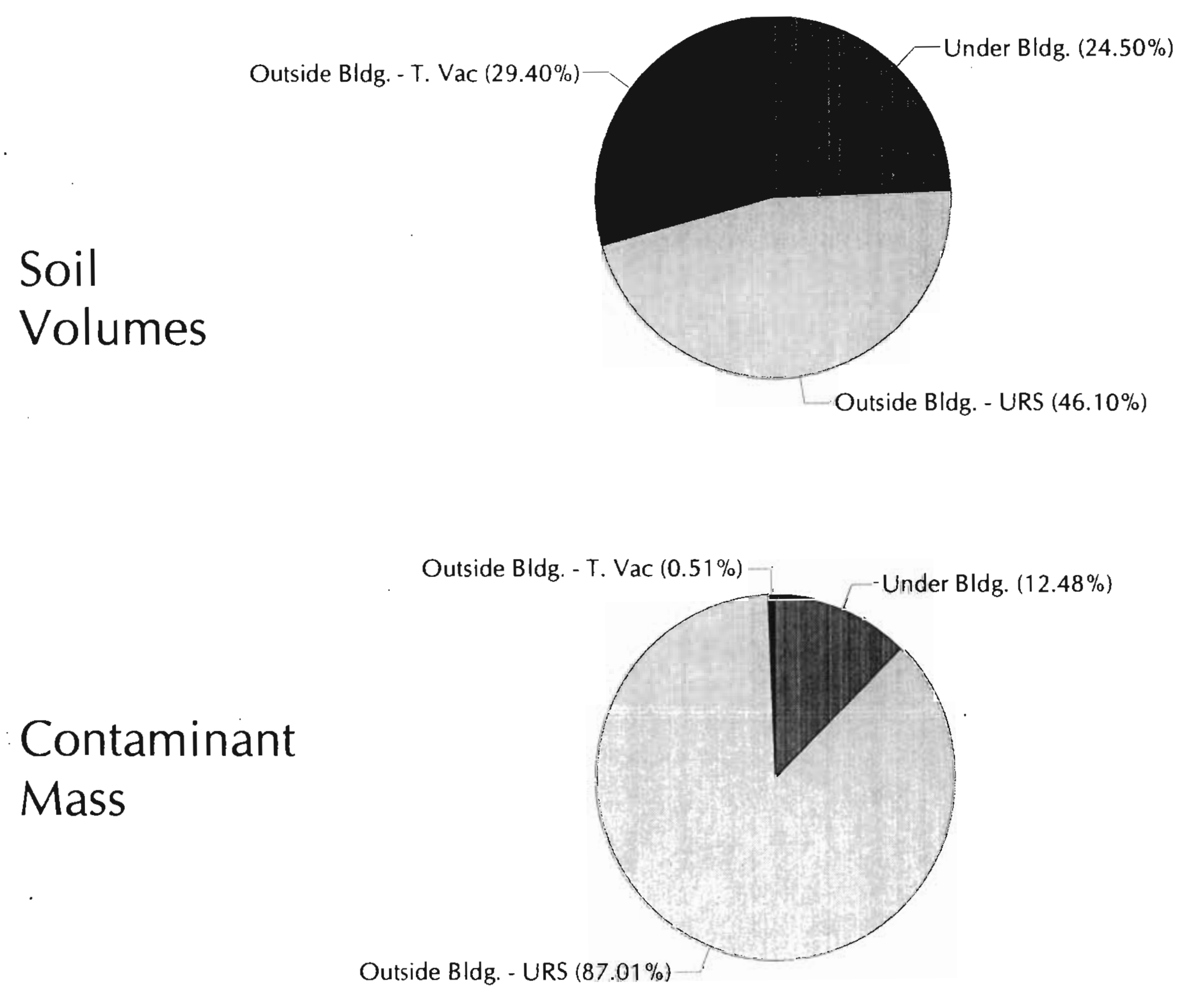
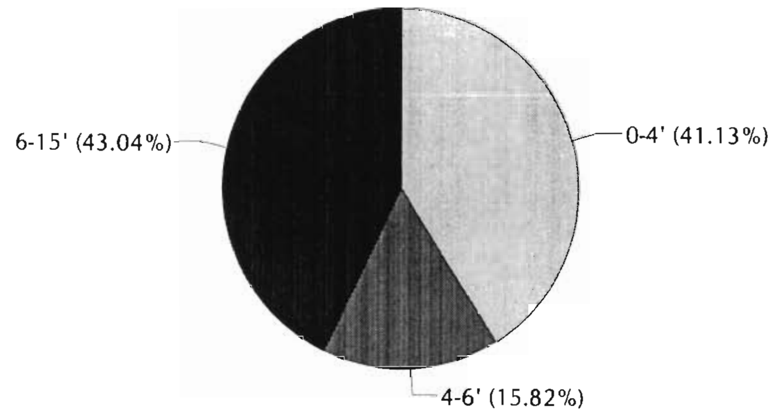


Figure 7

Breakdown by Depth

Soil Volumes



Contaminant Mass

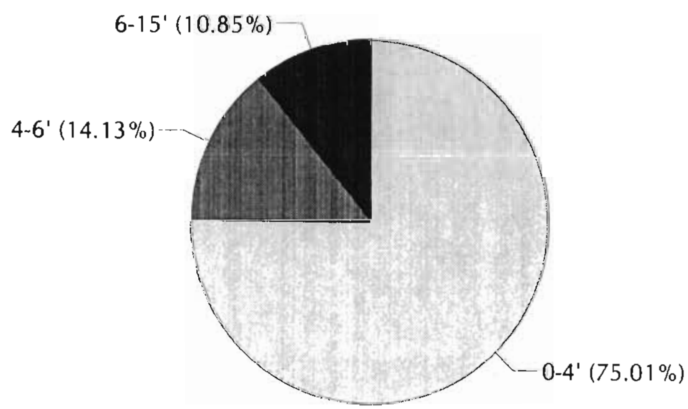


Figure 8

Contam. Mass Breakdown by All Areas

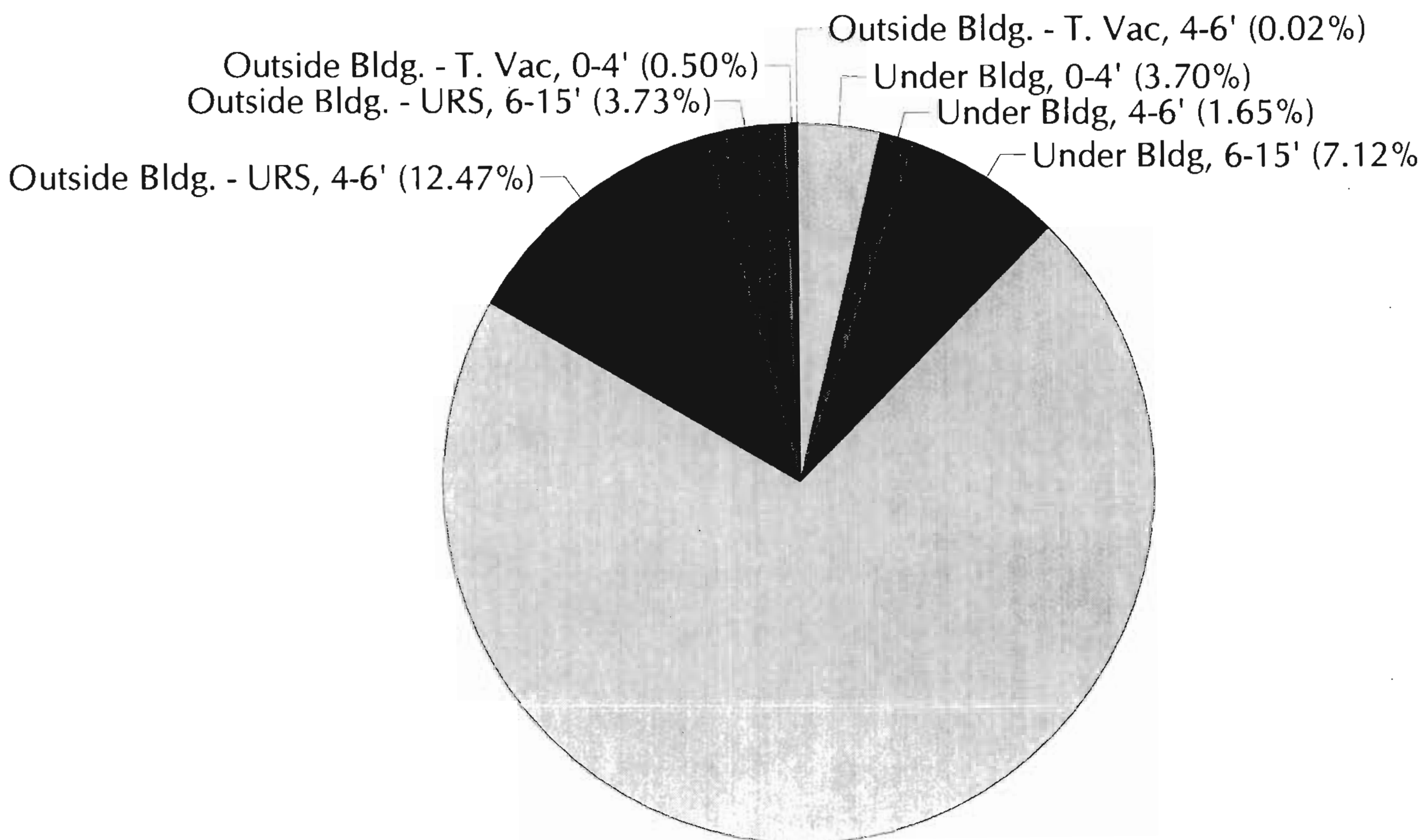
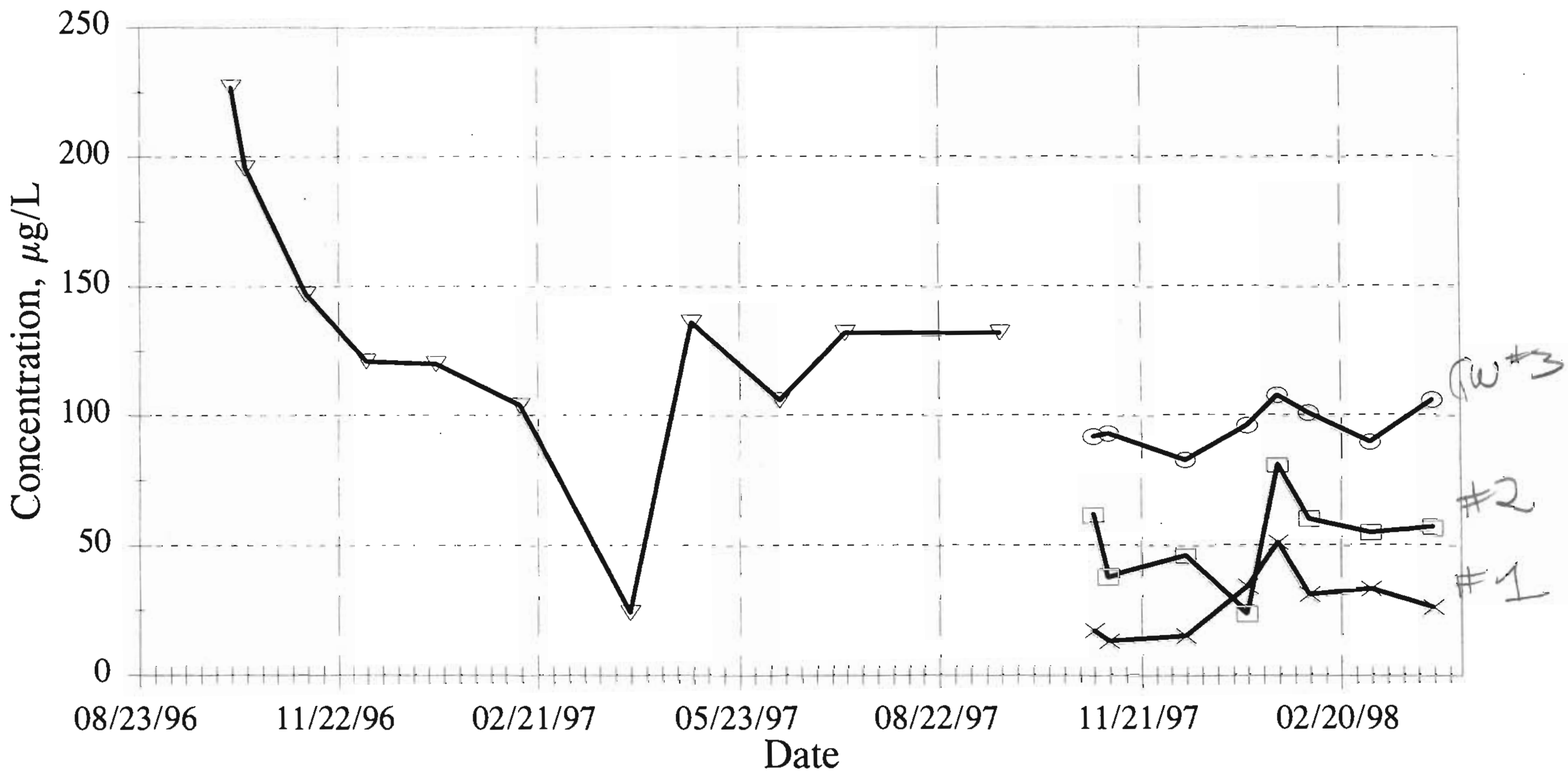


Figure 9
GWET System Influent Concentrations



NOTE: Prior to October '97, one sample was collected of the combined influent from all wells. Subsequent samples were collected at the influent from each individual well.

