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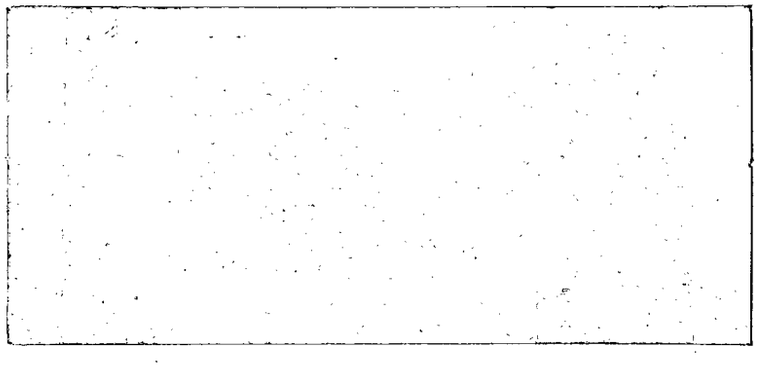

ecology and environment, inc.
International Specialists in the Environment.

Final Site Characterization Report for the Interim Remedial Measures Investigation at the Pratt and Letchworth Site (PCB Spill Area) (NYSDEC Registry No. 915045)

January 1995

Prepared for:

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1 Introduction

Ecology and Environment, Inc., (E & E) conducted a site assessment and interim remedial measures (IRM) program at the Pratt and Letchworth property (Registry No. 915045) (see Figure 1-1). The IRM program was conducted and this report was prepared in accordance with the requirements of a consent order entered into between the 189 Tonawanda Street Corporation and the New York State Department of Environmental Conservation (NYSDEC) on August 3, 1992. A draft IRM report was submitted to NYSDEC in June 1994, and a meeting was held on August 31, 1994, to discuss NYSDEC's comments. This final report summarizes the field activities and analytical results obtained during this IRM program and incorporates additional information gathered at the request of NYSDEC relative to its comments and concerns about the draft report.

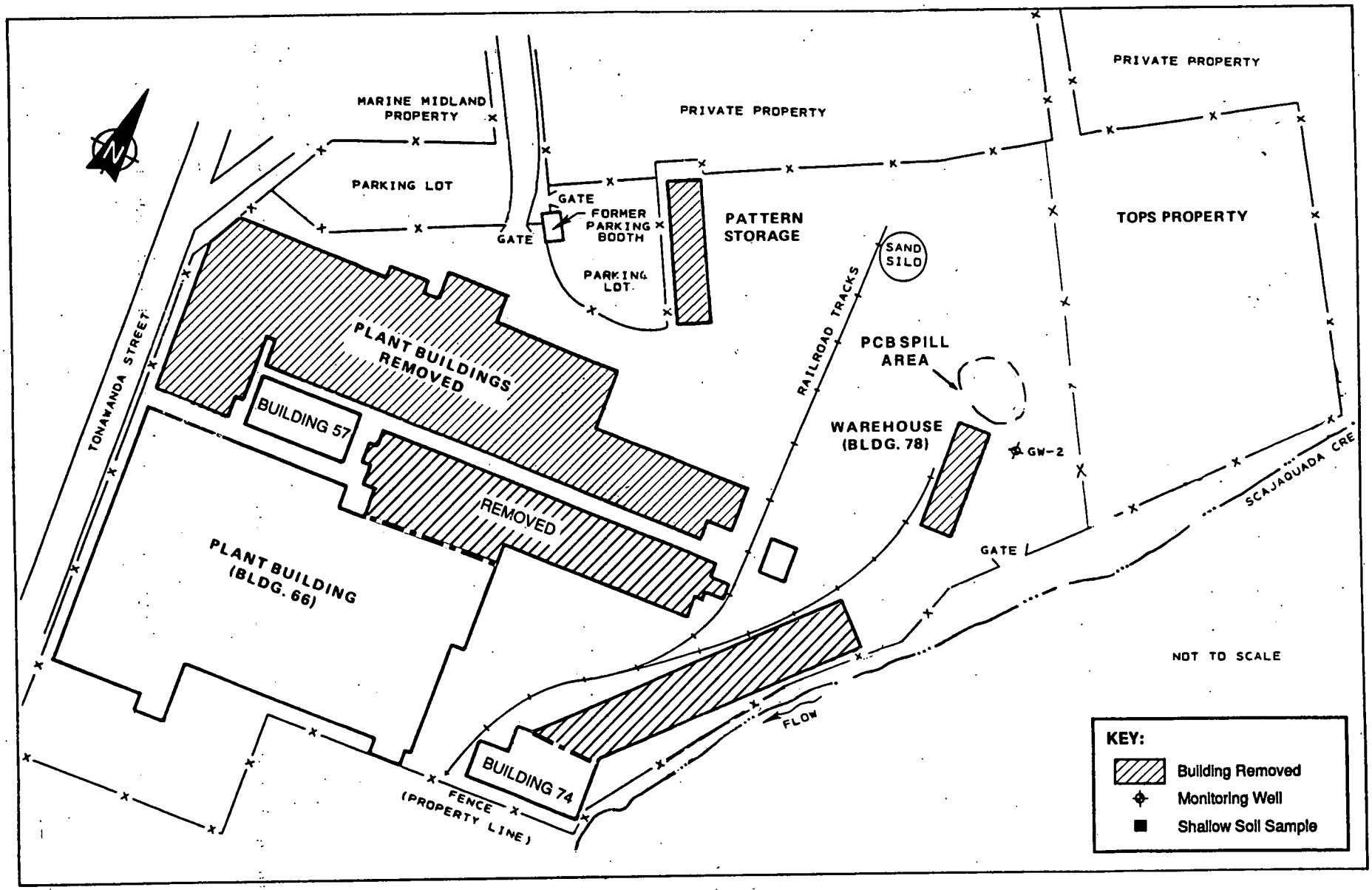


Figure 1-1 SITE MAP OF PRATT AND LETCHWORTH, BUFFALO, NEW YORK

2 Purpose

The primary objective of the IRM program was to delineate and remove PCB-contaminated soils from the oil spill area, which had been the basis for listing the site on the New York State Registry of Inactive Hazardous Waste Sites. In addition, this program was used to obtain further information necessary to evaluate whether any other areas of potential concern at the site constitute a significant threat to public health or the environment.

It is the intent of this report to also provide NYSDEC with the information necessary to reassess and reclassify the Pratt and Letchworth site according to Section 27-1305 of the Environmental Conservation Law.

As a result of the findings of this report, it has been concluded that all significant areas of concern have been addressed and that those requiring remedial action have been remediated. Based on these conclusions, it is recommended that NYSDEC delist this site from the New York State Registry of Inactive Hazardous Waste Sites.

3 Site Background

3.1 Facility History

The Pratt and Letchworth site is located in the City of Buffalo between Tonawanda Street and the north side of Scajaquada Creek. The 25.8-acre site was initially owned by the Buffalo Malleable Iron Works from 1848 to 1860. Pratt and Letchworth owned the site from 1860 until 1896. Ownership information from 1896 to 1923 is unavailable. In 1923, Dayton Malleable Iron Company acquired ownership of the property and business, and Pratt and Letchworth continued to operate the on-site plant as a subsidiary of Dayton Malleable. In 1952 Dayton Malleable Iron Company became Dayton Malleable, Inc., and Pratt and Letchworth became an operating company. The site remained active until approximately 1981 when Amcast Industries purchased the property. The site was sold between 1987 and 1988 and partitioned between two new owners, Tops Markets, Inc., and the 189 Tonawanda Street Corporation. The former plant buildings and most of the plant property (approximately 22.6 acres) is owned by the 189 Tonawanda Street Corporation. The remaining 3.2-acre portion of the property, which was formerly used for landfilling (of foundry sands), has since been converted into a supermarket and parking lot by the owners of Tops Markets. The Tops portion of the former Pratt and Letchworth property was investigated and subsequently delisted from the New York State Registry of Inactive Hazardous Waste Sites in 1990.

Currently, three primary buildings remain on the Pratt and Letchworth site: Plant Building No. 66, which is located at the southwestern portion of the site and is presently used by the City of Buffalo as a holding center for impounded vehicles; Plant Building No. 74, which is an open-sided building used for temporary storage of site-generated solid wastes; and the former Service Building No. 57, which is used as a residence and storage building. At the time manufacturing operations ceased in 1981, a large steel foundry building and a number of other buildings were also standing on the property. These buildings have since been demolished and removed by the current owners (see Figures 1-1 and 3-1).

According to the NYSDEC Right-to-Know site report, from 1949 to 1965 Pratt and Letchworth landfilled approximately 1,200 tons/year of foundry sand and 1,000 tons/year of foundry slag, cement, and furnace brick wastes onto land adjacent to Scajaquada Creek. An estimated 14,000 gallons per year of lubricant and hydraulic oils were also drummed and stored in the landfill area. NYSDEC inspected the site in 1978 and found additional drummed wastes, including foundry sand binders and 1,1,1-Trichloroethane (1,1,1-TCA). The sand binders were alcohol based and contained naphtha and phosphoric acid. Between 1981 and 1984, the site was listed on the NYSDEC Registry of Inactive Hazardous Waste Sites. In 1982, a site investigation by Bowser-Morner showed heavy metals in leachate from foundry sands and in clay soils near Scajaquada Creek. Phenols were also found in soils and fill samples. A site inspection in 1985 revealed several full drums of phosphoric acid and other drums labeled "Niagara Lubricant Company" and "Ashland Chemical." One hundred to 150 drums were being stored on site, of which 70 to 100 were full and either damaged or leaking. Following the 1985 inspection, a portion of the drums were removed from the site and the remaining placed inside an existing plant building for later disposal. According to later reports, these remaining drums were removed from the site. The NUS Corporation conducted a soil and sediment investigation in 1986 under contract with the United States Environmental Protection Agency (NUS Corporation 1988). Polychlorinated biphenyls (PCBs) and Aroclor 1016 and 1260 were detected in soil and sediment samples collected by the NUS Corporation. Other compounds detected in site soils included tetrachloroethene, trichloroethene, styrene, and various polyaromatic hydrocarbons (PAHs). The site was eventually given a Class II rating on the state registry due to the presence of PCBs in surface soils at concentrations exceeding 50 parts per million (ppm).

In 1988 investigations were conducted for the approximate 3.2-acre Tops Markets property, which resulted in a delisting in 1990 of the property from the NYSDEC Registry of Inactive Hazardous Waste Disposal Sites. A NYSDEC Phase II investigation of the 189 Tonawanda Street section of the property was conducted in 1988. This report documented the occurrence of contaminants in some portions of the site. This study recommended conducting additional sampling in the PCB oil spill area and along former site roadways. In addition, the report recommended the installation of one shallow upgradient well.

Since acquisition of the site in 1987, the 189 Tonawanda Street Corporation has instituted an ongoing reclamation and construction program for the former industrial facility. This program has removed a number of buildings and structures as shown in Figure 1-1. Additionally, much of the northern and eastern portions of the site have been regraded and

covered with a clay soil cover. Drainage control measures, such as a retention pond and drainage tiles, have also been installed (see Figure 3-1).

3.2 Interim Remedial Measures Investigation History

In 1991, an environmental audit of the 22.6-acre Pratt and Letchworth site was performed by E & E. The objective of the audit was to identify any known or potential areas of non-compliance with applicable local, state, and federal laws and make recommendations for further investigation/remedial measures. A letter report summarizing the results of this audit is provided in Appendix A. In 1992, an IRM work plan was developed by E & E to address the environmental concerns identified in the 1991 audit, in particular, the PCB-contaminated soils at the oil spill area. PCB-contaminated soil within the oil spill area had been previously sampled and found to contain PCBs in concentrations from less than 0.5 ppm to 2,200 ppm.

In accordance with the NYSDEC-approved work plan (October 1992), a three-phased approach was implemented to remediate PCB-contaminated soil on the property.

Phase I of the work plan provided for a full delineation to be made of the PCB-contaminated soils in the oil spill area. This investigation was conducted between November 1992 and April 1993 and showed that PCB concentrations of Aroclor 1260 existed up to 1,200 ppm.

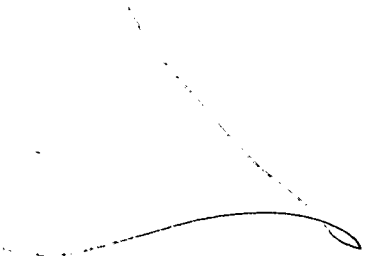
Phase II of the work plan provided the means by which contaminated soils in the area delineated in Phase I were to be removed and disposed of. In 1993, Innovative Services International (ISI) was retained by the 189 Tonawanda Street Corporation to implement the Phase II work plan. The soils excavated by ISI were staged and transported off site to a proper treatment, storage, and disposal facility between September 1993 and March 1994. The extent of the removal continued until post-excavation confirmation samples taken by both ISI and NYSDEC indicated levels of PCB contamination were below 1 ppm.

Phase III of the work plan provided for further investigation of other areas of concern identified either by NYSDEC or through the environmental audit. These areas included the paint vat waste, machine tool or hammer pit, subsurface soils, and shallow groundwater.

Before the implementation of this work plan was completed, a clay soil cover was applied to the northern and eastern portions of the site. When NYSDEC became aware of this activity, it required 16 shallow soil borings in this area to be sampled and analyzed to provide the necessary data to evaluate subsurface soil conditions existing below the clay cover

(see Figure 3-1). These 16 soil borings were added to the original scope of work outlined in the IRM work plan as documented in Appendix C.