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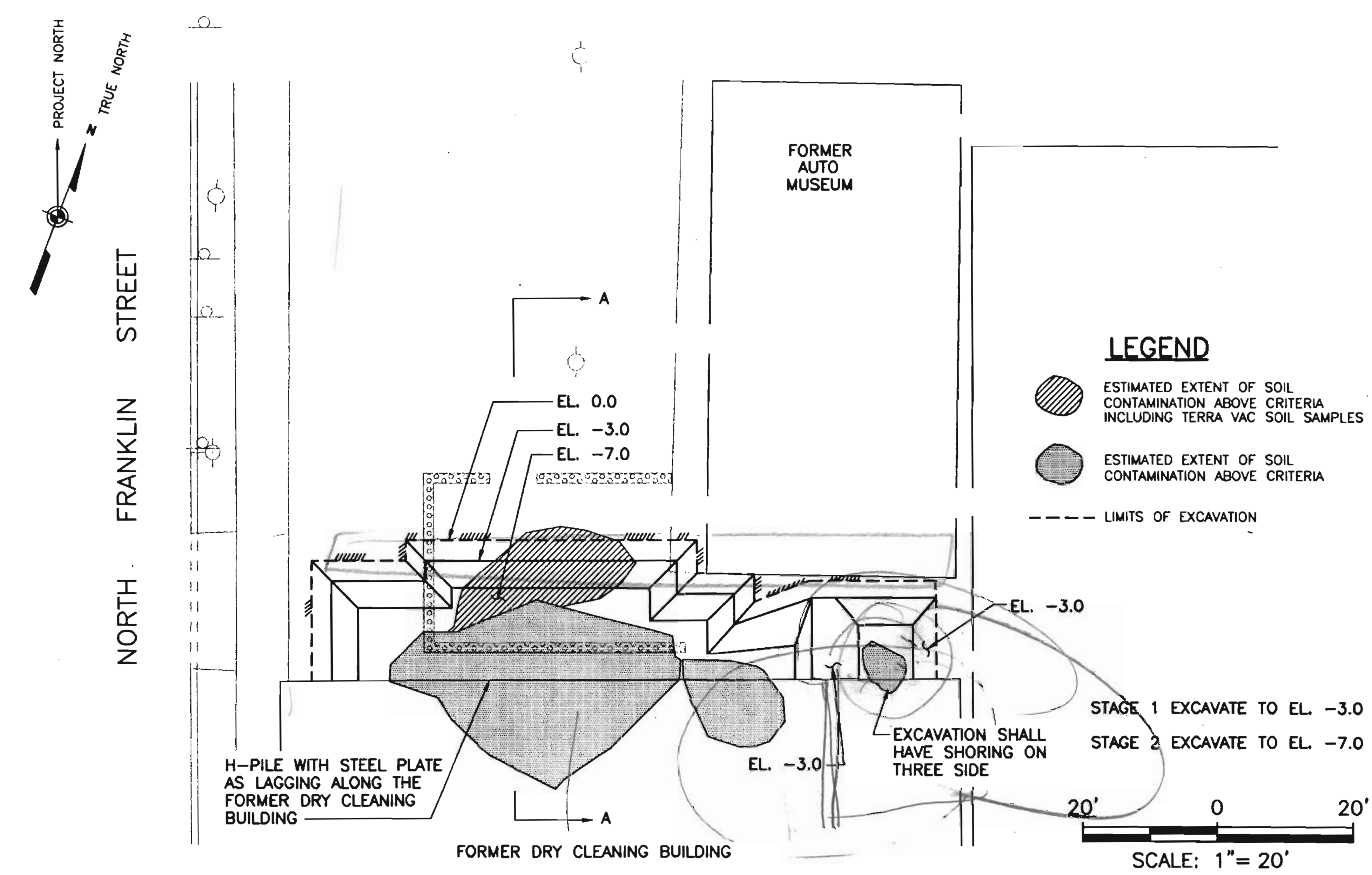

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NORTH FRANKLIN STREET
PROPOSED EXCAVATION PLAN

FIGURE 10

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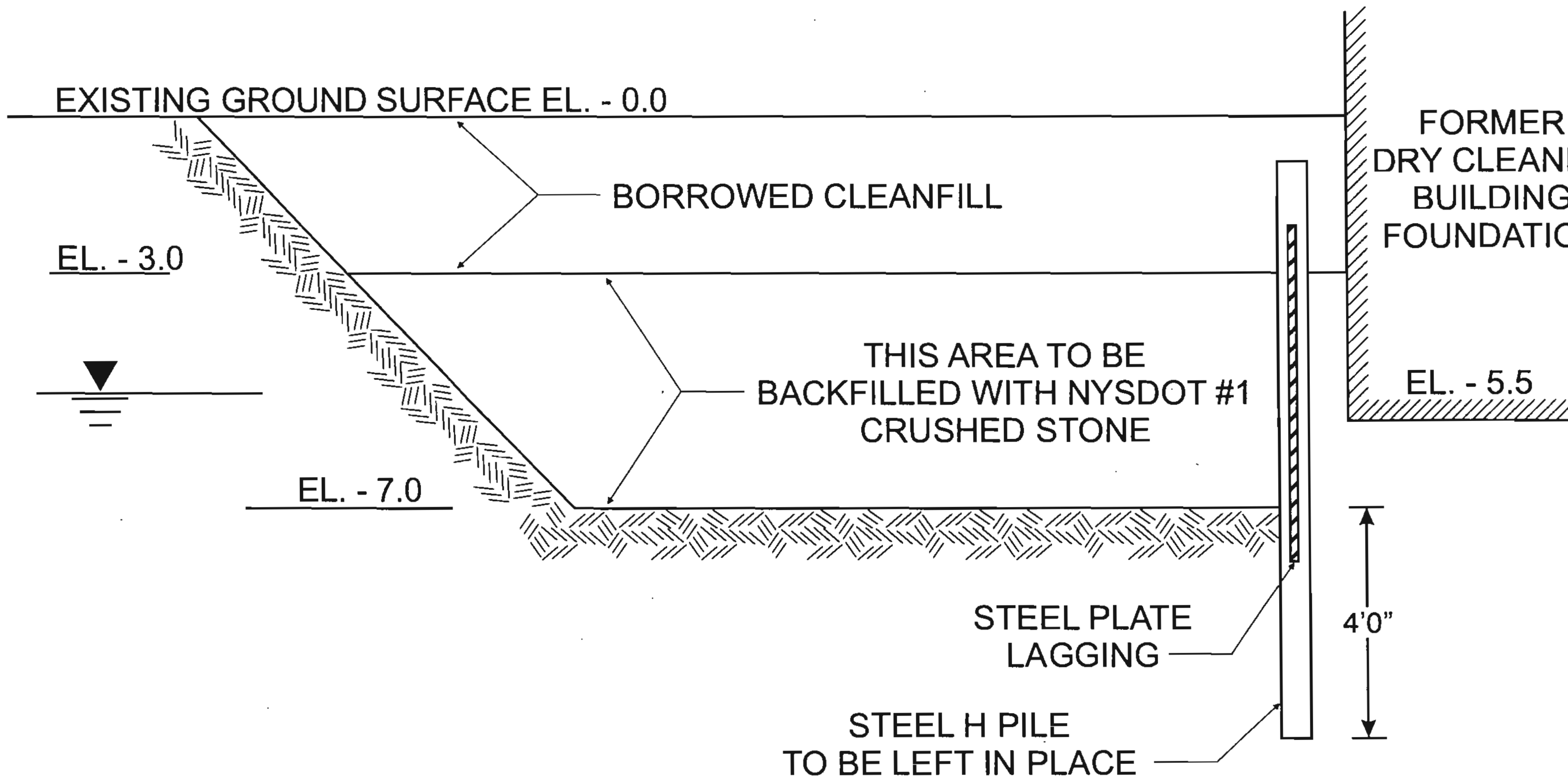

SECTION A-A

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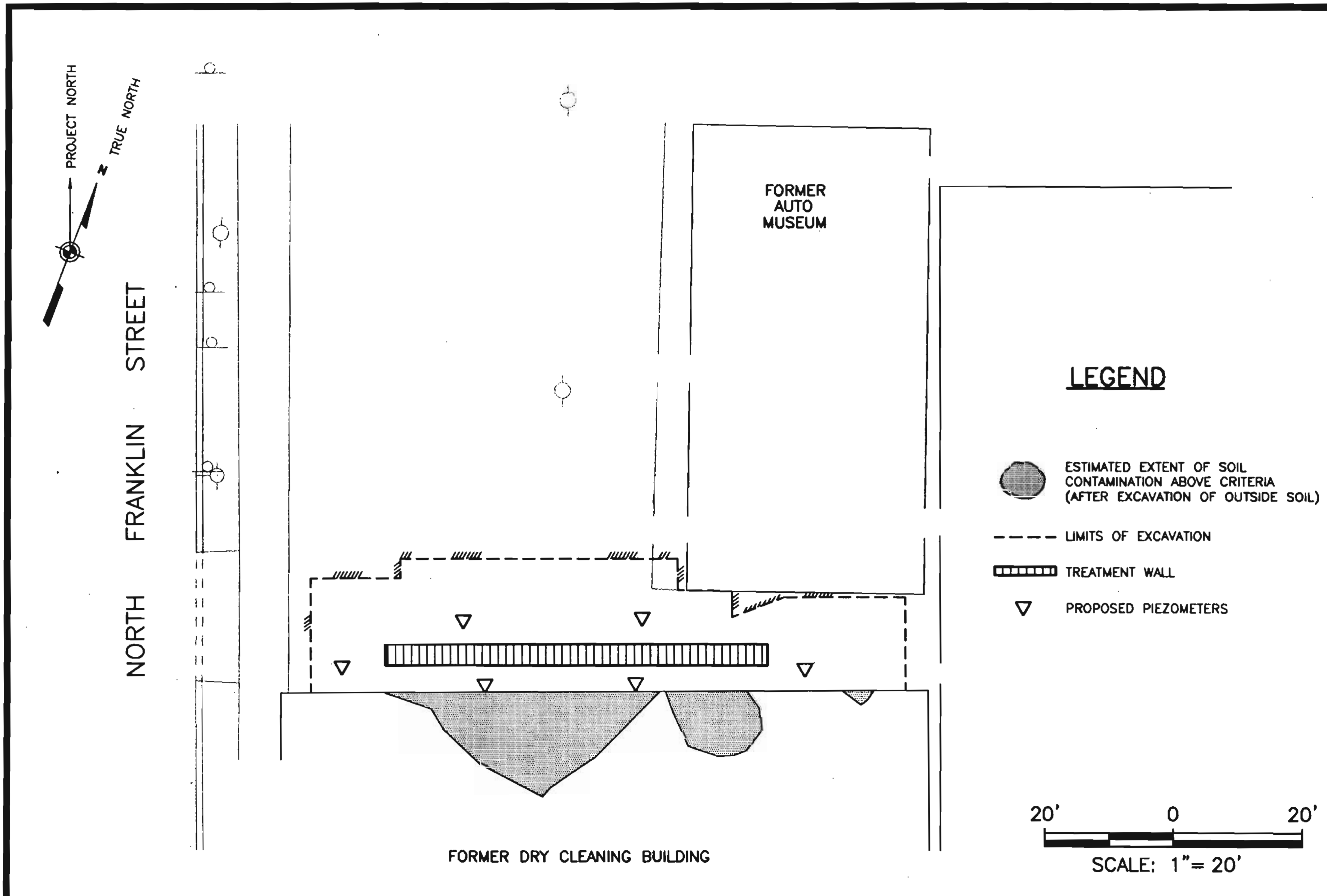
NORTH FRANKLIN STREET SITE
CONTAMINATED SOIL REMOVAL
CONCEPTUAL DESIGN APPROACH

FIGURE 11

AC-13705

JOB-MISC\CAD\ 1=20 2/9/99-2 BJG



URS Greiner Consultants, Inc.