Lastly, on October 11, 1994, an additional 6 surface soil PCB samples were collected under the IRM program. These samples were collected in the area between the oil spill area and Scajaquada Creek. This sampling was performed at the request of NYSDEC because it had detected the presence of PCBs through other investigations of creek sediments and surface soils along a proposed bicycle path. The results from these studies have been incorporated into this report as they apply to the Pratt and Letchworth site.



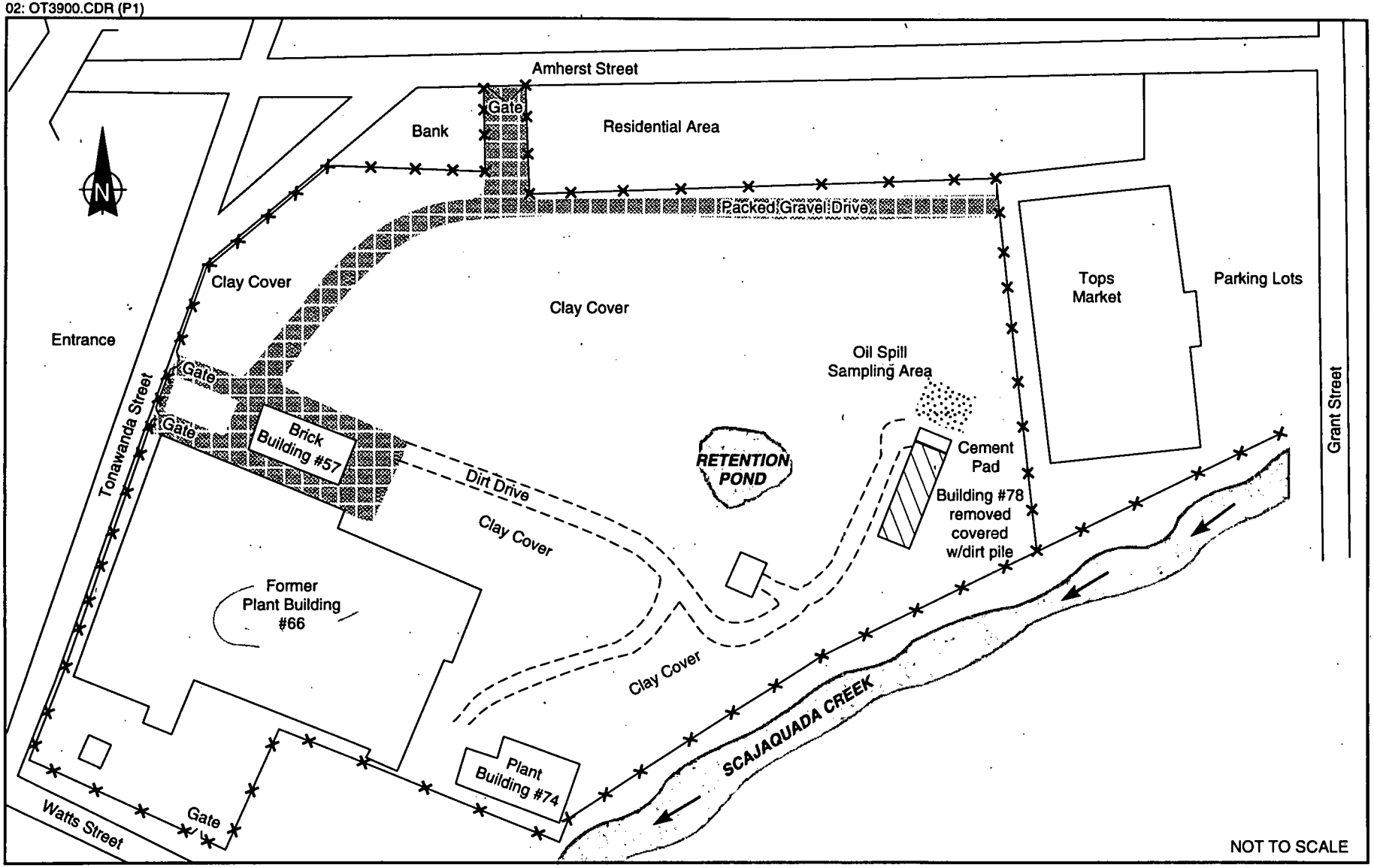


Figure 3-1 CURRENT SITE PLAN OF PRATT AND LETCHWORTH, BUFFALO, NEW YORK

4 Site Conditions

4.1 Site Hydrogeology

Subsurface stratigraphy and hydrogeology at the Pratt and Letchworth site can be described as a result of previous investigations conducted on this and the nearby Tops Markets property. For this reason, no additional site investigation was required with the exception of the installation of two 30-foot monitoring well borings during this remedial measures program. A summary of the existing conditions is provided in the June 1989 NYSDEC Phase II Investigation Report by Engineering-Science, Inc. (Engineering-Science 1989). Subsequent studies by E & E for this site and the adjoining Tops Markets property confirm the observations of the Phase II report as described below.

The site subsurface stratigraphy can be characterized as dolomitic limestone bedrock (Bertie Formation), overlain by 4 to 10 feet of coarse glacial till and 70 to 80 feet of lacustrine silt and clay. The surface material generally consists of fill materials, primarily foundry sand and slag, which range in thickness from 1 foot to more than 18 feet in the former landfill portion of the property. The Bertie Formation dolostone, therefore, constitutes the first primary water-bearing unit within this stratigraphy. Other layers such as the silty clay and fill material may temporarily contain perched interflow or transient water and, therefore, are not considered sources of groundwater. Monitoring wells installed in the Bertie Formation indicate that this unit is a substantial water-bearing unit that is confined under pressure and, in places, displays a strong upward hydraulic gradient. The piezometric water level elevations for on-site wells completed in the Bertie Formation were previously reported to be consistently above the level of the creek, confirming these conditions (Engineering-Science 1989).

During Phase III of this remedial measures program, two 30-foot soil borings (BHW-1 and BHW-2) were installed on site (see Figure 4-1). Given that shallow groundwater was not encountered in the clay unit, these borings were installed with the

provision that if a water-bearing unit were encountered, a monitoring well would be installed. The proposed locations for the two borings were chosen so that one was upgradient to the northeast away from the creek (PL-BHW-1), and the other downgradient to the south near Building 74 and Scajaquada Creek (PL-BHW-2).

Soil boring PL-BHW-1 was advanced through approximately 2.9 feet of fill material before entering into the thick silt and clay unit below. The clay continued to a depth of 30 feet. Because groundwater was not encountered at this depth, the borehole was abandoned, and a well was not installed. Soil boring location PL-BHW-2 was placed close to the creek in an attempt to intercept groundwater at a shallower depth. This boring was advanced through approximately 20 feet to 25 feet of black foundry sand and slag. Wet conditions were first observed at a depth of approximately 17 feet. At a depth of 25 feet to 30 feet, a black organic-rich sand and clay with numerous gastropod shells and stringers of sand was found. Below, these materials then graded to a fine-to-medium sand. Because this lower unit was water-bearing, monitoring well PL-BHW-2 was installed at this location with a screen depth of 9.8 feet to 29.8 feet. Given the estimated elevation of the water level in the completed well, it is apparent that this well is hydraulically connected to the creek and that there is little or no hydraulic gradient between these two points. As per the Engineering-Science, Inc., Phase II report, groundwater at the clay/fill interface does appear to flow toward the southeast and to discharge to the creek. Groundwater in the upper bedrock apparently flows toward the south and probably discharges upward toward the creek.

The presence of the natural organic rich layers below the brick, sand, and slag fill at well BHW-2 indicates that the nearby creek previously extended to this location. As was common practice for the period, low lying areas along the creek were apparently filled in for the purpose of providing more usable dry land space for industrial development. This allowed the creek to eventually be used as a shipping channel for the various industries along the channel. Prior to being filled in, this area of the creek must have been relatively shallow and slow moving as indicated by the presence of the fine-grained, black organic sediments and gastropod shells. Portions of the present creek may still resemble this environment in part, as indicated by the presence of aquatic plants reported by NYSDEC personnel during a recent sediment sampling event (NYSDEC 1993).

Given the understanding from previous investigations that the site and the creek are underlain by a thick silt and clay unit, this unit separates all surface and shallow perched groundwater from the lower artesian bedrock aquifer. Through this investigation, this unit was found uniformly across the site at relatively shallow depths (see Appendix B) with the

exception of along the creek at BHW-2. By virtue, then, of an apparent hydraulic connection between well BHW-2 and the creek through the former creek bed, water in this well is representative of both infiltrating water from the sand and slag fill and organic rich water from the former creek bed sediments. This water therefore, should not be considered representative of groundwater in this area. Furthermore, this water does not represent an economic groundwater resource and should not be subject to groundwater regulations or drinking water standards.

4.2 Scajaquada Creek Sediments

During a number of previous studies at the Pratt and Letchworth site, sediment samples were collected from various locations along Scajaquada Creek near the property. Analytical results from these studies, as presented in Table 4-1, indicate that low-level contamination from PCB Aroclors 1260, 1254, and 1248 are present in the creek. In 1989, the Engineering-Science, Inc., NYSDEC Phase II study concluded that the PCB concentrations known to be present in sediments at that time were generally well below those concentrations at which remedial action is usually undertaken. An additional study by NYSDEC in August of 1993 found similar levels of PCBs were still present in the creek sediment (see Table 4-1).

Other sediment data for this general area are available in the 1984 reports of the Niagara River Toxics Committee (NRTC) and NYSDEC (NRTC 1984 and NYSDEC 1984). A PCB concentration of 16.25 ppm was reported for sediment collected at the confluence of Scajaquada Creek and the Black Rock Canal (NRTC 1984). As stated in this 1984 report, no major contributing sources were identified for this area. However, NYSDEC did report concentrations of PCBs as great as 70 ppm in storm sewer deposits receiving permitted discharges from Westinghouse, Calspan, and Spencer-Kellogg (NYSDEC 1984). This report also stated that combined sewer overflows from the Buffalo Sewer Authority discharge into Scajaquada Creek and the Black Rock Canal. These discharges could have contributed to PCB contamination in the creek, as well as the Black Rock Canal.

Table 4-1

SUMMARY OF SCAJAQUADA CREEK SEDIMENT SAMPLES
(results in ppm)

Study	Sample Identification	Analytical Parameter	Sample Result	Area in Relation to Site
Bowser-Morner 1982	Sediment 1	TOX plus PCBs	<1.0	Upstream
	Sediment 2	TOX plus PCBs	<1.0	Adjacent
	Sediment 3	TOX plus PCBs	<1.0	Downstream
NUS Corporation 1986	SED-1	PCB Aroclor 1260	1.00	Upstream of Outfall 001 (adjacent)
Engineering-Science, Inc., 1989	SED-1.12	PCB Aroclor 1260	ND	Upstream of Tops
	SED-1	PCB Aroclor 1260	ND	Adjacent to Tops, upstream of site
	SED-2	PCB Aroclor 1260	3.1	Downstream of Building 74
	SED-2	PCB Aroclor 1254	2.8	
NYSDEC August 1993	Transect 2	PCB Aroclor 1260	3.1	Composite three samples across creek adjacent to P & L site.
		PCB Aroclor 1248	1.1	
	Transect 3 (north)	PCB Aroclor 1260	ND	
		PCB Aroclor 1248	ND	
	Transect 3 (center)	PCB Aroclor 1260	0.69	Downstream of P & L site.
		PCB Aroclor 1248	0.20	
	Transect 3 (south)	PCB Aroclor 1260	2.00	
		PCB Aroclor 1248	2.10	
	Transect 4 (north)	PCB Aroclor 1260	0.24	
		PCB Aroclor 1248	0.39	
	Transect 4 (center)	PCB Aroclor 1260	1.80	Upstream of Iroquois Gas/ Westwood Pharmaceutical site
		PCB Aroclor 1248	0.58	
	Transect 4 (south)	PCB Aroclor 1260	1.30	
		PCB Aroclor 1248	0.23	

Note: All samples, unless otherwise noted, have either been confirmed as having been collected or appear to have been collected along the north bank of the creek.

Key:

ND = Not detected.
PCB = Polychlorinated biphenyls.
TOX = Total organic halogens.

5 Interim Remedial Measures Program Task Discussion

The IRM program was initially developed by E & E in August 1992 for the Pratt and Letchworth site. The work plan was approved by NYSDEC in October 1992. The IRM program was divided into three phases: Phase 1, the PCB soil investigation; Phase 2, PCB-contaminated soil remediation and closure; and Phase 3, other site characterization studies. The Phase 3 work plan was later amended to include 16 soil borings in the northern and eastern portions of the site, and later still to include an additional 6 surface soil samples between the oil spill area and the creek (see Appendix C). The objective of the first phase was to quantify and define the extent of PCB soil contamination in the 14,000-square-foot oil spill area north of the location of the former warehouse (Building No. 78). The soil sampling for Phase 1 was performed by E & E from November 1992 to April 1993. Phase 2 established standards, procedures, and certification methods for the removal of PCB-contaminated soils identified by Phase 1 sampling. During Phase 2, soils were removed and additional samples were collected by ISI from September 1993 to February 1994. These activities are documented in the closure document provided by ISI (ISI 1994). Phase 3 was developed to verify the absence of hazardous wastes and substances within the other identified areas of concern.

The analytical results for those samples collected during the IRM program are presented in the following sections. Each section describes the results of samples collected in a particular area of concern as described in the work plan or in subsequent work plan additions (see Appendix C).

5.1 Clay Cover

During the fall of 1992, following the removal of several large buildings, sections of the northern and eastern portions of the site were regraded and a clay cover was installed. The cover material was obtained from off-site sources and was applied without prior permission of NYSDEC. The clay cover is estimated to range between 0.5 foot and 3 feet in

thickness. When NYSDEC became aware of this activity, sampling of the cover material was required.