NORTH FRANKLIN STREET
PROPOSED TREATMENT WALL

FIGURE 12

Tables

TABLE 1

NORTH FRANKLIN STREET SITE

SOIL SAMPLE ANALYTICAL RESULTS

Location I.D.		C	D	D	E	F
Sample I.D.		C-(5-5.5)	D-(5-5.5)	D-(8-9)	E-(5-5.5)	F-(4-5)
Matrix		Soil	Soil	Soil	Soil	Soil
Date Sampled		07/20/98	07/20/98	07/20/98	07/20/98	09/14/98
Parameter	**Units**					
Volatiles						
Chloromethane	UG/KG	ND	ND	ND	ND	ND
Vinyl Chloride	UG/KG	ND	270	350	ND	8
1,1-Dichloroethene	UG/KG	ND	36	ND	ND	ND
Acetone	UG/KG	110	77	93	69	4
Carbon Disulfide	UG/KG	ND	ND	ND	ND	ND
Methylene Chloride	UG/KG	19	15	15	ND	2
1,2-Dichloroethene (total)	UG/KG	18	5800	5000	460	47
Methyl Ethyl Ketone (2-Butanone)	UG/KG	ND	ND	ND	ND	ND
Benzene	UG/KG	ND	ND	ND	ND	ND
Trichloroethene	UG/KG	ND	1100	ND	70	6
Toluene	UG/KG	ND	ND	ND	ND	ND
Tetrachloroethene	UG/KG	25	720	36	130	50
Chlorobenzene	UG/KG	ND	ND	ND	ND	ND
Ethylbenzene	UG/KG	ND	ND	ND	ND	ND
Xylene (total)	UG/KG	ND	ND	230	ND	ND
Styrene	UG/KG	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	UG/KG	ND	ND	ND	ND	ND
Bromodichloromethane	UG/KG	ND	ND	ND	ND	ND

MADE BY:_________DATE:_________
CHKD. BY:_________DATE:_________

TABLE 1

NORTH FRANKLIN STREET SITE

SOIL SAMPLE ANALYTICAL RESULTS

Location I.D.		F	G	G	GP-9801	GP-9802
Sample I.D.		F-(5.5-6.5)	G-(10-12)	G-(4-5)	GP-9801-(2-4)	GP-9802-(6-8)
Matrix		Soil	Soil	Soil	Soil	Soil
Date Sampled		09/14/98	09/14/98	09/14/98	03/16/98	03/16/98
Parameter	**Units**					
Volatiles						
Chloromethane	UG/KG	ND	ND	ND	ND	ND
Vinyl Chloride	UG/KG	78	970	ND	ND	190
1,1-Dichloroethene	UG/KG	2	ND	ND	ND	ND
Acetone	UG/KG	36	ND	ND	11 B	57 B
Carbon Disulfide	UG/KG	ND	ND	ND	ND	ND
Methylene Chloride	UG/KG	2	250	500	ND	ND
1,2-Dichloroethene (total)	UG/KG	940	26000	7100	11	100
Methyl Ethyl Ketone (2-Butanone)	UG/KG	ND	ND	ND	ND	ND
Benzene	UG/KG	ND	ND	ND	ND	ND
Trichloroethene	UG/KG	680	ND	7400	7	ND
Toluene	UG/KG	ND	ND	ND	ND	ND
Tetrachloroethene	UG/KG	7600	270	82000	170	83
Chlorobenzene	UG/KG	ND	ND	ND	ND	ND
Ethylbenzene	UG/KG	ND	ND	ND	ND	ND
Xylene (total)	UG/KG	ND	ND	ND	ND	150
Styrene	UG/KG	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	UG/KG	ND	ND	ND	ND	ND
Bromodichloromethane	UG/KG	ND	ND	ND	ND	ND

MADE BY:________ DATE:________
CHKD. BY:________ DATE:________

TABLE 1

NORTH FRANKLIN STREET SITE

SOIL SAMPLE ANALYTICAL RESULTS

Location I.D.		GP-9803	GP-9803	GP-9803	GP-9804	GP-9805
Sample I.D.		GP-9803-(2-4)	GP-9803-(4-6)	GP-9803-(6-8)	GP-9804-(6-8)	GP-9805-(10-13)
Matrix		Soil	Soil	Soil	Soil	Soil
Date Sampled		03/16/98	03/16/98	03/16/98	03/16/98	07/20/98
Parameter	**Units**					
Volatiles						
Chloromethane	UG/KG	ND	ND	ND	ND	ND
Vinyl Chloride	UG/KG	ND	57	120	130	200
1,1-Dichloroethene	UG/KG	ND	42	61	5	35
Acetone	UG/KG	ND	34 B	43 B	58 B	64
Carbon Disulfide	UG/KG	ND	ND	ND	ND	ND
Methylene Chloride	UG/KG	ND	ND	2	ND	19
1,2-Dichloroethene (total)	UG/KG	6	2700 E	12000	2100	3100
Methyl Ethyl Ketone (2-Butanone)	UG/KG	ND	ND	ND	ND	ND
Benzene	UG/KG	ND	ND	ND	ND	ND
Trichloroethene	UG/KG	27	37000	120000	130	2100
Toluene	UG/KG	ND	20	6	ND	ND
Tetrachloroethene	UG/KG	420	540000	160000	190	15000
Chlorobenzene	UG/KG	ND	ND	ND	ND	ND
Ethylbenzene	UG/KG	ND	22	6	ND	ND
Xylene (total)	UG/KG	ND	450 E	270	770	160
Styrene	UG/KG	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	UG/KG	ND	ND	ND	ND	ND
Bromodichloromethane	UG/KG	ND	ND	ND	ND	ND

MADE BY:_________DATE:_________
CHKD. BY:_________DATE:_________

TABLE 1

NORTH FRANKLIN STREET SITE

SOIL SAMPLE ANALYTICAL RESULTS

Location I.D.		GP-9805	GP-9805	GP-9805	GP-9805	GP-9806
Sample I.D.		GP-9805-(13-16)	GP-9805-(2-4)	GP-9805-(4-5)	GP-9805-(6-10)	GP-9806-(6-8)
Matrix		Soil	Soil	Soil	Soil	Soil
Date Sampled		07/20/98	03/16/98	03/16/98	07/20/98	03/16/98
Parameter	**Units**					
Volatiles						
Chloromethane	UG/KG	ND	ND	ND	ND	ND
Vinyl Chloride	UG/KG	110	ND	ND	170	ND
1,1-Dichloroethene	UG/KG	ND	ND	ND	40	ND
Acetone	UG/KG	47	30 B	240 B	78	130 B
Carbon Disulfide	UG/KG	ND	ND	ND	ND	ND
Methylene Chloride	UG/KG	15	7	12	21	ND
1,2-Dichloroethene (total)	UG/KG	6200	12	2200 E	18000	3100
Methyl Ethyl Ketone (2-Butanone)	UG/KG	ND	ND	68	ND	ND
Benzene	UG/KG	ND	ND	ND	ND	ND
Trichloroethene	UG/KG	1300	240	3200 E	7900	36
Toluene	UG/KG	ND	ND	26	ND	ND
Tetrachloroethene	UG/KG	66000	18000000	7400000	9100	390
Chlorobenzene	UG/KG	ND	ND	ND	ND	ND
Ethylbenzene	UG/KG	ND	ND	22	ND	63
Xylene (total)	UG/KG	71	ND	360	240	690
Styrene	UG/KG	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	UG/KG	ND	ND	ND	ND	ND
Bromodichloromethane	UG/KG	ND	ND	ND	ND	ND

TABLE 1

NORTH FRANKLIN STREET SITE

SOIL SAMPLE ANALYTICAL RESULTS

Location I.D.		GP-9807	GP-9807	GP-9808	GP-9808	GP-9809
Sample I.D.		GP-9807-(4-6)	GP-9807-(8-10)	GP-9808-(2-4)	GP-9808-(4-4.5)	GP-9809-(10-12)
Matrix		Soil	Soil	Soil	Soil	Soil
Date Sampled		03/16/98	03/16/98	03/16/98	03/16/98	03/17/98
Parameter	**Units**					
Volatiles						
Chloromethane	UG/KG	ND	ND	ND	ND	ND
Vinyl Chloride	UG/KG	27	400	ND	ND	ND
1,1-Dichloroethene	UG/KG	ND	14	ND	ND	ND
Acetone	UG/KG	290 B	110 B	35 B	220 B	ND
Carbon Disulfide	UG/KG	ND	ND	ND	ND	ND
Methylene Chloride	UG/KG	8	ND	6	8	ND
1,2-Dichloroethene (total)	UG/KG	3100	6000	19	38	21000
Methyl Ethyl Ketone (2-Butanone)	UG/KG	ND	ND	ND	ND	ND
Benzene	UG/KG	ND	ND	ND	ND	ND
Trichloroethene	UG/KG	15	ND	7	37	19000
Toluene	UG/KG	11	ND	ND	7	ND
Tetrachloroethene	UG/KG	410	170	160	2800	290000
Chlorobenzene	UG/KG	ND	ND	ND	ND	ND
Ethylbenzene	UG/KG	23	26	ND	89	ND
Xylene (total)	UG/KG	80	170	26	280	ND
Styrene	UG/KG	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	UG/KG	ND	ND	ND	ND	ND
Bromodichloromethane	UG/KG	ND	ND	ND	ND	ND

TABLE 1

NORTH FRANKLIN STREET SITE

SOIL SAMPLE ANALYTICAL RESULTS

Location I.D.		GP-9809	GP-9810	GP-9810	GP-9810	GP-9811
Sample I.D.		GP-9809-(6-8)	GP-9810-(10-12)	GP-9810-(15-16)	GP-9810-(6-8)	GP-9811-(10-12)
Matrix		Soil	Soil	Soil	Soil	Soil
Date Sampled		03/17/98	03/17/98	03/17/98	03/17/98	03/17/98
Parameter	Units					
Volatiles						
Chloromethane	UG/KG	ND	ND	ND	ND	ND
Vinyl Chloride	UG/KG	ND	ND	ND	ND	ND
1,1-Dichloroethene	UG/KG	ND	ND	ND	ND	ND
Acetone	UG/KG	64 B	290 B	50 B	56 B	28 B
Carbon Disulfide	UG/KG	ND	ND	ND	ND	ND
Methylene Chloride	UG/KG	ND	8	ND	ND	ND
1,2-Dichloroethene (total)	UG/KG	770	64	14	31	1
Methyl Ethyl Ketone (2-Butanone)	UG/KG	ND	ND	ND	ND	ND
Benzene	UG/KG	ND	ND	ND	ND	ND
Trichloroethene	UG/KG	11	ND	ND	ND	ND
Toluene	UG/KG	ND	ND	ND	ND	ND
Tetrachloroethene	UG/KG	510	79	ND	36	10
Chlorobenzene	UG/KG	ND	ND	ND	ND	ND
Ethylbenzene	UG/KG	ND	ND	ND	ND	ND
Xylene (total)	UG/KG	17	380	100	130	40
Styrene	UG/KG	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	UG/KG	ND	ND	ND	ND	ND
Bromodichloromethane	UG/KG	ND	ND	ND	ND	ND

TABLE 1

NORTH FRANKLIN STREET SITE

SOIL SAMPLE ANALYTICAL RESULTS

Location I.D.		GP-9811	GP-9811	GP-9812	GP-9812	GP-9812
Sample I.D.		GP-9811-(14-16)	GP-9811-(4-6)	GP-9812-(14-16)	GP-9812-(2-4)	GP-9812-(8-10)
Matrix		Soil	Soil	Soil	Soil	Soil
Date Sampled		03/17/98	03/17/98	03/17/98	03/17/98	03/17/98
Parameter	**Units**					
Volatiles						
Chloromethane	UG/KG	ND	ND	ND	ND	ND
Vinyl Chloride	UG/KG	ND	ND	ND	ND	ND
1,1-Dichloroethene	UG/KG	ND	ND	ND	ND	ND
Acetone	UG/KG	14 B	74 B	65 B	4 B	33 B
Carbon Disulfide	UG/KG	ND	ND	ND	ND	ND
Methylene Chloride	UG/KG	ND	ND	2	2	1
1,2-Dichloroethene (total)	UG/KG	4	ND	7	19	5
Methyl Ethyl Ketone (2-Butanone)	UG/KG	ND	ND	16	ND	7
Benzene	UG/KG	ND	ND	ND	ND	ND
Trichloroethene	UG/KG	2	ND	2	3	1
Toluene	UG/KG	ND	ND	ND	ND	ND
Tetrachloroethene	UG/KG	3	15	6	130	90
Chlorobenzene	UG/KG	ND	ND	ND	ND	ND
Ethylbenzene	UG/KG	1	ND	ND	ND	ND
Xylene (total)	UG/KG	ND	14	ND	ND	ND
Styrene	UG/KG	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	UG/KG	ND	ND	ND	ND	ND
Bromodichloromethane	UG/KG	ND	ND	ND	ND	ND