Samples of the clay cover were collected on February 16, 1993, at nodes SB-1 (PL-CC-1) and SB-4 (PL-CC-2) (Figure 5-1). The samples were analyzed using full Target Compound List (TCL) methods, and the results are listed in Tables 5-1 and 5-2. The inorganic and cyanide analyses show only calcium exceeding the 95th percentile of the reported element concentrations in eastern United States soils (Shacklette and Boerngen 1984). Clay materials are typically high in alkaline earth salts such as calcium. Cadmium and silver do not have reported values in Shacklette and Boerngen. Cadmium was measured at a level of 2.2 mg/kg, and silver was below the limits of detection. Cyanide concentration was also below the limits of detection.

The results for the analyses of organic compounds are given in Table 5-2. These results indicate that a number of compounds were present in sample PL-CC-1. The measured values compared to reported soil background concentrations of PAHs show no significant contamination (U.S. Public Health Service 1990). No measured values were reported for volatile organics, PCBs, or pesticides. Of the other organics tested, only two had measured values, bis(2-ethyl-hexyl)phthalate and diethylphthalate at 160 μg/kg and 400 μg/kg, respectively. Both of these compounds occurring at low levels are known as common laboratory contaminants resulting from contact with laboratory gloves.

5.2 Oil Spill Area

The oil spill area covers approximately 14,000 square feet and surrounds the northeast end of what was originally Warehouse Building 78 (the foundation remains). Forty-six sample locations (samples PL-SS-01 through PL-SS-59) were chosen to initially characterize the horizontal and vertical extent of PCB contamination in the area (Figure 5-2). The results of the analytical tests for PCB samples collected November 13, 1992, and December 23, 1992, are found in Table 5-3. Due to the absence of fill or soil, several locations could not be sampled at the proposed depths (0-8 inches, 8-16 inches, and 16-24 inches). The samples were screened with an organic vapor analyzer (OVA) for organic vapors. No vapors were detected at a level greater than 5 ppm above background; therefore, additional volatile organic analysis (VOA) samples were not necessary according to the NYSDEC-approved work plan.

Sampling techniques and the number of samples eventually collected varied somewhat from that originally described in the approved work plan. This was due to the fact that the

PCB-contaminated area was actually larger than reported and due in part to the construction of the clay cover. Additionally, some areas were sampled using an air hammer because surficial materials were too consolidated to be sampled with a hand auger. All additional sampling techniques and sample area changes are documented in letters between E & E and NYSDEC (see Appendix C).

Sample collection and analyses began with surface soil between 0 to 8 inches. In accordance with the work plan, where concentrations of PCBs in the soil exceeded 1 ppm, sampling continued both horizontally away from the spill area along the hexagonal sampling grid and vertically to a depth of 8 to 16 inches. Where sample nodes exceeded 1 ppm at the second depth interval, the third depth (18 to 24 inches) sample was also analyzed.

Table 5-3 lists all of the results of PCB analyses for samples collected by E & E in the oil spill area. With the exception of sample PL-SS-53, where PCB Aroclor 1248 was detected at 66 mg/kg, all other results reported are Aroclor 1260.

These results formed the basis for the soil excavation and disposal work performed by ISI as documented in the *Certification of Completion of Closure Plan for Pratt and Letchworth Industrial Property and Oil Spill Area* (ISI May 1994). During the excavation activities, additional delineation and certification samples were collected. The results for these samples are documented in the ISI report.

5.3 Surface Soils Between the Oil Spill Area and Scajaquada Creek

Following the initial reporting of results gathered during the IRM program, concerns were raised by NYSDEC regarding the contribution of overland transport of PCB-contaminated surface soils to the creek. These concerns were heightened when the results of one of three surface soils collected by NYSDEC along the proposed bicycle path contained PCB Aroclor 1260 at a concentration of 1.2 ppm, which is slightly above the cleanup level of 1.0 ppm. As a result, the property owner agreed to collect an additional six surface soils for PCB analyses in a triangular pattern between the former oil spill area and the creek (see Figure 5-3). The results of the analysis of these six samples, as well as those collected by NYSDEC, are presented in Table 5-4.

The results in Table 5-4 indicate that PCB Aroclor 1260 was detected at low levels in the original surface soils below the existing clay cover (0- to 6-inch depth beginning below the clay cover material). However, with the exception of the NYSDEC sample SS-3, all PCB results shown are below the quantitation limit and cleanup level of 1.0 ppm. Although

generally not exceeding the cleanup goal, these results do confirm that PCBs still exist within the site's pre-cover surface soils and that overland flow of surface contamination from the oil spill area may have previously contributed to the presence of PCB Aroclor 1260 in Scajaquada Creek sediments. Since removal of PCB-contaminated soils with concentrations greater than 1 ppm and the subsequent covering of contaminated soils with a clay cover, this migration pathway has been eliminated.

5.4 Machine Tool/Hammer Pit Fill Material

A soil sample (PL-HP-1) was collected on February 16, 1993, from fill material used to backfill a machine tool/hammer pit area in Building No. 66 (see Figure 5-1). This pit previously contained heavy machinery when the site was an active production facility. As reported by the current owner, the pit apparently also contained a quantity of iron filings, which formed a visible iron oxide rust following exposure to water that had leaked through the roof. As a result of the appearance of this oxidized material, the small pit was excavated and backfilled with a clean gravel. The excavated soils from this pit and the location of their disposal are not documented.

The results for sample PL-HP-1 are presented in Table 5-5. Sample analyses included total recoverable petroleum hydrocarbons (TRPH), cadmium, chromium (total), iron, and lead. The results for metals analyses were found to be within the reported ranges of typical soils (Shacklette and Boerngen 1984). The concentration of TRPH was 2,400 mg/kg. This result is most likely related to the storage of impounded vehicles in this building by the City of Buffalo. Some of the vehicles may be leaking oil, which could contribute to the hydrocarbons found in the sample.

5.5 Paint Vat Material

The paint vat sample (PL-PV-1) was collected from a tar-like substance contained in a large tank within Building 74 on the Pratt and Letchworth site (see Figures 1-1 and 5-1). This tank was reportedly used to contain a flexible paint used to coat iron parts as they were dipped into the tank. Since operations at the plant were terminated, that material has remained as a viscous tar-like liquid with a skin of hardened dry material.

Sample PL-PV-1 was collected on February 16, 1993, by breaking through this skin and scooping the softer inner material into a precleaned glass jar. Analyses for this sample included the Resource Conservation and Recovery Act (RCRA) characterization tests of TCLP

metals, total cyanide, total sulfide, and ignitability. The results of testing for this sample are given in Table 5-6. Based on these results, the paint sludge material can be characterized as a non-RCRA solid waste. In addition to this testing, the sample was also sent to Chicago Testing Laboratory, Inc., for characterization testing to determine whether this petroleum-based substance was characteristic of specific materials such as roofing tar, road tar, etc. No such identification was found. In November 1994, this material was properly disposed of as a nonhazardous residual waste at a licensed landfill. The manifest documenting this disposal is provided in Appendix C.

5.6 Subsurface Soils

Sixteen shallow (less than 15 feet) subsurface soil borings (SB-1 through SB-16) and two 30-foot monitoring well borings (BHW-1 and BHW-2) were installed on the property between February 16 and 19, 1993. The drilling logs that document the materials encountered at each boring are provided in Appendix B. Samples collected from the soil boring program were analyzed using CLP methods as noted in the IRM work plan (E & E 1992). Only those materials appearing to be contaminated, showing above-background volatile levels via field screening (OVA), or as directed by the on-site NYSDEC representative were collected for laboratory analyses. Nine samples were collected: six from the soil borings, two from the monitoring well borings, and a duplicate. The results of these analyses are presented in Tables 5-1 and 5-2 for inorganic and organic analyses, respectively. The sample depths for each location are also given in these tables.

The soil concentrations of specific metals in the soil samples were compared to typical concentrations reported for soils of the eastern United States (Shacklette and Boerngen 1984). Comparison of inorganic values measured verses reported show that the soils from the site generally fall within the expected range (95th percentile) with only a few exceptions as noted below. The following samples exceeded 95th percentile values: sample PL-SB-9 for calcium, lead, magnesium, and zinc; sample PL-SB-10 for calcium, lead, mercury, and zinc; samples PL-SB-12 and PL-SB-12D (duplicate) for manganese; sample PL-BHW-1 for calcium; and sample PL-BH-2 for arsenic. Samples PL-SB-13 and PL-SB-16 did not exceed any of the 95th percentile values reported. Cadmium and silver do not have listed values in Shacklette and Boerngen, but the highest measured value for cadmium was 3.2 mg/kg in sample PL-SB-10. Silver was below detectable limits in all samples.

For the soil samples noted above, none of those metals detected above typical background concentrations poses a specific risk to either human health or the environment at

the concentrations found. Some metals, in fact, are essential nutrients to biological life. Cadmium is a noncarcinogenic element and is not considered a potential health threat to humans until concentrations reach 39 to 40 mg/kg, as per EPA risk-based calculations (EPA 1994; Federal Register 1990).

The measured values of PAH in the Phase 3 soil samples were compared to reported U.S. background concentrations for urban soil values (U.S. Public Health Service 1990). All compounds detected are typical of slag. Comparisons with the reported values found that all samples were below background for benzo(b)fluoranthene, benzo(ghi)perylene, benzo(k)fluoranthene, fluoranthene, indeno(1,2,3-cd)pyrene, and pyrene. Sample PL-SB-9 was the sample with the highest measured value of benzo(a)anthracene at 1,200 μg/kg. The reported background range for benzo(a)anthracene is 169 μg/kg to 59,000 μg/kg. Sample PL-BHW-2 was the only sample that did not exceed the background range of 165 μg/kg to 220 μg/kg for benzo(a)pyrene. The highest measured value for benzo(a)pyrene was shared by samples PL-SB-9 and PL-SB-12D at 940 μg/kg. Reported background values are not available for acenaphthene, acenaphthylene, anthracene, fluorene, or phenanthrene. The highest values reported for these compounds were 220 μg/kg (estimated) in sample PL-SB-12D for acenaphthene, 70 μg/kg (estimated) in sample PL-SB-9 for acenaphthylene, 720 μg/kg in sample PL-SB-9 for anthracene, 1,700 μg/kg (estimated) in sample PL-SB-12 for fluorene, and 3,000 μg/kg in sample PL-SB-9 for phenanthrene.

The results of the volatile compounds analyzed show only one measured value without a lab qualifier. Sample PL-BHW-1 showed 1,000 μg/kg of 1,2-dichlorobenzene. No other volatile contamination was found in the soil samples.

Other organic compounds analyzed have measured values of 88 μg/kg (estimated) in sample PL-SB-10 for bis(2-ethyl-hexyl)phthalate, a common lab contaminant (lab gloves); 240 μg/kg (estimated) in sample PL-SB-12 for diethylphthalate; 430 μg/kg in sample PL-SB-9 for naphthalene; 180 μg/kg (estimated) in sample PL-SB-9 for 2-methylnaphthalene; and 380 μg/kg in sample PL-SB-9 for dibenzofuran.

PCB analysis of soil samples detected only 0.12 mg/kg of Aroclor 1260 in soil sample PL-SB-9, which falls below the 1 mg/kg cleanup criteria. No other PCBs were detected in subsurface soil samples.

Pesticide analysis detected only three positive values; all other analyses were below the limits of detection. The values detected were 0.017 mg/kg (estimated) of 4,4'-DDT in sample PL-SB-12D; and 0.004 mg/kg for heptachlorepoxide and 0.02 mg/kg for aldrin, both in sample PL-BHW-1.

5.7 Groundwater

According to the IRM work plan, two potential monitoring well locations were drilled to a total depth of 30 feet. At location BHW-1, the boring was advanced into the natural clay formation and was subsequently found to be dry. For that reason, no well was installed at that location. At location BHW-2, the boring was advanced through 16 feet of dry foundry sand and slag fill to a layer of wet, black, rich organic sand and clay with gastropod shells and sand stringers. A 2-inch-diameter polyvinyl chloride (PVC) well (BHW-2) was installed and developed at this location. This well was constructed with a screen depth of 9.8 feet to 29.8 feet (see well construction diagram in Appendix B).

From this well, an unfiltered groundwater sample (PL-BHW-2) was collected on March 30, 1993, and analyzed for full TCL parameters (inorganics, cyanide, and organics). The results of the analyses of this sample are presented in Table 5-7. The physical attributes of the groundwater collected from this well describe the water as opaque and black in color. The water did not have any noticeable odor or display any kind of surface sheen. Organic chemical analyses for contaminants did not detect the presence of organic contaminants in the sample with the exception of two common laboratory contaminants, methylene chloride and acetone. Pyrene was also detected, but at a level well below the quantitation limit for that compound. No PCBs were detected in this groundwater sample.

Inorganic analyses indicated that many naturally occurring elements were present at detectable levels in this groundwater sample. As a means of comparison only, the concentrations of these elements in the sample were compared to the concentrations allowed by drinking water standards. Although this is an inappropriate comparison to make for regulatory purposes, the following elements were found in exceedence of drinking water standards: arsenic, cadmium, lead, aluminum, calcium, magnesium, potassium, sodium, iron, manganese, and zinc. Given the circumstances of the occurrence of this water, its physical appearance, and the absence of filtration, the occurrence of these metals at elevated concentrations are as should be expected, due to the obvious presence of suspended organic and inorganic components.