TABLE 1

NORTH FRANKLIN STREET SITE

SOIL SAMPLE ANALYTICAL RESULTS

Location I.D.		GP-9813	GP-9813	GP-9813	GP-9814	GP-9814
Sample I.D.		GP-9813-(10-12)	GP-9813-(2-4)	GP-9813-(8-10)	GP-9814-(10-12)	GP-9814-(12-14)
Matrix		Soil	Soil	Soil	Soil	Soil
Date Sampled		03/17/98	03/17/98	03/17/98	03/17/98	03/17/98
Parameter	**Units**					
Volatiles						
Chloromethane	UG/KG	ND	ND	ND	ND	ND
Vinyl Chloride	UG/KG	ND	ND	ND	ND	ND
1,1-Dichloroethene	UG/KG	ND	ND	ND	ND	ND
Acetone	UG/KG	24 B	ND	80 B	21 B	45 B
Carbon Disulfide	UG/KG	ND	ND	ND	ND	ND
Methylene Chloride	UG/KG	1	ND	4	ND	ND
1,2-Dichloroethene (total)	UG/KG	25	330	210	5	96
Methyl Ethyl Ketone (2-Butanone)	UG/KG	ND	ND	ND	ND	ND
Benzene	UG/KG	ND	ND	ND	ND	ND
Trichloroethene	UG/KG	ND	1100	31	ND	27
Toluene	UG/KG	ND	ND	ND	ND	ND
Tetrachloroethene	UG/KG	5	44000	160	3	260
Chlorobenzene	UG/KG	ND	ND	ND	ND	ND
Ethylbenzene	UG/KG	ND	ND	ND	ND	ND
Xylene (total)	UG/KG	2	ND	ND	ND	ND
Styrene	UG/KG	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	UG/KG	ND	ND	ND	ND	ND
Bromodichloromethane	UG/KG	ND	ND	ND	ND	ND

TABLE 1

NORTH FRANKLIN STREET SITE

SOIL SAMPLE ANALYTICAL RESULTS

Location I.D.		GP-9814	GP-9815	GP-9815	GP-9815	GP-9816
Sample I.D.		GP-9814-(8-10)	GP-9815-(13-17)	GP-9815-(5-9)	GP-9815-(9-13)	GP-9816-(11-15)
Matrix		Soil	Soil	Soil	Soil	Soil
Date Sampled		03/17/98	06/23/98	06/23/98	06/23/98	06/23/98
Parameter	**Units**					
Volatiles						
Chloromethane	UG/KG	ND	ND	ND	ND	ND
Vinyl Chloride	UG/KG	ND	21.8	81.5	ND	13.4
1,1-Dichloroethene	UG/KG	ND	ND	7.17	ND	ND
Acetone	UG/KG	62 B	46.1	ND	13.4	29.8
Carbon Disulfide	UG/KG	ND	1.51	1.44	ND	1.84
Methylene Chloride	UG/KG	ND	ND	ND	ND	ND
1,2-Dichloroethene (total)	UG/KG	170	210	2100	ND	180
Methyl Ethyl Ketone (2-Butanone)	UG/KG	ND	15.7	5.18	ND	11.2
Benzene	UG/KG	ND	ND	ND	ND	1.43
Trichloroethene	UG/KG	57	14.3	1400	ND	60.8
Toluene	UG/KG	ND	ND	ND	ND	ND
Tetrachloroethene	UG/KG	220	78	18000	ND	58.2
Chlorobenzene	UG/KG	ND	ND	ND	ND	ND
Ethylbenzene	UG/KG	ND	ND	ND	ND	3.54
Xylene (total)	UG/KG	2	1.61	1.69	ND	3.09
Styrene	UG/KG	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	UG/KG	ND	ND	ND	ND	ND
Bromodichloromethane	UG/KG	ND	ND	ND	ND	ND

TABLE 1

NORTH FRANKLIN STREET SITE

SOIL SAMPLE ANALYTICAL RESULTS

Location I.D.		GP-9817	GP-9817	GP-9817	H	H
Sample I.D.		GP-9817-(11-15)	GP-9817-(3-7)	GP-9817-(7-11)	H-(12-13.5)	H-(5.5-6.5)
Matrix		Soil	Soil	Soil	Soil	Soil
Date Sampled		06/23/98	06/23/98	06/23/98	09/15/98	09/15/98
Parameter	**Units**					
Volatiles						
Chloromethane	UG/KG	ND	ND	ND	ND	ND
Vinyl Chloride	UG/KG	710	1200	52.4	190	ND
1,1-Dichloroethene	UG/KG	1.18	21.2	ND	34	ND
Acetone	UG/KG	ND	ND	ND	30	38000
Carbon Disulfide	UG/KG	ND	ND	ND	27	ND
Methylene Chloride	UG/KG	ND	ND	ND	1	260
1,2-Dichloroethene (total)	UG/KG	830	5400	2700	15000	4500
Methyl Ethyl Ketone (2-Butanone)	UG/KG	4.04	ND	8.98	ND	ND
Benzene	UG/KG	ND	2.18	ND	ND	ND
Trichloroethene	UG/KG	ND	ND	ND	1700	13000
Toluene	UG/KG	ND	5.96	ND	3	ND
Tetrachloroethene	UG/KG	1	ND	1.6	110000	1300000
Chlorobenzene	UG/KG	ND	ND	ND	ND	ND
Ethylbenzene	UG/KG	2.21	6.56	3.31	4	ND
Xylene (total)	UG/KG	15.2	32	29	71	240
Styrene	UG/KG	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	UG/KG	ND	ND	ND	ND	ND
Bromodichloromethane	UG/KG	ND	ND	ND	ND	ND

TABLE 1

NORTH FRANKLIN STREET SITE

SOIL SAMPLE ANALYTICAL RESULTS

Location I.D.		J	J	K	K	K-01
Sample I.D.		J-(3.5-4.5)	J-(5.5-6.5)	K-(12-13)	K-(3-4)	K-01-(12-13)
Matrix		Soil	Soil	Soil	Soil	Soil
Date Sampled		09/14/98	09/14/98	09/14/98	09/14/98	09/15/98
Parameter	**Units**					
Volatiles						
Chloromethane	UG/KG	ND	ND	ND	ND	ND
Vinyl Chloride	UG/KG	ND	19	28	ND	ND
1,1-Dichloroethene	UG/KG	ND	ND	ND	ND	ND
Acetone	UG/KG	38	4	12	11	36
Carbon Disulfide	UG/KG	ND	ND	ND	ND	ND
Methylene Chloride	UG/KG	21	2	1	2	1
1,2-Dichloroethene (total)	UG/KG	32	620	39	2	5
Methyl Ethyl Ketone (2-Butanone)	UG/KG	ND	ND	ND	ND	6
Benzene	UG/KG	ND	ND	ND	2	ND
Trichloroethene	UG/KG	43	150	ND	1	ND
Toluene	UG/KG	ND	ND	ND	ND	ND
Tetrachloroethene	UG/KG	870	1500	4	110	48
Chlorobenzene	UG/KG	ND	ND	ND	ND	ND
Ethylbenzene	UG/KG	ND	ND	ND	ND	ND
Xylene (total)	UG/KG	ND	ND	3	ND	1
Styrene	UG/KG	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	UG/KG	ND	ND	ND	ND	ND
Bromodichloromethane	UG/KG	ND	ND	ND	ND	ND

TABLE 1

NORTH FRANKLIN STREET SITE

SOIL SAMPLE ANALYTICAL RESULTS

Location I.D.		K-01	K-01	NFS-02	NFS-04	NFS-09
Sample I.D.		K-01-(5-5.5)	K-01-(9-10)	NFS-02-(1.5-3)	NFS-04-(3-5)	NFS-09-(0-3)
Matrix		Soil	Soil	Soil	Soil	Soil
Date Sampled		09/15/98	09/15/98	01/23/98	01/23/98	01/23/98
Parameter	**Units**					
Volatiles						
Chloromethane	UG/KG	ND	ND	ND	ND	ND
Vinyl Chloride	UG/KG	17	14	ND	ND	ND
1,1-Dichloroethene	UG/KG	ND	ND	ND	ND	ND
Acetone	UG/KG	ND	27	41	ND	ND
Carbon Disulfide	UG/KG	ND	ND	ND	ND	ND
Methylene Chloride	UG/KG	2	2	ND	ND	ND
1,2-Dichloroethene (total)	UG/KG	100	54	60	690	ND
Methyl Ethyl Ketone (2-Butanone)	UG/KG	ND	ND	ND	ND	ND
Benzene	UG/KG	1	ND	ND	ND	ND
Trichloroethene	UG/KG	18	ND	ND	1000	ND
Toluene	UG/KG	ND	ND	ND	ND	ND
Tetrachloroethene	UG/KG	36	2	ND	93000	96000
Chlorobenzene	UG/KG	ND	ND	ND	ND	ND
Ethylbenzene	UG/KG	ND	ND	ND	ND	ND
Xylene (total)	UG/KG	ND	2	ND	ND	ND
Styrene	UG/KG	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	UG/KG	ND	ND	ND	ND	ND
Bromodichloromethane	UG/KG	ND	ND	ND	ND	ND

MADE BY:________ DATE:________
CHKD. BY:________ DATE:________

TABLE 1

NORTH FRANKLIN STREET SITE

SOIL SAMPLE ANALYTICAL RESULTS

Location I.D.		NFS-10	NFS-11	NFS-12	NFS-13	SH-01
Sample I.D.		NFS-10-(0-3)	NFS-11-(0-3)	NFS-12-(0-3)	NFS-13-(0-3)	SH-01-(13-14)
Matrix		Soil	Soil	Soil	Soil	Soil
Date Sampled		01/23/98	01/23/98	01/23/98	01/23/98	09/15/98
Parameter	**Units**					
Volatiles						
Chloromethane	UG/KG	ND	ND	ND	ND	ND
Vinyl Chloride	UG/KG	ND	ND	ND	ND	ND
1,1-Dichloroethene	UG/KG	ND	ND	ND	ND	ND
Acetone	UG/KG	ND	ND	ND	ND	17
Carbon Disulfide	UG/KG	ND	ND	ND	ND	ND
Methylene Chloride	UG/KG	ND	ND	ND	ND	2
1,2-Dichloroethene (total)	UG/KG	6	ND	ND	7400	5
Methyl Ethyl Ketone (2-Butanone)	UG/KG	ND	ND	ND	ND	ND
Benzene	UG/KG	ND	ND	ND	ND	ND
Trichloroethene	UG/KG	7	250	ND	2400	ND
Toluene	UG/KG	ND	ND	ND	ND	ND
Tetrachloroethene	UG/KG	1100	110000	32000	58000	7
Chlorobenzene	UG/KG	ND	ND	ND	ND	ND
Ethylbenzene	UG/KG	ND	ND	ND	ND	ND
Xylene (total)	UG/KG	ND	ND	ND	ND	9
Styrene	UG/KG	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	UG/KG	ND	ND	ND	ND	ND
Bromodichloromethane	UG/KG	ND	ND	ND	ND	ND

MADE BY:________ DATE:________
CHKD. BY:________ DATE:________

TABLE 1

NORTH FRANKLIN STREET SITE

SOIL SAMPLE ANALYTICAL RESULTS

Location I.D.		SH-01	SH-01	TP-01	TP-02	TP-03
Sample I.D.		SH-01-(3.5-4.5)	SH-01-(5-5.5)	TP-01-(5-5.5)	TP-02-(5-5.2)	TP-03-(5-5.2)
Matrix		Soil	Soil	Soil	Soil	Soil
Date Sampled		09/15/98	09/15/98	07/20/98	06/24/98	06/24/98
Parameter	Units					
Volatiles						
Chloromethane	UG/KG	ND	ND	ND	ND	ND
Vinyl Chloride	UG/KG	ND	1	ND	97	200
1,1-Dichloroethene	UG/KG	ND	ND	ND	13.6	7.66
Acetone	UG/KG	11	29	6	ND	ND
Carbon Disulfide	UG/KG	ND	ND	ND	2.06	1.93
Methylene Chloride	UG/KG	2	2	2	ND	ND
1,2-Dichloroethene (total)	UG/KG	2	9	28	3200	8800
Methyl Ethyl Ketone (2-Butanone)	UG/KG	ND	ND	ND	ND	17.1
Benzene	UG/KG	ND	ND	ND	ND	ND
Trichloroethene	UG/KG	ND	2	11	3900	2600
Toluene	UG/KG	ND	ND	ND	ND	1.4
Tetrachloroethene	UG/KG	25	120	200	120000	4800
Chlorobenzene	UG/KG	ND	ND	ND	ND	ND
Ethylbenzene	UG/KG	ND	ND	ND	1.74	ND
Xylene (total)	UG/KG	ND	19	ND	11.5	2.23
Styrene	UG/KG	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	UG/KG	ND	ND	ND	ND	ND
Bromodichloromethane	UG/KG	ND	ND	ND	ND	ND

TABLE 1

NORTH FRANKLIN STREET SITE

SOIL SAMPLE ANALYTICAL RESULTS

Location I.D.		TP-04	TP-05	TP-05	TP-07	TP-07
Sample I.D.		TP-04-(4-4.2)	TP-05-(4-4.2)	TP-05-(5-5.2)	TP-07-(4-4.2)	TP-07-(5-5.2)
Matrix		Soil	Soil	Soil	Soil	Soil
Date Sampled		06/23/98	06/24/98	06/24/98	06/24/98	06/24/98
Parameter	Units					
Volatiles						
Chloromethane	UG/KG	ND	ND	ND	ND	ND
Vinyl Chloride	UG/KG	2.27	ND	ND	ND	ND
1,1-Dichloroethene	UG/KG	ND	ND	ND	ND	ND
Acetone	UG/KG	ND	ND	ND	ND	ND
Carbon Disulfide	UG/KG	ND	ND	ND	ND	ND
Methylene Chloride	UG/KG	ND	ND	ND	ND	ND
1,2-Dichloroethene (total)	UG/KG	63	13	3300	ND	1.65
Methyl Ethyl Ketone (2-Butanone)	UG/KG	ND	ND	ND	ND	ND
Benzene	UG/KG	ND	ND	ND	ND	ND
Trichloroethene	UG/KG	220	14.2	8900	ND	ND
Toluene	UG/KG	3	ND	ND	ND	ND
Tetrachloroethene	UG/KG	1000000	110000	730000	16.8	ND
Chlorobenzene	UG/KG	ND	ND	ND	ND	ND
Ethylbenzene	UG/KG	ND	ND	ND	ND	ND
Xylene (total)	UG/KG	ND	ND	ND	ND	23.7
Styrene	UG/KG	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	UG/KG	ND	ND	ND	ND	ND
Bromodichloromethane	UG/KG	ND	ND	ND	ND	ND

TABLE 1

NORTH FRANKLIN STREET SITE

SOIL SAMPLE ANALYTICAL RESULTS

Location I.D.		TV-01	TV-02	TV-03	TV-04	TV-05
Sample I.D.		TV-01-(2-4)	TV-02-(0-2)	TV-03-(4-6)	TV-04-(0-2)	TV-05-(0-2)
Matrix		Soil	Soil	Soil	Soil	Soil
Date Sampled		01/07/97	01/07/97	01/07/97	01/07/97	01/07/97
Parameter	Units					
Volatiles						
Chloromethane	UG/KG	ND	ND	ND	ND	ND
Vinyl Chloride	UG/KG	ND	ND	ND	ND	ND
1,1-Dichloroethene	UG/KG	ND	ND	ND	520	ND
Acetone	UG/KG	450	380	ND	ND	ND
Carbon Disulfide	UG/KG	ND	ND	ND	ND	ND
Methylene Chloride	UG/KG	190	180	ND	ND	ND
1,2-Dichloroethene (total)	UG/KG	ND	370	ND	ND	ND
Methyl Ethyl Ketone (2-Butanone)	UG/KG	ND	ND	ND	ND	ND
Benzene	UG/KG	ND	ND	ND	590	ND
Trichloroethene	UG/KG	ND	2000	ND	600	9800
Toluene	UG/KG	ND	ND	ND	610	ND
Tetrachloroethene	UG/KG	ND	500000	ND	18000	9800
Chlorobenzene	UG/KG	ND	ND	ND	580	ND
Ethylbenzene	UG/KG	ND	ND	ND	ND	ND
Xylene (total)	UG/KG	ND	ND	ND	ND	ND
Styrene	UG/KG	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	UG/KG	ND	ND	ND	ND	ND
Bromodichloromethane	UG/KG	ND	ND	ND	ND	ND

TABLE 1

NORTH FRANKLIN STREET SITE

SOIL SAMPLE ANALYTICAL RESULTS

Location I.D.		TV-06	TV-07	TV-08	TV-09B	TV-10
Sample I.D.		TV-06-(4-6)	TV-07-(4-6)	TV-08-(2-4)	TV-09B-(4-6)	TV-10-(2-4)
Matrix		Soil	Soil	Soil	Soil	Soil
Date Sampled		10/03/97	10/03/97	10/03/97	10/03/97	10/03/97
Parameter	Units					
Volatiles						
Chloromethane	UG/KG	ND	ND	ND	ND	ND
Vinyl Chloride	UG/KG	3.2	ND	ND	56	ND
1,1-Dichloroethene	UG/KG	ND	ND	ND	22	ND
Acetone	UG/KG	89	200	110	340	160
Carbon Disulfide	UG/KG	ND	ND	ND	ND	ND
Methylene Chloride	UG/KG	3	27	8	27	4
1,2-Dichloroethene (total)	UG/KG	ND	ND	ND	2530	17
Methyl Ethyl Ketone (2-Butanone)	UG/KG	ND	ND	12	ND	ND
Benzene	UG/KG	ND	ND	ND	ND	ND
Trichloroethene	UG/KG	ND	28	26	600	18
Toluene	UG/KG	ND	ND	ND	ND	ND
Tetrachloroethene	UG/KG	6	310	240	1240	170
Chlorobenzene	UG/KG	ND	ND	ND	ND	ND
Ethylbenzene	UG/KG	ND	ND	ND	ND	ND
Xylene (total)	UG/KG	ND	ND	ND	680	ND
Styrene	UG/KG	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	UG/KG	ND	ND	ND	ND	ND
Bromodichloromethane	UG/KG	ND	ND	ND	ND	ND

TABLE 1

NORTH FRANKLIN STREET SITE

SOIL SAMPLE ANALYTICAL RESULTS

Location I.D.		TV-11	TV-12B	TV-13	TV-13	TV-14
Sample I.D.		TV-11-(4-6)	TV-12B-(4-6)	TV-13-(2-4)	TV-13-(4-6)	TV-14-(2-4)
Matrix		Soil	Soil	Soil	Soil	Soil
Date Sampled		10/03/97	12/01/97	12/23/97	12/23/97	12/23/97
Parameter	Units					
Volatiles						
Chloromethane	UG/KG	ND	ND	ND	ND	20000
Vinyl Chloride	UG/KG	ND	4	ND	ND	ND
1,1-Dichloroethene	UG/KG	ND	ND	ND	ND	ND
Acetone	UG/KG	ND	160	490	ND	6100
Carbon Disulfide	UG/KG	ND	ND	ND	ND	ND
Methylene Chloride	UG/KG	15	2	ND	ND	ND
1,2-Dichloroethene (total)	UG/KG	78	17	ND	ND	ND
Methyl Ethyl Ketone (2-Butanone)	UG/KG	ND	34	680	790	ND
Benzene	UG/KG	ND	ND	ND	ND	ND
Trichloroethene	UG/KG	38	9	ND	ND	ND
Toluene	UG/KG	ND	ND	ND	ND	ND
Tetrachloroethene	UG/KG	51	28	2200	580	33000
Chlorobenzene	UG/KG	ND	ND	ND	ND	ND
Ethylbenzene	UG/KG	ND	ND	ND	ND	ND
Xylene (total)	UG/KG	ND	46	ND	ND	ND
Styrene	UG/KG	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	UG/KG	ND	ND	ND	ND	ND
Bromodichloromethane	UG/KG	ND	ND	ND	ND	ND

TABLE 1

NORTH FRANKLIN STREET SITE

SOIL SAMPLE ANALYTICAL RESULTS

Location I.D.		TV-14	TV-15	TV-15	TV-16	TV-16
Sample I.D.		TV-14-(4-6)	TV-15-(0-2)	TV-15-(4-6)	TV-16-(0-2)	TV-16-(4-6)
Matrix		Soil	Soil	Soil	Soil	Soil
Date Sampled		12/23/97	12/23/97	12/23/97	12/23/97	12/23/97
Parameter	**Units**					
Volatiles						
Chloromethane	UG/KG	ND	3900	ND	1400	ND
Vinyl Chloride	UG/KG	ND	ND	ND	ND	ND
1,1-Dichloroethene	UG/KG	ND	ND	ND	ND	ND
Acetone	UG/KG	ND	6000	740	3000	1200
Carbon Disulfide	UG/KG	ND	ND	ND	210	ND
Methylene Chloride	UG/KG	ND	ND	ND	ND	ND
1,2-Dichloroethene (total)	UG/KG	ND	ND	ND	350	ND
Methyl Ethyl Ketone (2-Butanone)	UG/KG	ND	3700	700	1600	1100
Benzene	UG/KG	ND	ND	ND	280	ND
Trichloroethene	UG/KG	ND	ND	ND	670	ND
Toluene	UG/KG	ND	ND	ND	ND	ND
Tetrachloroethene	UG/KG	380000	20000	ND	30000	ND
Chlorobenzene	UG/KG	ND	ND	ND	ND	ND
Ethylbenzene	UG/KG	ND	ND	ND	ND	ND
Xylene (total)	UG/KG	ND	ND	ND	490	ND
Styrene	UG/KG	ND	ND	ND	140	ND
1,1,2-Trichloroethane	UG/KG	ND	ND	ND	ND	ND
Bromodichloromethane	UG/KG	ND	ND	ND	ND	ND

TABLE 1

NORTH FRANKLIN STREET SITE

SOIL SAMPLE ANALYTICAL RESULTS

Location I.D.		TV-17	TV-17	TV-18	TV-19	TV-20
Sample I.D.		TV-17-(2-4)	TV-17-(4-6)	TV-18-(0-2)	TV-19-(0-2)	TV-20-(0-2)
Matrix		Soil	Soil	Soil	Soil	Soil
Date Sampled		12/23/97	12/23/97	12/23/97	12/23/97	12/23/97
Parameter	**Units**					
Volatiles						
Chloromethane	UG/KG	1300	ND	ND	ND	ND
Vinyl Chloride	UG/KG	ND	ND	ND	ND	ND
1,1-Dichloroethene	UG/KG	ND	ND	ND	ND	ND
Acetone	UG/KG	1300	1200	ND	420	ND
Carbon Disulfide	UG/KG	ND	ND	ND	ND	ND
Methylene Chloride	UG/KG	ND	ND	580	ND	ND
1,2-Dichloroethene (total)	UG/KG	ND	ND	ND	260	ND
Methyl Ethyl Ketone (2-Butanone)	UG/KG	1300	ND	ND	ND	ND
Benzene	UG/KG	ND	ND	ND	ND	ND
Trichloroethene	UG/KG	ND	ND	470	390	150
Toluene	UG/KG	ND	ND	ND	ND	ND
Tetrachloroethene	UG/KG	6700	390	3800	8800	10000
Chlorobenzene	UG/KG	ND	ND	ND	ND	ND
Ethylbenzene	UG/KG	ND	ND	ND	ND	ND
Xylene (total)	UG/KG	ND	ND	ND	ND	ND
Styrene	UG/KG	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	UG/KG	ND	ND	ND	ND	ND
Bromodichloromethane	UG/KG	ND	ND	ND	ND	ND

TABLE 1

NORTH FRANKLIN STREET SITE

SOIL SAMPLE ANALYTICAL RESULTS

Location I.D.		TV-21	TV-21	TV-22
Sample I.D.		TV-21-(2-4)	TV-21-(4-6)	TV-22-(0-2)
Matrix		Soil	Soil	Soil
Date Sampled		12/23/97	12/23/97	12/23/97
Parameter	Units			
Volatiles				
Chloromethane	UG/KG	ND	ND	2200
Vinyl Chloride	UG/KG	ND	ND	ND
1,1-Dichloroethene	UG/KG	ND	ND	ND
Acetone	UG/KG	ND	ND	1200
Carbon Disulfide	UG/KG	ND	ND	ND
Methylene Chloride	UG/KG	ND	ND	ND
1,2-Dichloroethene (total)	UG/KG	ND	ND	ND
Methyl Ethyl Ketone (2-Butanone)	UG/KG	4100	1300	1600
Benzene	UG/KG	ND	ND	230
Trichloroethene	UG/KG	ND	610	ND
Toluene	UG/KG	ND	ND	ND
Tetrachloroethene	UG/KG	170000	20000	3800
Chlorobenzene	UG/KG	ND	ND	ND
Ethylbenzene	UG/KG	ND	ND	ND
Xylene (total)	UG/KG	ND	ND	ND
Styrene	UG/KG	ND	ND	ND
1,1,2-Trichloroethane	UG/KG	ND	ND	ND
Bromodichloromethane	UG/KG	ND	ND	ND

MADE BY:________ DATE:________
CHKD BY:________ DATE:________

Table 2

North Franklin Street Site
Estimated Volumes of Contaminated Soil

Depth Interval	Location	Area (ft²)	Volume (ft³)	Contams.	Avg. Conc. (µg/Kg)	Total Cont. (lbs)
0-4' Fill	Underneath Building	116	464	PCE	294,266	13.654
				TCE	35	0.002
				1,2-DCE	19	0.001
				VC	0	0.000
	Outside Building (URS Samples)	468	1,872	PCE	1,393,768	260.913
				TCE	369	0.069
				1,2-DCE	623	0.117
				VC	0	0.000
	Outside Building (Terra Vac Samples)	1,020	4,080	PCE	3,900	1.591
				TCE	308	0.126
				1,2-DCE	292	0.119
				VC	0	0.000
4-6' Fill / Clay Interface	Underneath Building	486	972	PCE	59,389	5.773
				TCE	1,991	0.194
				1,2-DCE	1,148	0.112
				VC	17	0.002
	Outside Building (URS Samples)	495	990	PCE	459,106	45.452
				TCE	3,234	0.320
				1,2-DCE	1,794	0.178
				VC	120	0.012
	Outside Building (Terra Vac Samples)	253	506	PCE	183	0.009
				TCE	297	0.015
				1,2-DCE	746	0.038
				VC	9	0.000
6-15' Clay	Underneath Building	265	2,385	PCE	101,516	24.211
				TCE	2,226	0.531
				1,2-DCE	6,136	1.463
				VC	240	0.057
	Outside Building (URS Samples) - No Terra Vac samples collected	481	4,329	PCE	23,601	10.217
				TCE	5,236	2.267
				1,2-DCE	2,839	1.229
				VC	107	0.046
Subtotals	Underneath Building		3,821	PCE		43.64
				TCE		0.73
				1,2-DCE		1.58
				VC		0.06
				Subtotal		**46.00**
	Outside Building (URS Samples)		7,191	PCE		316.58
				TCE		2.66
				1,2-DCE		1.52
				VC		0.06
				Subtotal		**320.82**
	Outside Building (Terra Vac Samples)		4,586	PCE		1.60
				TCE		0.14
				1,2-DCE		0.16
				VC		0.00
				Subtotal		**1.90**
Total	All Areas		15,598	PCE		361.82
				TCE		3.52
				1,2-DCE		3.26
				VC		0.12
				Total		**368.72**