In summary, the water sampled from well BHW-2 appears to be very similar to a stagnant, organically acidic water typical of waters occurring in swamp and bog-like conditions. It is believed that the filling in and covering over of this former portion of the creek has created the stagnant condition that has resulted in the water quality described above. Because this water was not obtained from a legitimate, sustainable groundwater source, drinking water standards are not appropriate as regulatory standards in this case.

Furthermore, because neither deep nor shallow groundwater is used near the site (within a 3-mile radius, Engineering-Science 1989), it is believed that these levels do not pose a threat to public health.

Table 5-1

SUMMARY OF ANALYTICAL RESULTS OF PHASE 3 SOIL SAMPLES FOR METALS AND CYANIDE

(Results in mg/kg Dry Weight)

Analyte / Sample No. / Sample Date / Sample Depth:	PL-CC-1 2-16-93 (0-1.0 Ft.)	PL-CC-2 2-16-93 (0-1.0 Ft).	PL-SB-9 2-17-93 (1.9-2.7 Ft.)	PL-SB-10 2-18-93 (0-2.5 Ft.)	PL-SB-12 2-17-93 (1.4-4.1 Ft.)	PL-SB-12D 2-17-93 (1.4-4.1 Ft.)	PL-SB-13 2-18-93 (0-1.3 Ft.)	PL-SB-16 2-18-93 (1.7-3.2 Ft.)	PL-BHW-1 2-19-93 (0-5.0 Ft.)	PL-BH-2 2-19-93 (5.0-10.0 Ft.)
Aluminum	8,900	12,000	9,200	9,500	2,600	2,200	2,400	1,300	2,900	2,600
Antimony	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND UJ
Arsenic	3.6 J	3.7 J	3.4 J	5.1	2.7 J	2.9 J	1.2	ND	8.2	24
Barium	85	100	76	94	54	54	13	7.9	69	61
Beryllium	ND	0.75	1.6	ND	ND	ND	ND	ND	ND UJ	ND
Cadmium	2.2	2.8	2.0	3.2	2.2	2.8	0.97	ND	1.9	2.1
Calcium	51,000	62,000	85,000	25,000	12,000	4,500	1,400	730	40,000	1,200
Chromium	15	20	12	18	19	18	8.1	7.9	6.8	6.8
Cobalt	12	16	9.8	13	7.2	12	4.0	ND	6.2	8.3
Copper	21	23	67	30	33	48	20	7.8	24	32
Iron	18,000	24,000	12,000	25,000	22,000	32,000	10,000	1,300	17,000	22,000
Lead	9.0	11	140	61	17	38	2.6	4.5	14	12
Magnesium	15,000	14,000	21,000	8,200	690	630	540	79	940	550
Manganese	480	470	1,000	450	5,700	4,300	270	37	30	400
Mercury	ND	ND	ND	0.99	ND	ND	ND	ND	ND	ND
Nickel	23	31	15	25	16	21	9.5	ND	8.8 J[a]	12 J[a]
Potassium	1,000	1,400	1,100	1,100	230	200	360	200	220	500

Table 5-1

SUMMARY OF ANALYTICAL RESULTS OF PHASE 3 SOIL SAMPLES FOR METALS AND CYANIDE

(Results in mg/kg Dry Weight)

Analyte / Sample No. / Sample Date / Sample Depth:	PL-CC-1 2-16-93 (0-1.0 Ft.)	PL-CC-2 2-16-93 (0-1.0 Ft).	PL-SB-9 2-17-93 (1.9-2.7 Ft.)	PL-SB-10 2-18-93 (0-2.5 Ft.)	PL-SB-12 2-17-93 (1.4-4.1 Ft.)	PL-SB-12D 2-17-93 (1.4-4.1 Ft.)	PL-SB-13 2-18-93 (0-1.3 Ft.)	PL-SB-16 2-18-93 (1.7-3.2 Ft.)	PL-BHW-1 2-19-93 (0-5.0 Ft.)	PL-BH-2 2-19-93 (5.0-10.0 Ft.)
Selenium	ND UJ	ND UJ	ND UJ	ND	ND UJ	ND UJ	ND	ND	ND	ND
Silver	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Sodium	160	340	890	190	ND	ND	110	65	120	98
Thallium	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vanadium	20	26	11	23	11	8.2	7.3	3.3	15	9.7
Zinc	72	68	270	400	38	44	40	27	46	63
Cyanide	ND	ND	ND	ND	ND	ND	ND	ND	5.3	ND

Key:

J = Estimated result due to low matrix spike recovery.
UJ = Quantitation limit biased low due to low matrix spike recovery.
J^a = Estimated result due to a high relative percent difference in the laboratory duplicate.

Table 5-2

SUMMARY OF ANALYTICAL RESULTS OF PHASE 3 SOIL SAMPLES FOR ORGANIC ANALYSES

Analyte / Sample No. / Sample Date / Sample Depth:	PL-CC-1 2-16-93 (0-1.0 Ft.)	PL-CC-2 2-16-93 (0-1.0 Ft).	PL-SB-9 2-17-93 (1.9-2.7 Ft.)	PL-SB-10 2-18-93 (0-2.5 Ft.)	PL-SB-12 2-17-93 (1.4-4.1 Ft.)	PL-SB-12D 2-17-93 (1.4-4.1 Ft.)	PL-SB-13 2-18-93 (0-1.3 Ft.)	PL-SB-16 2-18-93 (1.7-3.2 Ft.)	PL-BHW-1 2-19-93 (0-5.0 Ft.)	PL-BHW-2 2-19-93 (5.0-10.0 Ft.)
Polycyclic Aromatic Hydrocarbons (PAHs) (Results in µg/kg Dry Weight)										
Acenaphthene	–	–	200 J	120 J	170 J	220 J	–	–	–	–
Acenaphthlyene	–	–	70 J	–	–	–	–	–	50 J	–
Anthracene	–	–	720	250 J	250 J	340 J	–	–	47 J	–
Benzo(a)anthracene	–	–	1,200	570	500	580	–	–	760	69 J
Benzo(a)pyrene	46 J	–	940	510	440	940	–	–	790	48 J
Benzo(b)fluoranthene	56 J	–	1,100	600	710	480	–	–	1,800	110 J
Benzo(g,h,i)perylene	–	–	420	360 J	340 J	230 J	–	–	320 J	38 J
Benzo(k)fluoranthene	–	–	580	430	–	330 J	–	–	210 J	–
Chrysene	46 J	–	1,100	580	490	530	44 J	67 J	1,200	87 J
Dibenzo(a,h)anthracene	–	–	200 J	120 J	89 J	100 J	–	–	170 J	–
Fluoranthene	120 J	–	2,700	1,400	1,100	1,300	92 J	69 J	720	160 J
Fluorene	–	–	680	120 J	1700 J	230 J	–	–	–	–
Indeno(1,2,3-cd)pyrene	44 J	–	590	350 J	340 J	280 J	–	–	390 J	41 J
Phenanthrene	49 J	–	3,000	1,200	1,100	1,400	85 J	100 J	130 J	210 J
Pyrene	95 J	–	2,300	1,100	780	900	59 J	63 J	940	120 J
Volatiles (Results in µg/kg Dry Weight)										
Acetone	–	–	44 B	4.0 B	7.5 B	8.2 B	–	7.1 B	5.4 B	5.6 B

Table 5-2

SUMMARY OF ANALYTICAL RESULTS OF PHASE 3 SOIL SAMPLES FOR ORGANIC ANALYSES

Analyte / Sample No. / Sample Date / Sample Depth:	PL-CC-1 2-16-93 (0-1.0 Ft.)	PL-CC-2 2-16-93 (0-1.0 Ft).	PL-SB-9 2-17-93 (1.9-2.7 Ft.)	PL-SB-10 2-18-93 (0-2.5 Ft.)	PL-SB-12 2-17-93 (1.4-4.1 Ft.)	PL-SB-12D 2-17-93 (1.4-4.1 Ft.)	PL-SB-13 2-18-93 (0-1.3 Ft.)	PL-SB-16 2-18-93 (1.7-3.2 Ft.)	PL-BHW-1 2-19-93 (0-5.0 Ft.)	PL-BHW-2 2-19-93 (5.0-10.0 Ft.)
Carbon disulfide	–	–	3.4 A	–	–	–	–	–	–	–
Methylene chloride	–	–	4.0 B	4.7 B	6.7 B	7.1 B	–	4.9 B	6.2 B	11.0 B
1,2-dichlorobenzene	–	–	–	–	–	–	–	–	1,000	–
Other Organics (Results in µg/kg Dry Weight)										
Bis(2-ethyl-hexyl)phthalate	78 B	160 B	75 B	88 J	56 B	71 B	45 J	41 J	72 B	60 B
Diethylphthalate	400	–	–	–	240 J	–	–	–	–	–
Naphthalene	–	–	430	96 J	63 J	76 J	–	45 J	120 J	63 J
2-methylnaphthalene	–	–	180 J	51 J	43 J	51 J	–	67 J	140 J	61 J
Dibenzofuran	–	–	380	120 J	110 J	160 J	–	–	58 J	
PCBs/Pesticides (Results in mg/kg Dry Weight)										
Aroclor 1260	–		0.12	–	–	–	–	–	–	–
4,4'-DDT	–		–	–	–	0.017 J	–	–	–	
Heptachlorepoxide	–		–	–	–	–	–	–	0.004	–
Aldrin	–		–	–	–	–	–		0.024	

Key:

A = Laboratory artifact; phenomenon of methodology with acid preservation.
B = Blank contamination.
J = Estimated result.

Table 5-3

SUMMARY OF ANALYTICAL RESULTS FOR PCBs IN THE OIL SPILL AREA
(Results are PCB Aroclor 1260 in mg/kg Dry Weight)

Sample Identification (Node Number)	Sample Depth (inches)		
	(0 to 8)	(8 to 16)	(16 to 24)
PL-SS-1	4.8	0.63	
PL-SS-2	2.3	0.22	
PL-SS-3	0.09		
PL-SS-4	100	13	3.9
PL-SS-5	91	1.7	
PL-SS-6	3.9	0.47	
PL-SS-7	0.81		
PL-SS-8	22	19	
PL-SS-9	3.8	0.63	
PL-SS-10	15	11	
PL-SS-11	24		
PL-SS-12	<0.02		
PL-SS-13	0.59		
PL-SS-14	3.8	0.61	
PL-SS-15	2.6	0.14	
PL-SS-16	2.7	5.3	
PL-SS-17	0.04		
PL-SS-18	0.15		
PL-SS-19	0.28		
PL-SS-20	0.08		
PL-SS-21	5.1	5.9	
PL-SS-22	6.6	1.3	
PL-SS-23	0.74		
PL-SS-24	0.17		
PL-SS-25	0.12		
PL-SS-26	3.1	0.25	
PL-SS-27	18	1.1	2.5
PL-SS-28	3.2	0.25	20

Table 5-3

SUMMARY OF ANALYTICAL RESULTS FOR PCBs IN THE OIL SPILL AREA
(Results are PCB Aroclor 1260 in mg/kg Dry Weight)

Sample Identification (Node Number)	Sample Depth (inches)		
	(0 to 8)	(8 to 16)	(16 to 24)
PL-SS-29	17	35	
PL-SS-30	0.30		
PL-SS-31		0.53	
PL-SS-32	0.14		
PL-SS-33	0.21		
PL-SS-34	1.1	1.2	1.2
PL-SS-35	3.1	1.0	2.2
PL-SS-36	2.7	ND	0.38
PL-SS-37	0.20		
PL-SS-38	4.2	2.5	1.1
PL-SS-39	0.91		
PL-SS-40	3.8	0.67	0.38
PL-SS-50	22		
PL-SS-51	1,200		
PL-SS-52	3.9		
PL-SS-53	27 (66 mg/kg of Aroclor 1248)		
PL-SS-54	9.2		
PL-SS-55	59		
PL-SS-56	24		
PL-SS-57	66		
PL-SS-58	37		
PL-SS-59	230		

Note: Blank areas indicate sample was either not collected or not analyzed.

Key:

ND = Not detected.

Table 5-4

SUMMARY OF PCB RESULTS FOR SURFACE SOILS BETWEEN THE OIL SPILL AREA AND SCAJAQUADA CREEK

Study	Sample Identification	Analytical Parameter	Sample Result (mg/kg dry weight)
NYSDEC: July 26, 1994	SS-1	PCB (all Aroclors)	<0.040 J
	SS-2	PCB (all Aroclors)	<0.037 J
	SS3	PCB Aroclor 1260	1.2 J
E & E: October 11, 1994	SF-SS-201	PCB Aroclor 1260	0.074 J
	SF-SS-202	PCB Aroclor 1260	0.21 J
	SF-SS-203	PCB Aroclor 1260	0.13 J
	SF-SS-204	PCB Aroclor 1260	0.22 J
	SF-SS-205	PCB Aroclor 1260	0.54 J
	SF-SS-206	PCB Aroclor 1260	0.64 J

Key:

J = Analytical result qualifier indicates that the value is below the quantitation limit and is estimated.
PCB = Polychlorinated biphenyls.

Table 5-5

ANALYTICAL RESULTS FOR THE MACHINE TOOL/HAMMER PIT

Sample Number: PL-HP-1
Sample Date: 2/16/93

Analytical Parameter	Analytical Result	Units
Percent solids	87	%
TRPH	2,400	mg/kg
Cadmium	2.6	mg/kg
Chromium (total)	22	mg/kg
Iron	16,000	mg/kg
Lead	30	mg/kg

Key:

TRPH = Total recoverable petroleum hydrocarbons.