Assumed soil density is 100 lb/ft³

Table 3

Evaluation of Remedial Technologies for Soil

Alternative	Description	Advantages	Disadvantages	Recommendation
Natural Attenuation	No treatment. Periodic monitoring to assess progress of attenuation.	• Low Cost	• Cleanup would take years to achieve • Potential impacts to human health would not be addressed.	May be selected only for those contaminated areas where there is minimal risk of any exposure (i.e., soil deeper than 6 feet).
Excavation	Contaminated soil is excavated and removed.	• Fast and permanent removal of most contamination	• May be difficult due to location adjacent to building • Contamination would remain under the building	May be selected for the area outside the building, down to ±6 feet.
Soil Vapor Extraction / Dual Phase Extraction	Contaminants are removed from the soil via extraction wells and a vacuum system	• May be able to remove some contamination from under the building	• May require an extended period of time to achieve removal • Noise may disturb building occupants • Costly compared to excavation	Rejected from further consideration.
Passive Venting	Slotted piping installed beneath structures to prevent accumulation of vapors	• Addresses the potential buildup of vapors beneath buildings	• Difficult to install in the existing structures • Does not address any risks from the contamination outside the building.	May be selected for the contaminated soil underneath the building.

Table 4

Summary of Groundwater Samples

Sample ID	TP-2-GW	TP-3-GW	TP-5-GW	TP-7-GW	G	K
Location	Water	Water	Water	Water	Water	Water
Sample Collection Date	06/24/98	06/24/98	06/24/98	06/24/98	09/14/98	09/14/98
Detection Limit	10	10,DL	10,DL	10	10	50
Chloromethane						5
Vinyl Chloride	720	470	200		470	170
1,1-Dichloroethene	19	8	9		18	
Acetone					11	69
Carbon Disulfide						
Methylene Chloride					1	8
1,2-Dichloroethene - Total	5,100	1,900	1,500	3	5,400	740
2-Butanone						28
Benzene						
Trichloroethene (TCE)	2,000	300	340		2,500	32
Toluene					2	
Tetrachloroethene (PCE)	7,900	1,800	18,000	3	30,000	53
Chlorobenzene						
Ethylbenzene			1		2	
Xylene-Total					13	
Styrene						
1,1,2-Trichloroethane						
Bromodichloromethane	13					
Total PCE+TCE+DCE	15,019	4,008	19,849	6	37,918	825
Total VOCs	15,752	4,478	20,050	6	38,417	1,105

All results shown in μg/L.
All "J" and "D" flags have been omitted for clarity.

Table 5

Evaluation of Remedial Technologies for Groundwater

Alternative	Description	Advantages	Disadvantages	Recommendation
Natural Attenuation	No treatment. Periodic monitoring of wells.	• Low Cost • No exposure pathways under existing conditions	• Does not address perched water under building	May be selected for sand aquifer.
Pump and Treat	The existing GWET system is restarted for the collection and treatment of contaminated groundwater	• Low capital cost	• Significant improvement of groundwater quality may not be achieved. Long-term operation costs would be high.	The existing GWET system will be demobilized but kept in storage as a contingency in the event that future conditions warrant restarting the system.
Barrier Wall	The temporary H-pile and sheeting wall used for soil excavation would be left in place to control groundwater flow.	• Long-term operating costs are minimal	• Difficult to adequately seal. • Groundwater may migrate laterally around the wall.	Rejected from further consideration
Treatment Wall	A porous wall consisting of iron filings would be constructed to remove contaminants from groundwater flowing through the wall.	• Long-term operating costs are minimal	• Initial capital costs may be high depending on the difficulty of installation and dimensions of the wall	May be included as a component of the final remediation for treatment of the highly contaminated perched water under the building.

Table 6

North Franklin Street Site - Watkins Glen, NY

Cost Estimate for DVE Soil Remediation

Item	*Description*	*Unit*	*Quan.*	*Unit Cost*	*Total*	*Source*
Direct Costs						
1	System Design				$20,700	
2	Well Installation				$17,600	
3	System Piping & Instrumentation				$9,190	
4	Extraction System				$29,315	
5	System Operation	mo	18	$7,500	$135,000	
6	Confirmatory Soil Sampling				$12,050	
	Subtotal Direct Costs				***$223,855***	
Indirect Costs (as a percentage of Direct Costs)						
1	Contingency			40%	$89,542	
	Subtotal Indirect Costs				***$89,542***	
	Total Cost				***$313,400***	

Note: The Contingency included with the cost estimate also accounts for changes in the estimated inflation factor until the time of construction, city cost index, etc.

Table 7

North Franklin Street Site - Watkins Glen, NY

Cost Estimate for Excavation & Disposal

Item	*Description*	*Unit*	*Quan.*	*Unit Cost*	*Total*	*Source*
Direct Costs						
1	Mobilization				$3,380	
2	Stockpile				$5,740	
3	Sheet Piling				$24,850	
4	Excavate				$13,840	
5	Backfill				$12,566	
6	Repave				$3,270	
7	Disposal				$61,930	
8	Design, Procurement, Oversight				$14,500	
	Subtotal Direct Costs				***$140,076***	
Indirect Costs (as a percentage of Direct Costs)						
1	Contingency			40%	$56,030	
	Subtotal Indirect Costs				***$56,030***	
	Total Cost				***$196,100***	

Note: The Contingency included with the cost estimate also accounts for changes in the estimated inflation factor until the time of construction, city cost index, etc.

Table 8

North Franklin Street Site - Watkins Glen, NY

Cost Estimate for Shallow Treatment Wall

Item	*Description*	*Unit*	*Quan.*	*Unit Cost*	*Total*	*Source*
Direct Costs						
1	Data Review				$1,500	
2	Bench-Scale Testing				$15,000	
3	Design Assistance				$5,000	
4	Wall Construction				$52,800	
5	Site License				$7,740	
	Subtotal Direct Costs				***$82,040***	
Indirect Costs (as a percentage of Direct Costs)						
1	Contingency			40%	$32,816	
	Subtotal Indirect Costs				***$32,816***	
	Total Cost				***$114,900***	

Note: The Contingency included with the cost estimate also accounts for changes in the estimated inflation factor until the time of construction, city cost index, etc.
Costs for construction do not include any savings for work in conjunction with other site activities.

Table 9

North Franklin Street Site - Watkins Glen, NY

Cost Estimate for Annual Groundwater Monitoring

Item	Description	Unit	Quan.	Unit Cost	Total	Source
Direct Costs						
1	Sample Analysis				$3,500	
2	Sample Collection				$1,500	
3	Travel				$200	
4	Reporting				$600	
5	Supplies & Equipment				$200	
	Subtotal Direct Costs				***$6,000***	
Indirect Costs (as a percentage of Direct Costs)						
1	Contingency			10%	$600	
	Subtotal Indirect Costs				***$600***	
	Total Cost				***$6,600***	

Note: The Contingency included with the cost estimate also accounts for changes in the estimated inflation factor until the time of construction, city cost index, etc.

Table 10

North Franklin Street Site - Watkins Glen, NY

Cost Estimate for Passive Venting System

Item	*Description*	*Unit*	*Quan.*	*Unit Cost*	*Total*	*Source*
Direct Costs						
1	Sawcut Floor				$6,330	
2	PVC Well Screen				$5,070	
3	Gravel				$530	
4	PVC Pipe				$290	
5	Replace Concrete				$2,110	
6	Geotextile Fabric				$82	
7	Mob / Demob				$600	
8	Spoils Disposal				$500	
9	Building Repairs				$1,500	
	Subtotal Direct Costs				***$17,012***	
Indirect Costs (as a percentage of Direct Costs)						
1	Contingency			30%	$5,104	
	Subtotal Indirect Costs				***$5,104***	
	Total Cost				***$22,100***	

Note: The Contingency included with the cost estimate also accounts for changes in the estimated inflation factor until the time of construction, city cost index, etc.

Table 11

North Franklin Street Site - Watkins Glen, NY

Cost Estimate for Miscellaneous Site Work

Item	Description	Unit	Quan.	Unit Cost	Total	Source
Direct Costs						
1	Demob GWET System				$10,190	
2	Well Decommissioning				$3,800	
3	Remove Site Fencing				$1,300	
	Subtotal Direct Costs				***$15,290***	
Indirect Costs (as a percentage of Direct Costs)						
1	Contingency			40%	$6,116	
	Subtotal Indirect Costs				***$6,116***	
	Total Cost				***$21,400***	

Note: The Contingency included with the cost estimate also accounts for changes in the estimated inflation factor until the time of construction, city cost index, etc.

Cost Estimate Backup Information

Table 6

North Franklin Street Site - Watkins Glen, NY

Cost Estimate for DVE Soil Remediation

Item	*Description*	*Unit*	*Quan.*	*Unit Cost*	*Total*	*Source*
Direct Costs						
1	System Design				$20,700	
2	Well Installation				$17,600	
3	System Piping & Instrumentation				$9,190	
4	Extraction System				$29,315	
5	System Operation	mo	18	$7,500	$135,000	
6	Confirmatory Soil Sampling				$12,050	
	Subtotal Direct Costs				***$223,855***	
Indirect Costs (as a percentage of Direct Costs)						
1	Contingency			40%	$89,542	
	Subtotal Indirect Costs				***$89,542***	
	Total Cost				***$313,400***	

Note: The Contingency included with the cost estimate also accounts for changes in the estimated inflation factor until the time of construction, city cost index, etc.

URS Greiner, Inc.

COST ESTIMATE

SHEET No 1 OF 7
JOB No 05.35388 17

NORTH FRANKLIN ST.
DVE / SVE

BY TOM DATE 12-2-98
CHKD BY ____ DATE ____

ITEM	DESCRIPTION	UNIT	QTY	UNIT COST	TOTAL COST
1.	SYSTEM DESIGN				
1.A	SYSTEM DESIGN / PROCUREMENT	MH	240	$60	$ 14,400
1.B	CONSTRUCTION MANAGEMENT / OVERSIGHT	MH	80	$60	$ 4,800
1.C	TRAVEL / PER DIEM, ETC.	LS	1		$ 1,500
1.	TOTAL				$20,700

URS Greiner, Inc.

COST ESTIMATE

SHEET No 2 OF 7
JOB No. 05.35388.17

NORTH FRANKLIN ST
DVE / SVE

BY DMG DATE 11.30.99
CHKD BY ____ DATE ____

ITEM	DESCRIPTION	UNIT	QTY	UNIT COST	TOTAL COST
2.	WELL INSTALLATION				
2.A	MOBILIZATION / DEMOBILIZATION	LS	2	$600	$1200
2.B	DRILLING (ASSUME 15 WELLS EA 10' DEEP FOR TOTAL OF 150 LF) ECHOS 33.23.1102	LF	150	$50.66	$7600
2.C	PVC WELL SCREEN 4" Ø (ECHOS 33.23.0202)	LF	120	$20.27	$2430
2.D	PVC WELL CASING 4" Ø (ECHOS 33.23.0102	LF	30	$13.63	$410
2.E	SAND PACK 4" Ø (ECHOS 33.23.1402)	LF	120	$15.75	$1890
2.F	SPOILS HANDLING DISPOSAL [illegible]	LS	1		$2000
2G.	GROUT SEAL (ECHOS 33.23.1802)	LF	30	$68.99	$2070
2.	TOTAL				$17,600

URS Greiner, Inc.

COST ESTIMATE

SHEET No 3 OF 7
JOB No. 05.35388.12

North Franklin St
DVE / SVE

BY [illegible] DATE 12.1.98
CHKD BY ____ DATE ____

ITEM	DESCRIPTION	UNIT	QTY	UNIT COST	TOTAL COST
3.	System Piping and Instrumentation				
3.A	Piping (Installation & Mat'ls)	LF	250	$11.49	$2870
	– Assume 250 LF of piping to				
	connect wells to system				
	Echos 33.26.0404				
3.B	Valves Assume 20 4"Ø PVC	EA	20	$258.[illegible]	$5170
	(USA Blue Book p. 444)				
3.C	Vacuum / Pressure [illegible]	EA	5	$50	$ 250
	(Dwyer p. C.P.)				
3.[illegible]	[illegible]meters	EA	2	$298	$ 600
	(Dwyer p. 41F)				
3F	Sample Ports	EA	20	$15	$ 300
	Eng. Est.				
3	Total				$9190

URS Greiner, Inc.