Table 5-6

ANALYTICAL RESULTS FOR THE PAINT VAT SAMPLE

Sample Number: PL-PV-1
Sample Date: 2/16/93

Analytical Parameter	Analytical Result	RCRA Regulatory Level	Analytical Units
TCLP - Mercury	0.020	0.20	mg/L
TCLP - Arsenic	0.50	5.0	mg/L
TCLP - Barium	5.0	100	mg/L
TCLP - Cadmium	0.10	1.0	mg/L
TCLP - Chromium	0.50	5.0	mg/L
TCLP - Lead	0.50	5.0	mg/L
TCLP - Selenium	0.50	1.0	mg/L
TCLP - Silver	0.50	5.0	mg/L
Cyanide reactivity	NR	(Insoluble in water)	NA
Total cyanide	ND	NA	mg/kg
Total sulfide	260	NA	mg/kg
Ignitability	144	<140	Degrees Fahrenheit

Key:

NA = Not applicable.
ND = Not detected.
NR = Not reported.
TCLP = Toxicity Characteristic Leaching Procedure.

Table 5-7

ANALYTICAL RESULTS FOR GROUNDWATER MONITORING WELL PL-BHW-2

Analytical Parameter	Analytical Result (µg/L)	Qualifier
Metals		
Arsenic	32	
Antimony	ND	
Zinc	1,300	
Cadmium	13	
Cobalt	80	
Nickel	120	
Manganese	2,400	
Iron	180,000	
Chromium	100	
Vanadium	130	
Beryllium	ND	
Calcium	160,000	
Copper	900	
Silver	ND	
Magnesium	52,000	
Aluminum	32,000	
Barium	420	
Sodium	62,000	
Potassium	19,000	
Lead	220	
Selenium	ND	
Thallium	ND	
Mercury	0.53	
Volatile Organics		
Methylene chloride	1.0	J
Acetone	5.8	J
Base Neutral/Acid Phenolics		
Pyrene	2.5	J
Pesticides and PCBs		
None detected		

Key:

J = Estimated value.
ND = Not detected.

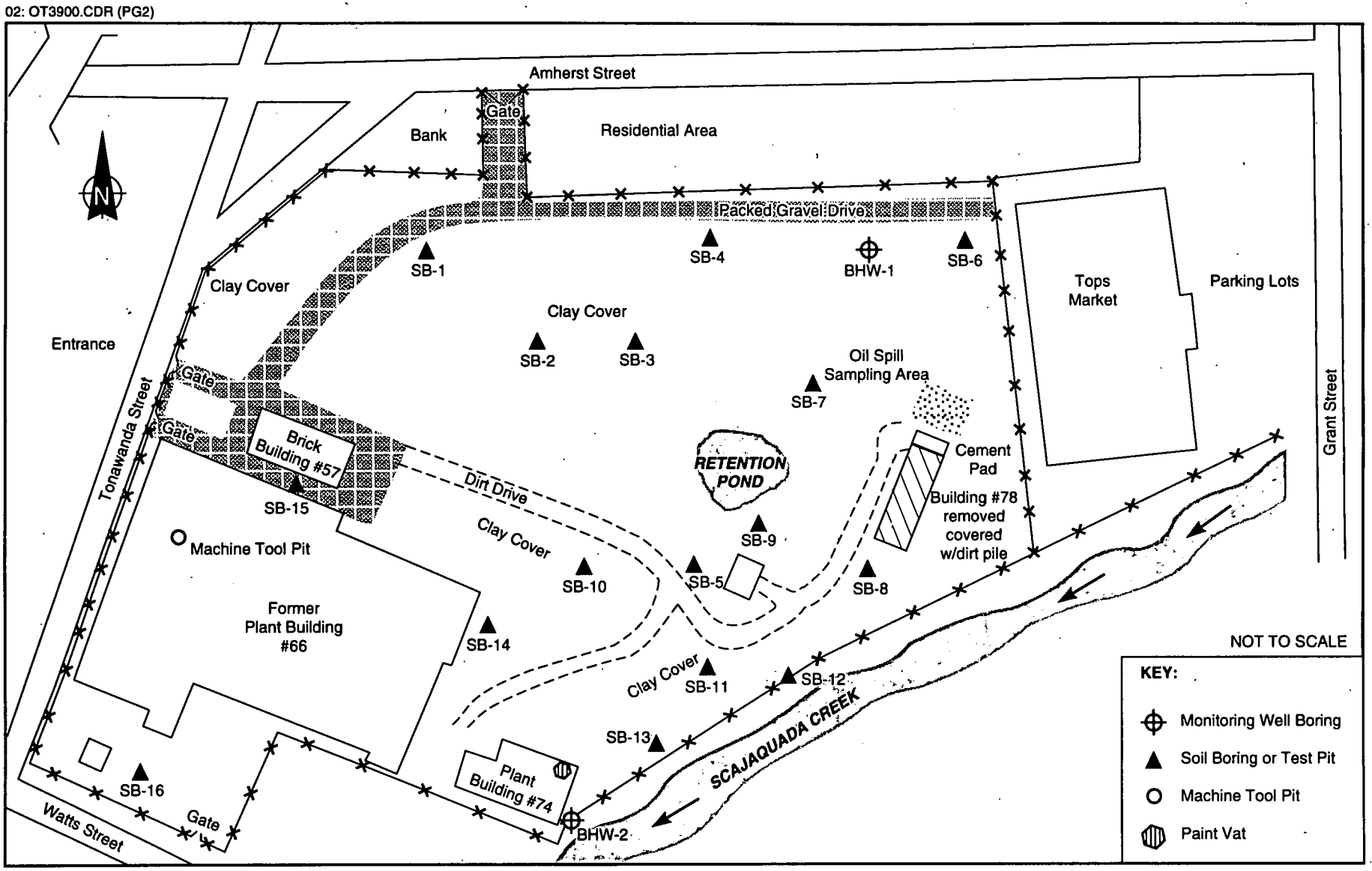


Figure 5-1 SAMPLE LOCATION MAP, PRATT AND LETCHWORTH, BUFFALO, NEW YORK

02:OT3900_2.CDR

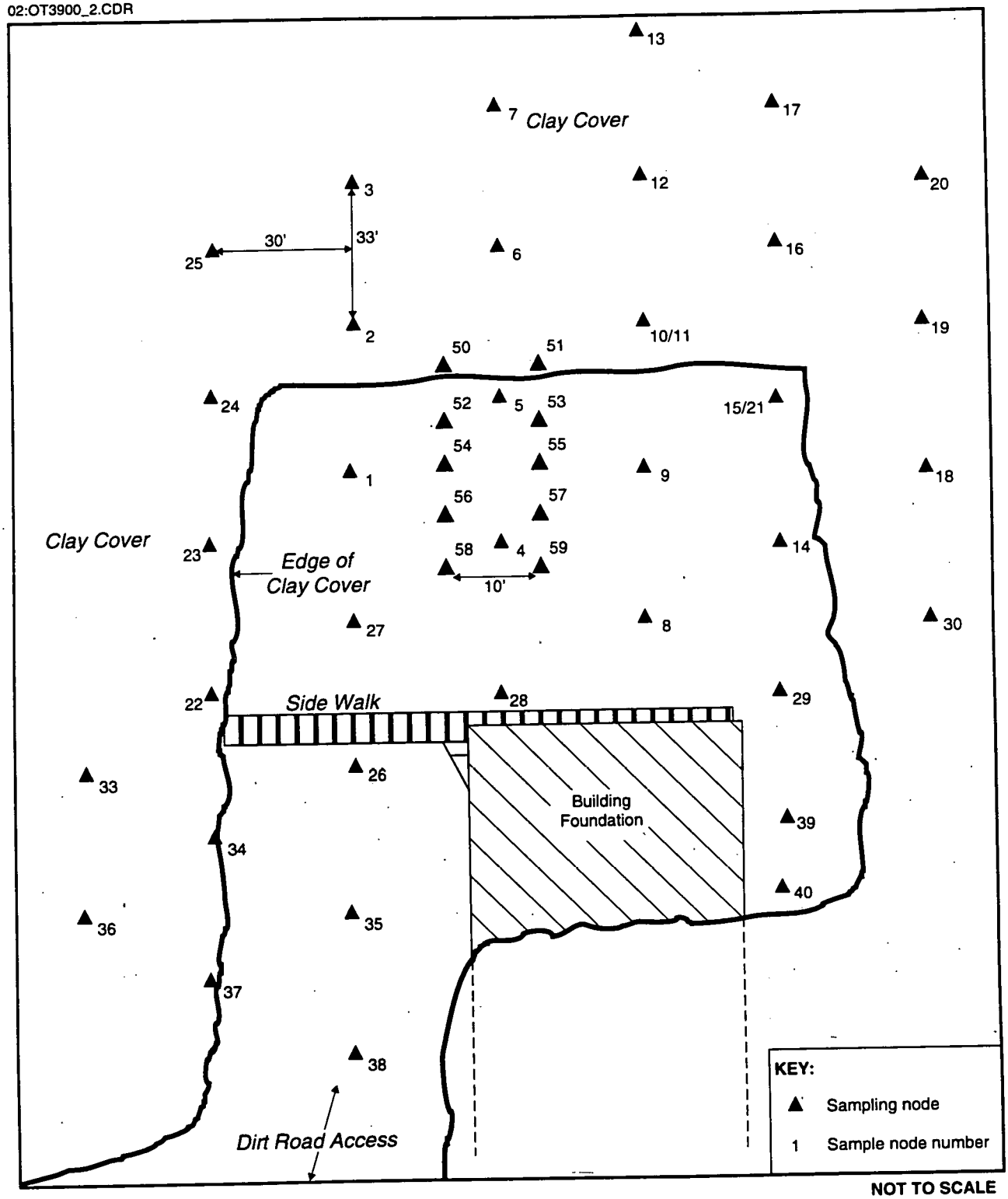
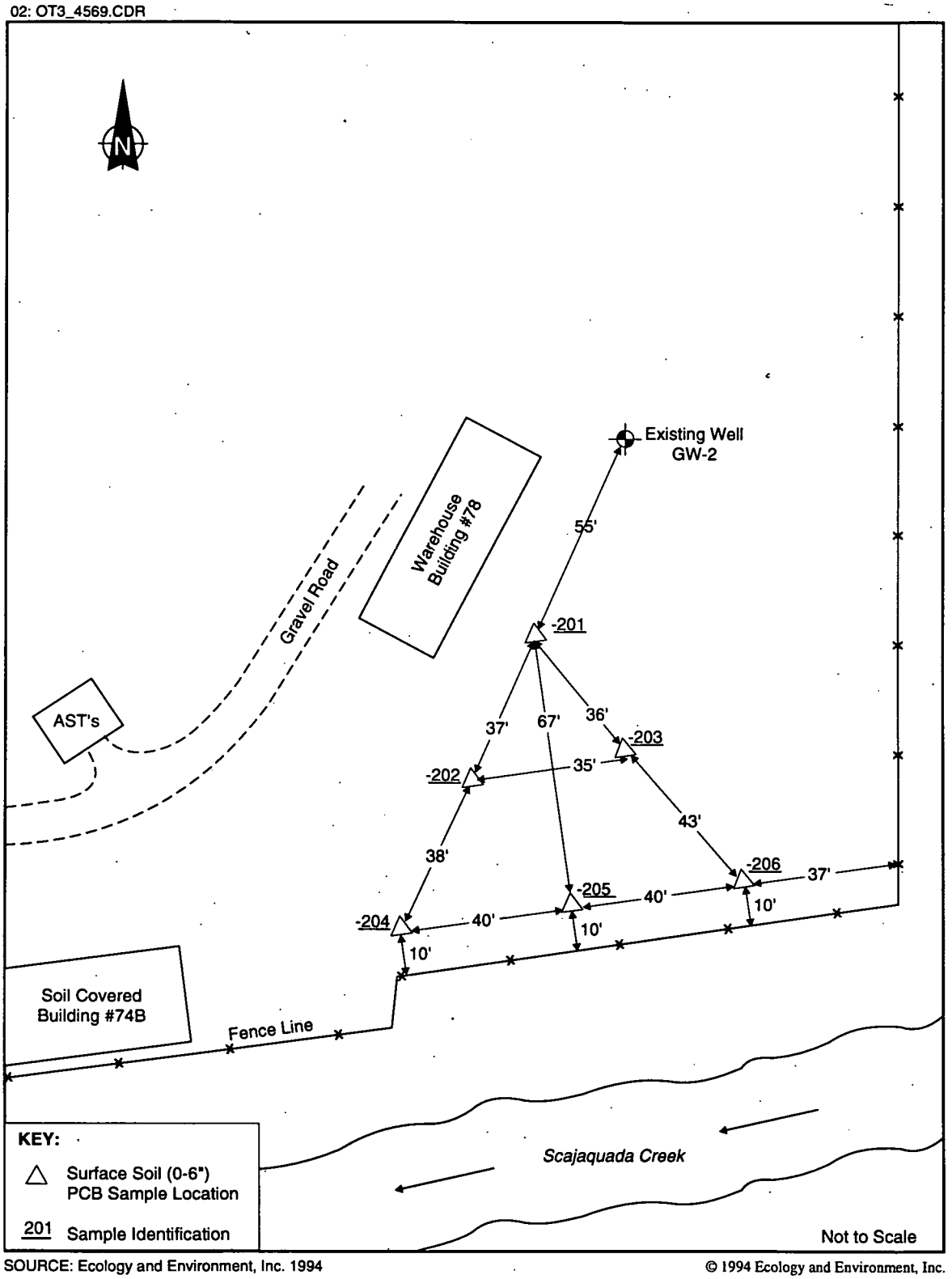


Figure 5-2 **SOIL SAMPLING LOCATIONS FOR PCBs IN THE OIL SPILL AREA**



SOURCE: Ecology and Environment, Inc. 1994

Figure 5-3 ADDITIONAL PCB SAMPLE LOCATIONS FOR SURFACE SOILS

6 Remediation Contractor's Report and Closure Certification

Beginning in September 13, 1993, remediation of PCB-contaminated soils in the oil spill area was initiated by the remediation contractor, ISI. Excavation and staging began with those soils shown to contain PCBs at concentrations greater than 50 ppm. Excavation, transportation, and disposal of all contaminated soils with a concentration greater than 1 ppm PCB was completed by February 23, 1994. At that time, a total of 48.7 tons of PCB-contaminated waste material and 933.69 tons of material having a PCB concentration less than 50 ppm had been removed from the approximately 14,000-square-foot oil spill area (ISI 1994).