COST ESTIMATE

SHEET No 4 OF 7
JOB No. [illegible]

North Franklin G.
DVE / SVE

BY [illegible] DATE [illegible]
CHKD BY ____ DATE ____

ITEM	DESCRIPTION	UNIT	QTY	UNIT COST	TOTAL COST
4.	Extraction System				
4.A	Extraction System (Assume	LS	1		$ 10,525
	purchase) consisting of				
	Liquid ring vacuum pump - 300 CFM				
	@ 27 in. Hg., motor, knockout				
	tank, etc.				
4.B	Explosionproof Motor	LS	1		$ 2,960
4.C	Control Panel + [illegible]	LS	1		$ 1,790
4.D	Trailer Enclosure	LS	1		$ 9,120
	(All above costs from Air [illegible] Inc.				
4.E	Electrician / Wiring	MHR	20	$ 46	$ 920
4.F	Air Treatment (Assume 4 canisters	EA	4	$ 1,000	$ 4,000
	over project) incl. disp. (33.3 1905)				
4	Total				$ 29,315

URS Greiner, Inc.

COST ESTIMATE

SHEET No 5 OF 7
JOB No. 05.35388

NORTH FRANKLIN ST
DVE / SVE

BY [illegible] DATE 12.1.98
CHKD BY ____ DATE ____

ITEM	DESCRIPTION	UNIT	QTY	UNIT COST	TOTAL COST
5	SYSTEM OPERATION				
	1- MONTH BASIS				
5.A	UTILITIES (ENG. EST.)	LS	1	$700	$700
5.B	ANALYSIS	EA	20	$100	$2,000
	ASSUME 20 TEDLAR BAG				
	AIR SAMPLES PER MONTH				
	(ECHOS 33.02.1804)				
5.C	SAMPLING / SYSTEM OPERATION	MH	40	$60	$2,400
	(ENG EST)				
5.D	MONITORING / REPORTING MANAGEMENT	MH	30	$60.	$1,800
	(ENG EST)				
5.E	TRAVEL / CAR RENTAL (4 PER MO.)	LS	1	$400	$400
	(ENG EST)				
5.D	MONITORING EQUIP / MATERIALS	LS	1	$200	$200
5	TOTAL MONTHLY COST				$7,500

URS Greiner, Inc.

COST ESTIMATE

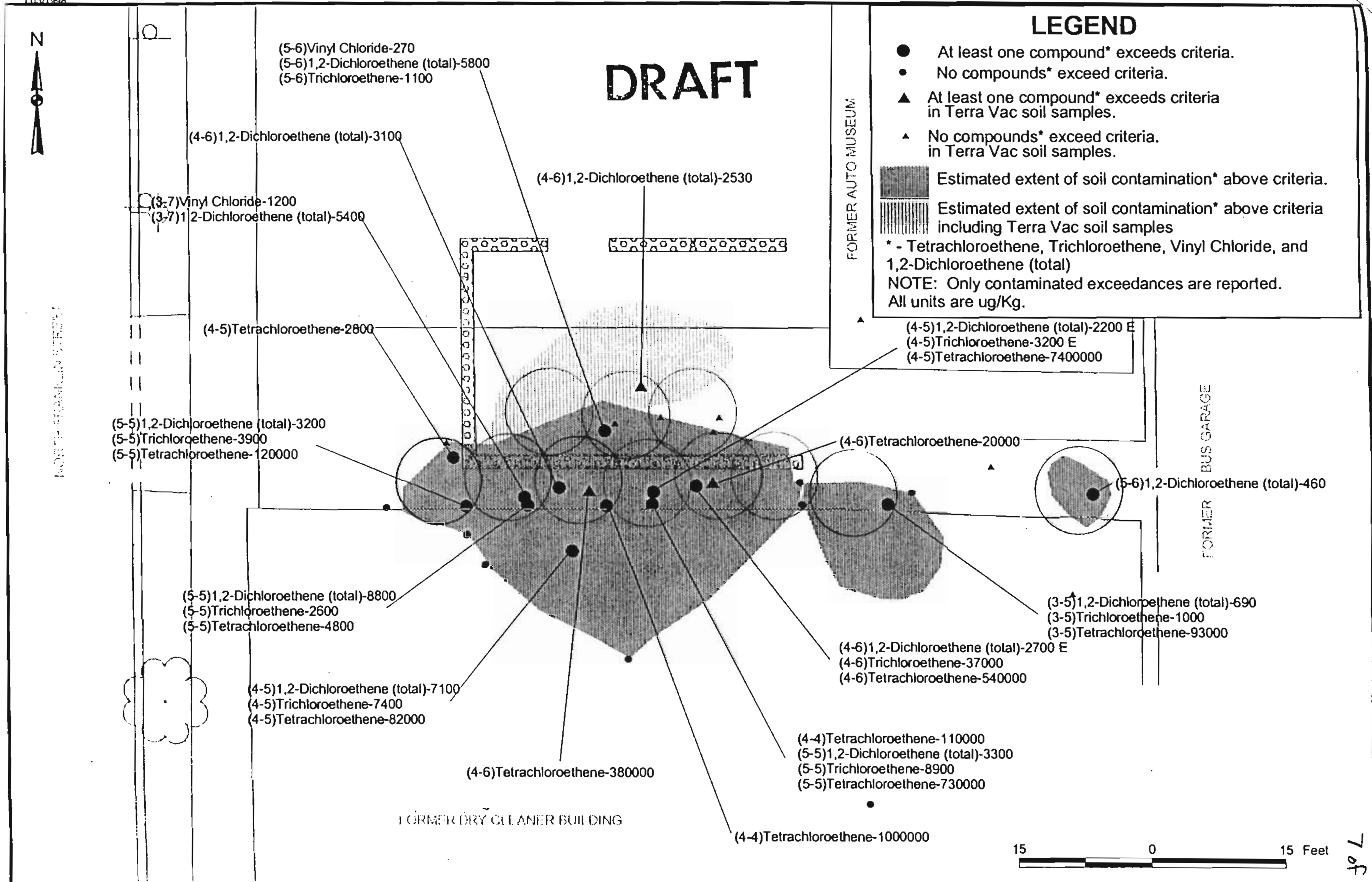
SHEET No 6 OF 7
JOB No 05.35388.17

NORTH FRANKLIN ST,
DVE/SVE

BY DAW DATE 12.1.98
CHKD BY ____ DATE ____

ITEM	DESCRIPTION	UNIT	QTY	UNIT COST	TOTAL COST
6	CONFIRMATORY SOIL SAMPLING				
	. ASSUME 30 SAMPLES AT VARIOUS				
	DEPTHS AND LOCATIONS				
6.A	GEOPROBE SAMPLE COLLECTION	DAY	4	$1100	$ 4,400
	(VENDOR QUOTE)				
6.B.	SOIL ANALYSIS (VOCs ONLY)	EA	30	$175	$ 5,250
	(ECHOS 33.02 1720)				
6.C	REPORTING	MH	40	$60	$ 2,400
6	TOTAL				$ 12,050

J:\35388\GIS\PROJ1.APR 4 -6 ft
11/3/1998



7 of

URS Greiner	North Franklin Street Tetrachloroethene, Trichloroethene, Vinyl Chloride, 1,2-Dichloroethene (total) Depth: 4 - 6 ft.	FIGURE 3

7

Table 7

North Franklin Street Site - Watkins Glen, NY

Cost Estimate for Excavation & Disposal

Item	*Description*	*Unit*	*Quan.*	*Unit Cost*	*Total*	*Source*
Direct Costs						
1	Mobilization				$3,380	
2	Stockpile				$5,740	
3	Sheet Piling				$24,850	
4	Excavate				$13,840	
5	Backfill				$12,566	
6	Repave				$3,270	
7	Disposal				$61,930	
8	Design, Procurement, Oversight				$14,500	
	Subtotal Direct Costs				***$140,076***	
Indirect Costs (as a percentage of Direct Costs)						
1	Contingency			40%	$56,030	
	Subtotal Indirect Costs				***$56,030***	
	Total Cost				***$196,100***	

Note: The Contingency included with the cost estimate also accounts for changes in the estimated inflation factor until the time of construction, city cost index, etc.

URS Greiner, Inc.

SHEET No 1 OF 8

COST ESTIMATE

JOB No.

EXCAVATION & DISPOSAL

BY RB DATE 2/13

CHKD BY DATE

ITEM	DESCRIPTION	UNIT	QTY	UNIT COST	TOTAL COST
1	MOBILIZATION				
A	Backhoe 022 274 1000	EA	1	380	380
B	Rolloff Truck see Item 4				
	Rolloff " " "				
	crane " " 3				
	Insurance say	%	on 75,000	2	1500
	Facilities & site labor say	LS			1000
	H&S say	LS			500
					3380

URS Greiner, Inc.

SHEET No 2 OF 8

COST ESTIMATE

JOB No.

NORTH FRANKLIN
EXCAVATION & DISPOSAL

BY RH DATE 2/13
CHKD BY ____ DATE ____

ITEM	DESCRIPTION	UNIT	QTY	UNIT COST	TOTAL COST
2	STOCKPILE				
A	none - use Rolloff's				
	Excavation to be placed directly into 20cy Rolloff's				
	Using a site truck - move Rolloffs To/From excavation				
	to staging area				
	see Item 4				
B	DECON PAD Build say	LS			2500
	remove say	LS			2000
C	Decon Water - Handle only	LS			300
	To Sewer or Through treatment Plant				
D	Water supply	LS	say		200
	contingency	%	3700	20	740

$ 5,740

URS Greiner, Inc.

COST ESTIMATE

JOB No

NORTH FRANKLIN
EXCAVATION & DISPOSAL

BY RH DATE 2/12
CHKD BY ____ DATE ____

ITEM	DESCRIPTION	UNIT	QTY	UNIT COST	TOTAL COST
3.	SHEET PILING				
	'97 MEANS				
A	MOBILIZATION CRANE SAY	LS			5000
B	DRIVE ALL 80 LF OF SHEET TO				
	7' DRIVE & EXTRACT 021 614 1600	SF	600	~~[illegible]~~ 15	9000
	DRIVE H PILES (15@ 10' SAY				5000
C	DECON SHEETING say	SF	600	.25	150
D	DEMOBILIZATION say	LS			2000
E	small job add 20%	%	18,480	20	3700
					24,850

URS Greiner, Inc.

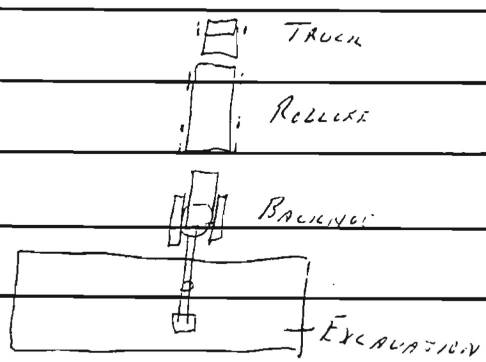
COST ESTIMATE

SHEET No 4 OF 8
JOB No.

NORTH FRANKLIN
EXCAVATION & DISPOSAL

BY RH DATE 2/13
CHKD BY DATE

ITEM	DESCRIPTION	UNIT	QTY	UNIT COST	TOTAL COST
4	EXCAVATE				
A.	EXCAVATION 300 cy TOTAL SOIL IN PLACE				
	MEANS 022 254 0110 (300cy/day)	cy	300 ×1.4	3.72	$1562
	(40% FLUFFY FACTOR)				
B	LOST TIME, UTILITIES PILE say 100%				$1562
	DRIVING DELAYS SMALL QUANTITIES				
C	TRUCK FOR HANDLING ROLLOFF say	d	2	1200	2400
D	RENTAL - 350/20cy = 18 ROLLOFFS say	each	18	50	900
E	DELIVERY ROLLOFFS say	each	18	75	1350
F	DECON BACKHOE crew B-11M say	d	1/2	648	324
G	H&S say	LS			300
					$8398



URS Greiner, Inc.

SHEET No 4A OF 8

COST ESTIMATE

JOB No.

NORTH FRANKLIN

EXCAVATION & DISPOSAL

BY RH DATE 2/93

CHKD BY ______ DATE ______

ITEM	DESCRIPTION	UNIT	QTY	UNIT COST	TOTAL COST
4	continued				
	UTILITIES				
	SEWER Dig & Plug 12"	EA END	2	250	500 ~~250~~
	Relay 50' 12" RCP SEWER	LF	50	21	1050
	WATER Dig & Plug	EA EACH	2	250	500
	new 1" Water Line say	LF	50	6	300
	replace gas line				750
	Contingency	%	3100	25	775
					3875
	Hand Excavate & Bkfl				
	48' x 5' x 18" 022 254 1500	cy	13.3	65	867
	Handle matl				500
	H & S				200
					1567
	Total Item 4				$13,840

URS Greiner, Inc.

SHEET No 5 OF 8

COST ESTIMATE

JOB No.