According to the ISI closure report and the oversight provided by NYSDEC, all soil remediation activities were conducted in accordance with the NYSDEC-approved IRM work plan, as well as applicable state and federal transportation and disposal regulations. Soil sampling was performed throughout the remedial activities, and confirmation sample results are provided in the closure report. In addition, air monitoring and sampling was performed throughout all intrusive work activities to monitor whether contaminants were becoming airborne, contaminating adjacent areas, and presenting a health hazard.

As presented in the closure report, all final confirmation samples indicated that PCB-contaminated soils in the oil spill area have been removed to a level less than 1 ppm. Air monitoring results also show that no airborne contaminants caused further distribution of PCBs. Additional details of these remedial activities are available in the ISI closure report (ISI 1994).

7 Conclusions and Recommendations

This section presents E & E's conclusions and recommendations, including those for the two unresolved issues from the original environmental site audit, based upon the completed IRM program.

The 25.8-acre Pratt and Letchworth site and former industrial property was originally added to the New York State Registry of Inactive Hazardous Waste Sites as a result of the landfilling of solid wastes on the property and the presence of product and waste drums, some of which had been leaking (NYSDEC Right-to-Know). Since that time, a number of investigations have taken place to define the presence or absence of contaminants at the site. These investigations have been summarized by reports issued by Bowser-Morner (1982), NUS Corporation (1988), E & E (1989, 1992), and NYSDEC (1993).

Through these previous investigations, a number of areas of concern at the site have been addressed. Investigation results and remedial activities documented in this and the ISI Closure Report have addressed all remaining areas of potential environmental and public health concern with respect to the Pratt and Letchworth site. Specifically, these areas of concern include the clay cover, the oil spill area, machine tool/hammer pit fill material, paint vat material, surface soils, subsurface soils, shallow groundwater, and Scajaquada Creek sediments. With respect to each of these areas, the contaminants of concern have either been removed and properly disposed of, or remain on site but do not individually or cumulatively present a significant threat to public health or the environment. E & E's conclusions regarding these areas are detailed below.

Clay Cover

The clay soil that was brought to the site to be used as a regrading and cover material was tested for the full TCL parameters. No contaminants were found to be present at levels that would pose a threat to human health or the environment; therefore, no action is

recommended. (Again, cadmium levels, which were detected at 2.2 mg/kg and 2.8 mg/kg in the clays, are not considered a potential threat to humans until greater than 40 mg/kg [EPA Region III July 11, 1994].)

Oil Spill Area

Shallow surface soil contamination by PCBs was delineated, excavated, and properly disposed of. Post-excavation confirmation samples show that remaining PCB concentrations are less than 1 mg/kg. No further action is recommended.

Machine Tool/Hammer Pit Fill Material

According to the analytical sample results for soil presented in this report, no significant threat exists from this area. It is recommended that any fluids or materials leaking from vehicles or equipment stored in Building No. 66 should be contained to prevent contamination of surface materials.

Paint Vat Material

Analytical and qualitative testing of this material identified it as petroleum-based tar. There is no evidence that this material has been released to the environment. This material was therefore properly disposed of at a licensed facility. Documentation for this disposal is provided on page C-20 of Appendix C.

Subsurface Soils

From a total of 18 soil borings installed during the IRM program, a total of nine samples and a duplicate sample were collected and analyzed. These results indicate the presence of low-level contamination typical of an industrial property. Based on these results, E & E has determined that no significant threat to public health or the environment is presented by subsurface soils. No further action is recommended.

Groundwater

Through the installation of soil boring PL-BHW-1, it was demonstrated that shallow groundwater does not exist over much of this site except in the immediate vicinity of Scajaquada Creek. The thick (more than 70 feet) underlying clay unit generally prevents the infiltration of recharge below the level of the overlying fill material. Therefore, only

transient or perched groundwater may be present at the clay/fill interface. A sample of this water was obtained from well BHW-2 and tested for the full TCL parameters. This highly turbid sample was submitted for testing as a natural, unfiltered sample as required by the approved work plan. As a result of sample turbidity, laboratory testing indicated that the concentrations of suspended and dissolved metals in the water sample exceed the levels permitted by New York State drinking water standards. It has been shown, however, that this sample was not obtained from a viable groundwater drinking water source and it is not appropriate to compare this sample's water quality to drinking water standards.

Given the nature and occurrence of the water obtained from well BHW-2 as described in Sections 5.6 and 5.7, the exceedances of drinking water standards for metals concentrations do not constitute a threat to human health or the environment in this case. PCBs, which have been shown to be the primary contaminant on site, were not detectable in this shallow groundwater sample. Finally, as documented by Engineering-Science (1989), groundwater from either shallow or deeper sources is not used as a drinking water resource within a 3-mile radius of the site.

In the absence of any further study or investigation, it is recommended that this well should be properly removed and abandoned.

Scajaquada Creek Sediments

Recent studies of Scajaquada Creek sediments indicate that levels of PCBs persist at concentrations of 1 to 3 ppm in the areas next to and downgradient of the Pratt and Letchworth site (NYSDEC 1993). Although evidence provided by the Niagara River Toxics Committee reports indicates there are a number of other potential sources of PCBs to the creek, the distribution of PCB contamination in surface soils at the site indicates that the site may have contributed, by overland transport, to the contamination of creek sediments by PCB Aroclor 1260 (see Sections 4.2 and 5.3). Given that potential sources for PCBs at the site have been remediated to within the cleanup levels and that other potential sources for contamination may have existed, E & E agrees with the Engineering-Science (1989) report that concentrations of PCBs in the creek sediments exist at levels well below those at which remedial action is usually required. Should remedial action be considered, however, the total impact of this action in the environment should be considered relative to the threat posed by PCBs at the observed concentrations.

This site is in an industrial area, and some residual contamination should therefore be expected. Institutional and land use controls should be a preferred means of control to

minimize the disturbance and impact of existing environmental contamination. For this reason, no further action is recommended for Scajaquada Creek sediments.

Additional Issues from the Environmental Site Audit (Appendix A)

Transformers. Those transformers remaining on the former industrial site property are currently in use and in compliance with applicable regulations. As given in the environmental site audit (see Appendix A), decommissioned transformers from the property have been removed. Surface and subsurface soil investigations conducted during the IRM program in the areas of the current and former transformers did not indicate the presence of residual contamination from these potential sources. No further action is recommended.

Aboveground Storage Tanks. As recommended by the environmental site audit, the four 20,000-gallon storage tanks have been registered with NYSDEC. A copy of this registration is included on page C-21 of Appendix C. The current recommendation is that the site owners maintain compliance with state regulations (NYCRR Part 613) for these tanks as required under their current registration.

Summary

Based on available information, E & E has determined that the PCB-contaminated soils that provided the basis for listing the Pratt and Letchworth site on the New York State Registry of Inactive Hazardous Waste Disposal Sites have been removed and no longer present a significant threat to public health and the environment. E & E has also determined that none of the other areas of concern investigated during this study constitutes a significant threat to public health or the environment. It is recommended, therefore, that NYSDEC delist this site from the Registry of Inactive Hazardous Waste Sites.

8 References

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A Environmental Audit Report

ecology and environment, inc.
BUFFALO CORPORATE CENTER
368 PLEASANTVIEW DRIVE, LANCASTER, NEW YORK 14086, TEL. 716/684-8060
International Specialists in the Environment

January 27, 1992

Mr. Robert Elia
Gateway Development Associates, Ltd.
Porter Ave. and Fourth Street
Buffalo, New York 14201

Re: Pratt and Letchworth Audit Summary

Dear Mr. Elia:

Ecology and Environment, Inc. (E & E) and 189 Tonawanda Street Corporation entered into an agreement in October 1990 (The Agreement) under which E & E would perform an environmental audit at the former Pratt and Letchworth facility (herein after the "property") at 189 Tonawanda Street, Buffalo, New York (see attached figure). The scope of services, constraints, and liabilities in connection with this service was defined in the Agreement.

Since that time, the progress on this project has been fragmented resulting in a subsequent modification of the Agreement in October of 1991 with respect to the audit report. This letter report will constitute the summary of the results of the environmental audit conducted by E & E since March 1991 and is intended to satisfy E & E's obligation to provide an audit report.

This environmental audit and its results are solely for the use of 189 Tonawanda Street Corporation. Without prior consent of E & E, this document may not be quoted in whole or in part or otherwise referenced or relied upon by any person or entity.

The objectives of the audit were to identify any known or potential items not in compliance with applicable local, state, or federal laws and regulations. Areas of known noncompliance will reference the applicable statutes that apply. This audit report also discusses other areas of potential environmental liability identified during the audit and how they relate to pending environmental investigations.

Background -

In March 1990, E & E personnel Barbara Topor and Scott Thorsell initiated an environmental audit of the property and facilities located at 189 Tonawanda Street. Information sources utilized in the

performance of this audit consisted of files provided by 189 Tonawanda Street Corporation, NYSDEC files accessible through the Freedom of Information Act, interviews with NYSDEC and site representatives, and site walk over inspections conducted on March 20 and 22, 1991.

The audited property covers approximately 25 acres between Tonawanda Street and the Scajaquada Creek and contains facilities, some of which were initially constructed in the middle 1800s, for the purpose of manufacturing iron products. A small steel manufacturing process was added in the late 1800s. The facility produced iron and steel until 1981 when all production operations were terminated. According to facility records provided by 189 Tonawanda Street Corporation, previous owners of the site include: Buffalo Malleable Iron Works (1800-1860), Pratt and Letchworth (1860-1923), Dayton Malleable Iron Company (1923-1981), and AMCAST Industries (1981-1988). The site has been inactive since 1981 except for the demolition of several buildings and the use of the property by the City of Buffalo for the storage of impounded vehicles.

Agency File Information -

Information contained in NYSDEC files reviewed by E & E indicates that industrial waste surveys of the facility were performed in the late 1960's and the early 1970s by Dayton Malleable Iron Company (DMI) for the Buffalo Sewer Authority. Concurrent with these surveys of the facility's process and wastes, government regulatory agencies began to identify environmental concerns. In the 1970's USEPA, NYSDEC and NYSDOH began to develop information regarding waste handling and disposal practices engaged in at the P & L facilities. Also, in the 1970's, regular facility inspections were initiated by NYSDEC with regard to SPDES wastewater discharge permits issued by them. These inspections, and an industrial chemical survey prepared by DMI and submittal to the NYSDEC in 1979, eventually resulted in greater scrutiny by NYSDEC of the handling, storage and disposal of industrial products and wastes on the property.

Site inspections by NYSDEC in the 1980s noted approximately 70 to 100 drums suspected of containing various oils, lubricants and chemicals stored on the property just west of the landfill and northeast of the warehouse (Building 78 and 78A [see site plan attached as Figure 1]). Some of these drums were observed to have been leaking. In response to this situation and the existence of nearby landfilled waste materials, primarily foundry sand and slag, NYSDEC officials placed the property on the registry of sites suspected of containing improperly disposed of hazardous materials. (Site registration number 915045, Classification Code 2A.)

As a result of this classification and the known waste disposal practices, numerous environmental investigations, studies and remedial activities have been conducted on the property. These include the following: Bowser-Morner soil/sediment investigation (1982), N.U.S.

soil/sediment investigation (1986), Engineering-Science Phase II (3rd round) Investigation and Evaluation of an Inactive Hazardous Waste Disposal Site (1986) and E & E Investigations (1988 and 1989) on behalf of TOPS markets.

Based on these studies, on-site waste disposal was eventually documented and in 1989 the property was reclassified to a Class 2 site (significant threat to the public health or environment-action required). The primary case for this reclassification was the presence of PCBs at greater than 50 mg/kg in some on-site soils. The area which had contained the leaking drums and which contains the PCB contaminated soils is referred to as the oil spill area on Figure 1.

A review of both client and NYSDEC records performed during this audit indicates that the solid wastes generated by the facility consisted primarily of foundry sand, slag and assorted municipal and industrial wastes (i.e., paper, wood, scrap, etc.). The records reviewed, however, are largely incomplete. Locations known to have received large amounts of the industrial wastes include the Squaw Island landfill, Land Reclamation - Tonawanda Landfill, and a 2.5 to 3 acre section in the northeast corner of the original property. Most of that portion of the property has since been sold and is now occupied by a recently opened TOPS Supermarket. Several of the above referenced environmental investigations were conducted primarily on this portion of the property which has since been remediated to the satisfaction of the NYSDEC and delisted from the state's registry of inactive hazardous waste sites. Only a small portion of the landfill still exists on the remaining property.

Summary of Potential Liabilities -

Based upon documents reviewed, information provided by persons involved with the site, previous site investigation reports, and E & E's experience, the following items have been identified as potential environmental liabilities associated with the property.

- Aboveground Storage Tanks (ASTs): Four, 20,000 gallon ASTs which have stored and may still contain #4 and #2 fuel oils used for consumption on the premises are located on the property. The tanks are surrounded with concrete secondary containment walls and are covered. NYSDEC petroleum bulk storage regulations (6 NYCRR Part 612, 613, and 614) are applicable to these ASTs since their total storage capacity is greater than 1,100 gallons. These regulations specify requirements for registration, handling and storage procedures, and closure requirements.
  E & E recommends that to be in compliance with these regulations the NYSDEC division of water be notified of the existence of these tanks and that appropriate actions for the maintenance and registration of these tanks be initiated. In addition, federal

regulations promulgated pursuant to the Clean Water Act require facilities with aboveground petroleum storage tank capacity greater than 1,100 gallons prepare Spill Prevention Counter Measure and Control (SPPC) plans.

- Underground Storage Tanks (USTs): According to the 189 Tonawanda Street Corporation files provided to E & E, two USTs existed on site until their removal in 1989. Two tank removal reports and invoices by C.A. Batt Construction, Corporation, Niagara Tank and Pump Division, indicate that a 2,000-gallon gasoline tank and a 15,000-gallon waste oil tank were removed on October 13, 1989 and June 1, 1989 respectively. The soils surrounding each tank were visually inspected and found to be without evidence of leakage for both tanks. No files are known to exist at NYSDEC with respect to registration or removal of these UST's.
  E & E recommends no action with regard to USTs.

- Polychlorinated Biphenyls (PCBs):

  Soils - surface soil investigations conducted on the property have indicated the presence of PCBs in an area northeast of the former warehouse (Building 78). This area was known to have been used for temporary on-site storage of drums containing chemical product and/or wastes and according to NYSDEC records, some of these drums had leaked. E & E recommends the development and implementation of an NYSDEC approved interim remedial measures plan to test, remove and properly dispose of PCB contaminated soils. Such a plan is currently under development by E & E for 189 Tonawanda Street Corp.

  Electrical Transformers - three oil insulated electrical transformers, owned by 189 Tonawanda Street Corp. were noted on the property. All are believed to have been inspected and maintained such that no PCB containing oils exist in these units. E & E recommends that 189 Tonawanda Street Corporation verify proper inspection, testing and labeling of these transformers. If verification can not be accomplished based on available records, sampling of the contents of these transformers for PCBs may be appropriate.

- Asbestos Containing Material (ACM): A review of documents provided by 189 Tonawanda Street Corporation indicates that asbestos inspection and abatement activities were performed in 1989 by Smith Pierce Associates, Inc. (SPAI). The documentation reviewed, however, was incomplete. There remains some question as to whether all ACM was completely removed or shown to not exist in facilities remaining on the property. Through a Freedom of Information request to the State Department of Labor, there

was found to be no records on file relative to the inspection or abatement of ACM on the property. E & E recommends that verification of the absence of ACM be made prior to any destruction or renovation of the remaining buildings.

- Off Site Disposal: Numerous product and/or waste chemical drums were known to have been temporarily stored on-site in the oil spill area until the middle 1980's when they were removed for disposal. According to facility records, some of these drums were labeled as containing chemical solvents, degreasers, and sand mold binding products. Other drums may have contained oil or chemical wastes. No documentation of proper disposal was noted during E & E's investigations.

  E & E recommends that any available documentation with respect to the disposal of hazardous materials be organized and maintained in case questions arise in the future concerning past off-site waste disposal practices. It is, however, unlikely that 189 Tonawanda Street Corporation would assume any liability for off-site waste disposal by a previous owner.

- Solid or Hazardous Waste: The Paint Dip Tank located in building #74 is believed to contain paint residue which for the purposes of disposal, has the potential to be considered a hazardous waste. Until identified as non-hazardous solid waste, the contents of this tank may be considered an environmental liability. No other potentially hazardous wastes were identified during the site visit. E & E recommends testing the contents of this tank to categorize the material for disposal purposes and that some provisions for disposal be developed as soon as possible. Testing of the contents of this dip tank is included under E & E's proposed Interim Remedial Work Plan currently being developed for 189 Tonawanda Street Corp.

- Solid wastes remaining from the on-site landfill and existing on the current property are believed to be the same as those found on the adjacent TOPS property and were determined to be non-hazardous. The primary remedial action for those landfilled wastes at the TOPS property involved paving the area and eliminating exposure of the public to these wastes. It should be noted, however, that this type of limited remediation presumes the presence of non-hazardous solid waste. E & E recommends testing of this material to better determine whether a similar remedial program would be viable at the property in question.

- Waste Water Discharge Permits (SPDES): Three waste water outfalls were permitted by NYSDEC between 1971 and 1985. While plant operations essentially ceased in 1981, it wasn't until 1985 that the acting plant engineer filed to have the permit canceled. Currently, these outfall pipes are dry and have actually been cut by an access road near the creek behind building #74.

A review of NYSDEC records indicated numerous violations had occurred with respect to SPDES discharge limits for oil and grease. Through periodic discharge monitoring reports (DMRs) NYSDEC was aware of these violations and at the time apparently worked with the plant engineer/manager to eliminate these violations. In 1976 an error in the discharge system caused a significant amount of oil to be discharged to the creek. Responding to this spill were Dayton Mallable personnel, the U.S. Coast Guard and the Elmwood Tank Company. Subsequent testing of Scajaquada Creek sediments and waters indicate that no remediation related to this spill or previous SPDES permit violations is likely to be required by the NYSDEC. Although 189 Tonawanda Street Corporation should be aware of this potential liability, E & E recommends no action with regard to previous waste water discharges.

- Recent regulations promulgated by EPA require that stormwater discharges from certain industrial facilities be permitted by October 1, 1992. It is recommended that Tonawanda Street Corp. determine whether these requirements apply to this facility and take appropriate actions for compliance if necessary.

- Air Emissions: No information was available regarding air emissions either before or after the termination of facility operations in 1981. No current air emission sources have been identified on the property. There does not appear to be any potential environmental liability with regard to air emissions and therefore, no action is recommended.

If you have any questions or concerns regarding the recommendations or content of this audit please contact me at 716/684-8060.

Sincerely,

ECOLOGY AND ENVIRONMENT, INC.

G. Scott Thorsell
Project Manager

GST/wf
0T3040
[ENV]3221

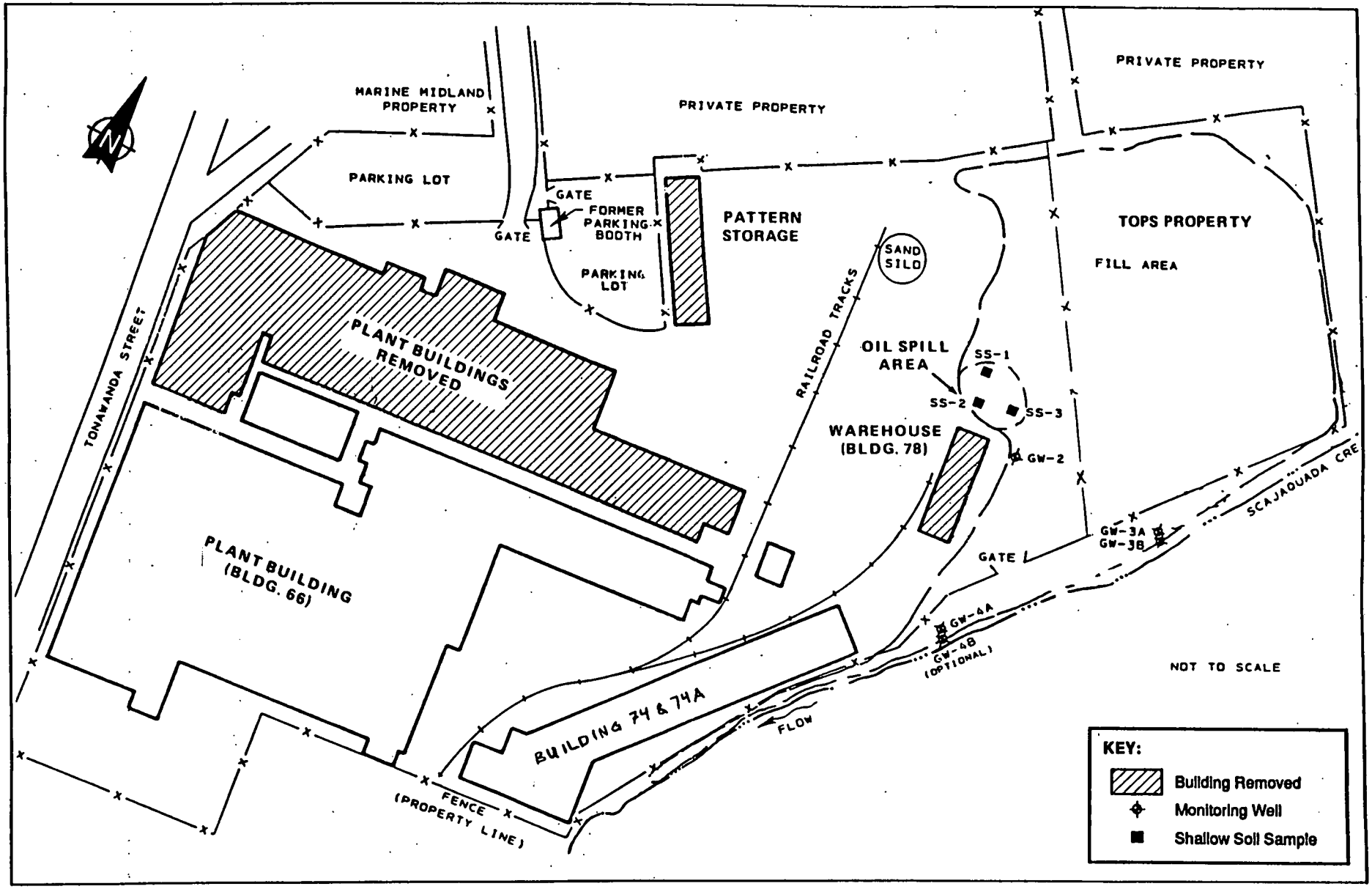


Figure -1
SITE PLAN OF PRATT & LETCHWORTH

B Subsurface Boring Logs and Well Diagram

FIELD BOREHOLE LOG

PROJECT NAME: Pratt + Lotchworth | SURFACE ELEV.: | BOREHOLE NO.: SB-1

PROJECT NO.: OT3070 | REFERENCE ELEV.: | DATE STARTED: 2/16/93

CLIENT: | CONTRACTOR: E+E | DATE FINISHED: 2/16/93

LOCATION: | LOGGED BY: J. Peck | METHOD OF BORING: H.S.A. 3¼" I.D.

DEPTH (BGS)	SAMPLE NO.	SAMPLE TYPE	BLOWS (6")	REC. (")	SOIL CLASSIFICATION	DESCRIPTION AND REMARKS Density/Consistency, Color, Plasticity, Soil Types, Texture, Fabric, Bedding, Moisture, Other Characteristics	SAMPLES	MOISTURE (%)	PENETROMETER	HNu (ppm) PID
					CL	Begin 12:03 0 - 0.4' Med. Brown clay & slag dense, tight, cohesive				0
					SLAG	0.4 - 3.0' Med. Dark gray - black slag dry & loose				↓
						PL-SB-1 ←		12:	28	*
					CLAY	3.0 - 10.0' Pale Reddish Brown Clay dense, moist & cohesive no lamination (Native Clay)				
						* Sample collected From slag just above native clay ~2.5 Ft BGS				
						Bottom of boring = 10.0' BGS				

FIELD BOREHOLE LOG

PROJECT NAME: Pratt & Letchworth
PROJECT NO.: OT-3070
CLIENT: _____
LOCATION: _____

SURFACE ELEV.: _____
REFERENCE ELEV.: _____
CONTRACTOR: E&E
LOGGED BY: J. Peck

BOREHOLE NO.: SB-2
DATE STARTED: 2/16/93
DATE FINISHED: 2/16/93
METHOD OF BORING: 4¼" I.D. H.S.A.

DEPTH (BGS)	SAMPLE NO.	SAMPLE TYPE	BLOWS (6")	REC. (")	SOIL CLASSIFICATION	DESCRIPTION AND REMARKS Density/Consistency, Color, Plasticity, Soil Types, Texture, Fabric, Bedding, Moisture, Other Characteristics	SAMPLES	MOISTURE (%)	PENETROMETER	HNu (ppm) PID
0					↓	Begin 13:25 0-3.5' Dark Brown clay w/ red brick Fragments, slag, debris & pebbles up to 1.5". Moist, dense, cohesive & plastic				0 ↓
					C					
2					L					
					A					
					Y	PL-SB-2 ←→	*	13:35		
						3.5-5.0' Pale reddish-brown clay Moist, dense, cohesive & plastic.				
4										
5					↑	No slag or debris (Native Clay)				
						Bottom of boring = 5.0' BGS				

FIELD BOREHOLE LOG

PROJECT NAME: Ratt & Letchworth | SURFACE ELEV.: _____ | BOREHOLE NO.: SB-3

PROJECT NO.: OT-3070 | REFERENCE ELEV.: _____ | DATE STARTED: 2/17/93

CLIENT: _____ | CONTRACTOR: E+E | DATE FINISHED: 2/17/93

LOCATION: _____ | LOGGED BY: J. Peck | METHOD OF BORING: 4¼" I.D. HSA

Begin 9:33

R = 2.8

DEPTH (BGS)	SAMPLE NO.	SAMPLE TYPE	BLOWS (6")	REC. (")	SOIL CLASSIFICATION	DESCRIPTION AND REMARKS (Density/Consistency, Color, Plasticity, Soil Types, Texture, Fabric, Bedding, Moisture, Other Characteristics)	SAMPLES	MOISTURE (%)	PENETROMETER	HNu (ppm) PID
0					CL	0-0.8 Med Brown Clay w/ slag, debris moist, dense cohesive				0
						0.8-1.4 Concrete aggregate slab PL-SB-3		09:45		
2						1.4-2.0 Reddish-Orange (rust) slag loose, wet				
						2.0-2.8 Med Olive-gray clay w/ roots & organic debris. Moist, dense cohesive				
4						2.8-3.4 Pale reddish-brown clay moist, dense, cohesive (Native clay)				
						Bottom of boring = 5.0' BGS				
						Sample collected from concrete aggregate at 0.8-1.4 as per Walia.				