North Franklin
Excavation & Disposal

BY RL DATE 2/12/13

CHKD BY DATE

ITEM	DESCRIPTION	UNIT	QTY	UNIT COST	TOTAL COST
5.	Backfill (300 cy rest in place 360 cy Fluff)				
A	Mat'l	cy	360	22.18	7985
B	Install 022 208 3300	cy	300	1.98	594
C	Truck Mat'l	cy	360	7	2520
D	Compact 022 222 0600	cy	300	1.62	486
	small job - add	%	6540	15	981
					12,566
					$12,566

URS Greiner, Inc.

SHEET No 6 OF 8

COST ESTIMATE

JOB No

North Franklin
Excavation & Disposal

BY RJ DATE 2/12
CHKD BY DATE

ITEM	DESCRIPTION	UNIT	QTY	UNIT COST	TOTAL COST
6	Repave 1640 f^2 = 182 sy				
A	4" Stone Base 022 308 0100	sy	182	6.95	1265 -
	1½ Binder 025 104 0080	sy	182	2.82	513
	1" Top 0300	sy	182	2.20	400
	add - all Hand Work				
	small area	%	2178	50	1089
					$3270

URS Greiner, Inc.

COST ESTIMATE

SHEET No 7 OF 8
JOB No 05.35388.17

North Franklin St.
Excavation

BY [illegible] DATE 12.3.98
CHKD BY ____ DATE ____

ITEM	DESCRIPTION	UNIT	QTY	UNIT COST	TOTAL COST
7	Soil Disposal				
7.A	Low Contamination Soil	TON	263	$74.67	$ 19,640
	NONHAZARDOUS				
	195 cy × 27f³/cy × 100 lb/f³ × ton/2000lb = 263				
	ECHOS 33.19.7269				
7 B	Transportation (assume 200 mi)	mi	200 × 14	$1.44	$ 4,032
	20 cy / trip (195cy × 1.4) / 20 = 14				
	ECHOS 33 19.0205				
7.C	Landfill Haz Waste Requiring				
	Treatment				
	106 cy × 27f³/cy × 100 lb/f³ × ton/2,000lb = 143	TON	143	$241	$34,460
	ECHOS 33 19.7265				
7.D	Disposal (Assume 200 mi)				
	(106 cy × 1.4)/20 = 8 trips	mi	200 × 8	$1.44	$ 2300
7.E	Testing & Analysis (exc. 1st	LS	1		$ 1500
7	Total				$61,930

URS Greiner, Inc.

COST ESTIMATE

SHEET No 8 OF 8
JOB No. 05.35308.17

NORTH FRANKLIN ST.
EXCAVATION

BY DMO DATE 12.3.98
CHKD BY ____ DATE ____

ITEM	DESCRIPTION	UNIT	QTY	UNIT COST	TOTAL COST
8.	DESIGN, PROCUREMENT, OVERSIGHT				
8.A	SYSTEM DESIGN, PROCUREMENT	MH	120	$60	$ 7,200
8.B	CONSTR. MANAGEMENT, OVERSIGHT	MH	80	$60	$ 4,800
8.C	BUILDING EVAL. CRACK SURVEY	LS	1		$ 1,000
8.D	TRAVEL, PER DIEM, ETC.	LS	1		$ 1,500
8	TOTAL				$14,500

Table 8

North Franklin Street Site - Watkins Glen, NY

Cost Estimate for Shallow Treatment Wall

Item	Description	Unit	Quan.	Unit Cost	Total	Source
Direct Costs						
1	Data Review				$1,500	
2	Bench-Scale Testing				$15,000	
3	Design Assistance				$5,000	
4	Wall Construction				$52,800	
5	Site License				$7,740	
	Subtotal Direct Costs				***$82,040***	
Indirect Costs (as a percentage of Direct Costs)						
1	Contingency			40%	$32,816	
	Subtotal Indirect Costs				***$32,816***	
	Total Cost				***$114,900***	

Note: The Contingency included with the cost estimate also accounts for changes in the estimated inflation factor until the time of construction, city cost index, etc.
Costs for construction do not include any savings for work in conjunction with other site activities.

URS Greiner, Inc.

COST ESTIMATE

SHEET No 1 OF 1
JOB No 05.35398.17

NORTH FRANKLIN STREET
TREATMENT WALL (IRON FILINGS)

BY [illegible] DATE 12.2.98
CHKD BY ____ DATE ____

ITEM	DESCRIPTION	UNIT	QTY	UNIT COST	TOTAL COST
	BASED ON VENDOR QUOTE				
1.	DATA REVIEW	LS	1		$ 1500
2.	BENCH-SCALE TESTING	LS	1		$ 15,000
3	DESIGN ASSISTANCE	LS	1		$ 5,000
4.A	IRON (60' x 3' x 3.3') = 594 ft^3 (0.08 ton/ft^3)	ton	48	$450	$ 21,600
	= 48 ton				
4.B	CONSTRUCTION (EXCAV. / BACKFILL ETC.)	LS	1		$ 30,000
	(NOTE: COST MAY BE LOWER IF DONE				
	IN CONJUNCTION W/ OTHER WORK				
4.C	SITE LICENSE (15%)	LS	1		$ 7,740
4.D	ADD'L PIEZOMETERS	EA	6	$200	$1,200
	TOTAL				$82,040

Table 9

North Franklin Street Site - Watkins Glen, NY

Cost Estimate for Annual Groundwater Monitoring

Item	*Description*	*Unit*	*Quan.*	*Unit Cost*	*Total*	*Source*
Direct Costs						
1	Sample Analysis				$3,500	
2	Sample Collection				$1,500	
3	Travel				$200	
4	Reporting				$600	
5	Supplies & Equipment				$200	
	Subtotal Direct Costs				***$6,000***	
Indirect Costs (as a percentage of Direct Costs)						
1	Contingency			10%	$600	
	Subtotal Indirect Costs				***$600***	
	Total Cost				***$6,600***	

Note: The Contingency included with the cost estimate also accounts for changes in the estimated inflation factor until the time of construction, city cost index, etc.

URS Greiner, Inc.

SHEET No 1 OF 1
JOB No. 05-35388.7

COST ESTIMATE

NORTH FRANKLIN ST.
ANNUAL GROUNDWATER MONITORING COSTS

BY TAW DATE 12.2.98
CHKD BY ____ DATE ____

ITEM	DESCRIPTION	UNIT	QTY	UNIT COST	TOTAL COST
	ASSUME 10 OF THE EXISTING				
	MONITORING WELLS ARE SAMPLED ON A				
	SEMI-ANNUAL BASIS.				
1.	SAMPLE ANALYSIS (VOCs ONLY)	EA	20	$175	$ 3500
	(ECHOS 33 02.1618)				
2.	SAMPLE COLLECTION (ENG. EST.)	MH	20	$75	$ 1500
3.	TRAVEL ENG EST.	EA	2	$100	$ 200
4	REPORTING ENG EST	MH	10	$60	$ 600
5.	SUPPLIES & EQUIPMENT	LS	1		$ 200
	SUBTOTAL				$6,000

Table 10

North Franklin Street Site - Watkins Glen, NY

Cost Estimate for Passive Venting System

Item	*Description*	*Unit*	*Quan.*	*Unit Cost*	*Total*	*Source*
Direct Costs						
1	Sawcut Floor				$6,330	
2	PVC Well Screen				$5,070	
3	Gravel				$530	
4	PVC Pipe				$290	
5	Replace Concrete				$2,110	
6	Geotextile Fabric				$82	
7	Mob / Demob				$600	
8	Spoils Disposal				$500	
9	Building Repairs				$1,500	
	Subtotal Direct Costs				***$17,012***	
Indirect Costs (as a percentage of Direct Costs)						
1	Contingency			30%	$5,104	
	Subtotal Indirect Costs				***$5,104***	
	Total Cost				***$22,100***	

Note: The Contingency included with the cost estimate also accounts for changes in the estimated inflation factor until the time of construction, city cost index, etc.

URS Greiner, Inc.

SHEET No 1 OF 2

COST ESTIMATE

JOB No. 05 35388.17

North Franklin St.
Passive Venting System

BY DNG DATE 12.2.98
CHKD BY ____ DATE ____

ITEM	DESCRIPTION	UNIT	QTY	UNIT COST	TOTAL COST
	Cost based on an assumed				
	250 LF of vent piping under				
	existing building				
1.	Sawcut Concrete Floor (assume	LF	500	$12.66	$ 6330
	6" thick rod reinf @ $2.11/LF/in				
	Means 020.728.0420)				
2	PVC Well Screen 4"Ø Echos 33.23.0201	LF	250	$20.27	$ 5070
3.	Gravel (250 LF × 1' × 1') = 250 f³ 9.3 cy	CY	10	$53	$ 530
	(Means 029.516.1600)				
4.	PVC pipe 4"Ø, incl. fittings etc	LF	25	$11.49	$ 290
	(Echos 33.26.0404				
5.	Concrete Replacement (250 LF × 0.5' × 1')	CF	125	$16.85	$ 2110
	= 125 f³ (Means 033.168.0300)				
6.	Geotextile Fabric (250 LF × [1 + 1 + 0.5 + 0.5])	SY	85	$0.97	$ 82
	= 750 sf = 83 SY (Echos 33.08.0532)				

URS Greiner, Inc.

SHEET No 2 OF 2

COST ESTIMATE

JOB No. 35358.17

NORTH FRANKLIN ST.
PASSIVE VENTING SYSTEM

BY DWG DATE 12.3.96
CHKD BY ____ DATE ____

ITEM	DESCRIPTION	UNIT	QTY	UNIT COST	TOTAL COST
7.	MOB / DEMOB (ENG. EST.)	LS	2	$300	$ 600
8.	SPOILS DISPOSAL (ENG EST.	LS	1		$ 500
9.	BUILDING REPAIRS (CARPET	LS	1		$ 1500
	REPLACEMENT, PENETRATIONS ETC.)				
	(ENG EST				
	TOTAL				$ 17,012

Table 11

North Franklin Street Site - Watkins Glen, NY

Cost Estimate for Miscellaneous Site Work

Item	*Description*	*Unit*	*Quan.*	*Unit Cost*	*Total*	*Source*
Direct Costs						
1	Demob GWET System				$10,190	
2	Well Decommissioning				$3,800	
3	Remove Site Fencing				$1,300	
	Subtotal Direct Costs				***$15,290***	
Indirect Costs (as a percentage of Direct Costs)						
1	Contingency			40%	$6,116	
	Subtotal Indirect Costs				***$6,116***	
	Total Cost				***$21,400***	

Note: The Contingency included with the cost estimate also accounts for changes in the estimated inflation factor until the time of construction, city cost index, etc.

URS Greiner, Inc.

COST ESTIMATE

SHEET No 1 OF 3
JOB No 05.35388.17

NORTH FRANKLIN ST.
MISC. SITE WORK

BY DW DATE 12.3.98
CHKD BY ____ DATE ____

ITEM	DESCRIPTION	UNIT	QTY	UNIT COST	TOTAL COST
1	DEMOB OF GWET SYSTEM				
1.A	SYSTEM CLEANING AND PREP.	MH	80	$60	$ 4800
1.B	CRANE RENTAL (INCL. MOB.)	DAY	2	$465	$ 930
	CREW (MEANS 016.460.3000)	DAY	2	$421	$ 842
1.C	TRACTOR TRAILER (TO RELOCATE ONSITE OR SHORT DISTANCE)	DAY	2	$460	$ 920
	CREW (MEANS 016 420.7500	DAY	2	$414	$ 828
1.D	TRAFFIC CONTROLS, MISC.	LS	1		$ 500
1.E	ELECTRICIAN	MH	8	$46	$ 370
1.F	TRAVEL, PER DIEM ETC.	EA	10	$100	$ 1000
1	TOTAL				$10,190

URS Greiner, Inc.

SHEET No 2 OF 3

COST ESTIMATE

JOB No. 05.35358 17

North Franklin St.
Misc. Site Work

BY DW DATE 12.3.96
CHKD BY ____ DATE ____

ITEM	DESCRIPTION	UNIT	QTY	UNIT COST	TOTAL COST
2.	Well Decommissioning				
2.A	SVET Wells and PIT Wells (Eng Est)	EA	10	$250	$ 2500
2.B	Mob / Demob	LS	2	$300	$ 600
2.C	Oversight Etc.	MH	10	$ 60	$ 600
2.D	Travel	LS	1		$ 100
2	Total				$ 3800

URS Greiner, Inc.

COST ESTIMATE

SHEET No 3 OF 3
JOB No. 05.35358.17

NORTH FRANKLIN ST.
MISC. SITE WORK

BY TONG DATE 12.3.98
CHKD BY ______ DATE ______

ITEM	DESCRIPTION	UNIT	QTY	UNIT COST	TOTAL COST
3	REMOVE SITE FENCING				
3.A	REMOVE FENCE	LF	200	$ 4	$ 800
	ASSUME APPROX. 200 LF OF				
	FENCE REMAINING				
	(ECHOS 17.02.1701, COST TO REMOVE &				
	RESET = $8.30, ASSUME $4 TO REMOVE)				
3.B	MOB, DISPOSAL, MISC.	LS	1		$ 500
3	TOTAL				$ 1300