FIELD BOREHOLE LOG

PROJECT NAME: Pratt Letchworth
PROJECT NO.: OT 3070
CLIENT:
LOCATION:

SURFACE ELEV.:
REFERENCE ELEV.:
CONTRACTOR: E+E
LOGGED BY: J. Peck

BOREHOLE NO.: SB-4
DATE STARTED: 2/16/93
DATE FINISHED: 2/16/93
METHOD OF BORING: 3¼" I.D. HSA.

R = 1.9

DEPTH (BGS)	SAMPLE NO.	SAMPLE TYPE	BLOWS (6")	REC. (")	SOIL CLASSIFICATION	DESCRIPTION AND REMARKS (Density/Consistency, Color, Plasticity, Soil Types, Texture, Fabric, Bedding, Moisture, Other Characteristics)	SAMPLES	MOISTURE (%)	PENETROMETER	HNu (ppm)
0					SAG	0.0-0.6 Dark brown slag, loose-moist				0
					SAG	0.6-1.3 Grayish-brown slag, loose-moist				
					SAG	1.3-1.5 Dk. Brown slag, loose, wet PL-SB-4	*	14.5	56	
2					CLAY	1.5-1.9 Pale reddish-brown clay, moist, dense, cohesive (Native clay)				
4										
5						Bottom of boring = 5.0' BGS				

* PL-SB-4 sample collected from 1.3-1.5'
PL-CC-4 clay cover sample (2nd) collected at this location

FIELD BOREHOLE LOG

PROJECT NAME: Pratt & Letchworth
PROJECT NO.: OT-3070
CLIENT:
LOCATION:
SURFACE ELEV.:
REFERENCE ELEV.:
CONTRACTOR: E&E
LOGGED BY: J. Peck
BOREHOLE NO.: SB-5
DATE STARTED: 2/17/93
DATE FINISHED: 2/17/93
METHOD OF BORING: 3¼" ID. HSA.

Begin 10:07 5' - continuous sampling

DEPTH (BGS)	SAMPLE NO.	SAMPLE TYPE	BLOWS (6")	REC. (') 3.9	SOIL CLASSIFICATION	DESCRIPTION AND REMARKS Density/Consistency, Color, Plasticity, Soil Types, Texture, Fabric, Bedding, Moisture, Other Characteristics	SAMPLES	MOISTURE (%)	PENETROMETER	HNu (ppm)
0						0.0-1.1 Dk Brown Clay, dense, moist, coh. (clay cover)	PL-SB-5			
					CL	1.1-1.7 Concrete aggregate (jackhammered through) w/ rounded pebbles of granite up to 1.25"	←*	10:	34	*
2						1.7-5.0 Pale reddish-brown clay - dense, moist + cohesive. (Native clay)				
					CLAY					
4						Bottom of boring = 5.0' BGS				
						* Sample PL-SB-5 collected 1.1-1.7'				
6										

FIELD BOREHOLE LOG

PROJECT NAME: Pratt+Letchworth
PROJECT NO.: OT3070
CLIENT:
LOCATION:

SURFACE ELEV.:
REFERENCE ELEV.:
CONTRACTOR: E+E
LOGGED BY: J. Peck

BOREHOLE NO.: SB-6
DATE STARTED: 2/16/93
DATE FINISHED: 2/16/93
METHOD OF BORING: 3¼" HSA

Begin 17:08 5' Continuous Sampling

DEPTH (BGS)	SAMPLE NO.	SAMPLE TYPE	BLOWS (6")	REC. (")	SOIL CLASSIFICATION	DESCRIPTION AND REMARKS Density/Consistency, Color, Plasticity, Soil Types, Texture, Fabric, Bedding, Moisture, Other Characteristics	SAMPLES	MOISTURE (%)	PENETROMETER	HNu (ppm)
0					FILL	0.0-0.2' Med. Brown-Grey clay (clay cover)				
						0.2-3.8' Dark Brown-black slag				
					S	loose & dry				
					L	PL-SB-6 ←*	*	17:25*		
2					A	3.8-5.0 Pale reddish-brown clay				
					G	dense, moist, & cohesive				
						(Native clay)				
4					C					
5					L	Bottom of Boring = 5.0' BGS				

* Sample PL-SB-6 collected From 0.2-3.8 interval

FIELD BOREHOLE LOG

PROJECT NAME: Pratt & Letchworth | SURFACE ELEV.: | BOREHOLE NO.: SB-7

PROJECT NO.: OT 3070 | REFERENCE ELEV.: | DATE STARTED: 2/17/93

CLIENT: | CONTRACTOR: E&E | DATE FINISHED: 2/17/93

LOCATION: | LOGGED BY: J. Peck | METHOD OF BORING: 4¼" HSA.

DEPTH (BGS)	SAMPLE NO.	SAMPLE TYPE	BLOWS (6")	REC. (") 4.7	SOIL CLASSIFICATION	DESCRIPTION AND REMARKS Density/Consistency, Color, Plasticity, Soil Types, Texture, Fabric, Bedding, Moisture, Other Characteristics	SAMPLES	MOISTURE (%)	PENETROMETER	HNu (ppm) PID
						Begin 1614 5' continuous ~~split 3"~~ sampling.				
0					CL	0-2.4 Med. Brownish-red clay w/ little slag & debris, dense, moist & cohesive (cover)				0 ↓
2					SAND	2.4-3.8 Black foundry sand w/ little slag - loose, moist *PL-SB-7*	*	17	1.50	*
					CL	3.8-4.7 Med. reddish-brown clay w/ little slag - dense moist & cohesive.				
4					CL	4.7-5.5 Black clay & slag - dense, moist & cohesive				
				2.1 ↓	CL	5.5-6.2 Pale reddish-brown clay w/ slag - dense moist & cohesive.				
6						6.2-6.8 Gray-white slag & debris - semi-coh., moist				
8						* Sample PL-SB-7 collected 2.4-3.8' interval Moist brownish-gray clay on augers.				
10						Bottom of boring = 10' BGS				

FIELD BOREHOLE LOG

PROJECT NAME: Pratt & Letchworth | SURFACE ELEV.: _____ | BOREHOLE NO.: SB-8
PROJECT NO.: OT-3070 | REFERENCE ELEV.: _____ | DATE STARTED: 2/17/93
CLIENT: _____ | CONTRACTOR: E&E | DATE FINISHED: 2/17/93
LOCATION: _____ | LOGGED BY: J. Peck | METHOD OF BORING: 3¼" H.S.A.

Begin ~~11:55~~ AP 11:25 5' Continuous sampling

DEPTH (BGS)	SAMPLE NO.	SAMPLE TYPE	BLOWS (6")	REC. (') 4.1	SOIL CLASSIFICATION	DESCRIPTION AND REMARKS Density/Consistency, Color, Plasticity, Soil Types, Texture, Fabric, Bedding, Moisture, Other Characteristics	SAMPLES	MOISTURE (%)	PENETROMETER	PID HNu (ppm)
0						0-0.6' Med.-brown clay, - dense moist & cohesive (cover)				0
						0.6-1.2 Dark brown-black Foundry sand w/ slag, roots, & organic material - loose & moist				↓
2						1.2-1.8 Gray clay w/slag - dense, cohesive & moist				
						1.8-2.9 Dark brown-black Foundry sand & slag - loose & moist *PL-SB-8 ←		11:55*		
						2.9-3.5 Gray clay w/ red brick rubble - dense & coh.				
4						3.5-4.4 Reddish-brown Foundry sand w/ slag - loose & moist				
				2.4 ↓		4.4-5.0 Dark brown Foundry sand w/ slag - loose & moist				
						5.0-5.1 Yellow Furnace brick rubble				
6						5.1-5.5 Black Foundry ~~slag~~ AP sand and slag - loose & moist				
						5.5-6.5 Reddish-brown sand & clay w/ some slag - slightly cohesive & moist				
8						6.5-6.8 Pale reddish-brown clay - no slag - dense, moist & cohesive. (Native)				
10						Bottom of Boring = 10' BGS				
						* Sample PL-SB-8 collected throughout 0-4.4' interval as per Walia				
						Note: native clay actually encountered by augers at ~9.8' BGS. - shallow depth on log due to <100% recoveries.				

FIELD BOREHOLE LOG

PROJECT NAME: Pratt & Letchworth | SURFACE ELEV.: _____ | BOREHOLE NO.: SB-9
PROJECT NO.: OT-3070 | REFERENCE ELEV.: _____ | DATE STARTED: 2/17/93
CLIENT: _____ | CONTRACTOR: E+E | DATE FINISHED: 2/17/93
LOCATION: _____ | LOGGED BY: J. Peck | METHOD OF BORING: 3¼" HSA

Begin 15:13 — 5' continuous sampling

DEPTH (BGS)	SAMPLE NO.	SAMPLE TYPE	BLOWS (6")	REC. (")	SOIL CLASSIFICATION	DESCRIPTION AND REMARKS (Density/Consistency, Color, Plasticity, Soil Types, Texture, Fabric, Bedding, Moisture, Other Characteristics)	SAMPLES	MOISTURE (%)	PENETROMETER	HNu (ppm)
0				2.7		0.0-1.9 Med brown clay w/ little slag. - dense, moist & cohesive (clay cover)				0
				↓	C L A Y	1.9-2.7 Dark brown-black clay, Foundry sand & slag w/ rounded granite pebbles up to 1.25" - semi-cohesive and moist ←	PL-SB-9 * 15:40			↓
2				RUN #1	↑					
4										
				↓	wood	5.0-5.4 Wood debris - pine odor				
6				2.8	↓ sand & slag	5.4-7.7 Brownish-red sand & slag - w/ few rounded pebbles to ¼" - loose and moist				
				RUN #2	↑					
8						* Sample PL-SB-9 collected From 1.9-2.7 Feet interval				
10				↑		Bottom of boring = 10' BGS				

FIELD BOREHOLE LOG

PROJECT NAME: Pratt & Letchworth
PROJECT NO.: OT-3070
CLIENT: _____
LOCATION: _____

SURFACE ELEV.: _____
REFERENCE ELEV.: _____
CONTRACTOR: E+E
LOGGED BY: T. Beck

BOREHOLE NO.: SB-10
DATE STARTED: 2-18-92
DATE FINISHED: 2-18-92
METHOD OF BORING: 3" DP 4 1/4" HSA.

Begin 17:39 Continuous sampling - 5'

DEPTH (BGS)	SAMPLE NO.	SAMPLE TYPE	BLOWS (6")	REC. (")	SOIL CLASSIFICATION	DESCRIPTION AND REMARKS Density/Consistency, Color, Plasticity, Soil Types, Texture, Fabric, Bedding, Moisture, Other Characteristics	SAMPLES	MOISTURE (%)	PENETROMETER	PID HNu (ppm)
0			~~2.5~~	25		0-2.5 Med. Brown-red clay w/ slag, debris and some Foundry sand. - semi-cohesive & moist				0
				↓	C					↓
				↓	L					
2					A	PL-SB-10 ← *	17:50 *			
					Y					
						Bottom of Boring = 3.7' BGS (on top of concrete slab)				
4					I					
5										

FIELD BOREHOLE LOG

PROJECT NAME: OT-3070 | SURFACE ELEV.: | BOREHOLE NO.: SB-11
PROJECT NO.: Pratt & Letchworth | REFERENCE ELEV.: | DATE STARTED: 2/18/93
CLIENT: | CONTRACTOR: E&E | DATE FINISHED: 2/18/93
LOCATION: | LOGGED BY: J. Peck | METHOD OF BORING: 4¼" HSA.

Begin 11:22 — 5' Continuous Sampling

DEPTH (BGS)	SAMPLE NO.	SAMPLE TYPE	BLOWS (6")	REC. (')	SOIL CLASSIFICATION	DESCRIPTION AND REMARKS (Density/Consistency, Color, Plasticity, Soil Types, Texture, Fabric, Bedding, Moisture, Other Characteristics)	SAMPLES	MOISTURE (%)	PENETROMETER	PID HNu (ppm)
0				4.6	CLAY	0-0.8' Brown-black clay w/ slag moist, dense & cohesive				0
						0.8-1.8' Brownish-red clay w/ slag & pebbles to ¼" moist dense & cohesive				↓
2					↑	1.8-2.6' Gray clay w/ slag & wood debris & granite fgst sand. Semi cohesive & moist				
					SAND	2.6-4.6 Black Foundry sand & slag				
4						loose & dry ✱ PL-SB-11 ← ✱	12:23		✱	
					↑	Bottom of boring = 5.0' BGS				

FIELD BOREHOLE LOG

PROJECT NAME: Pratt & Letchworth | SURFACE ELEV.: _____ | BOREHOLE NO.: SB-12

PROJECT NO.: OT-3070 | REFERENCE ELEV.: _____ | DATE STARTED: 2/17/93

CLIENT: _____ | CONTRACTOR: E+E | DATE FINISHED: 2/17/93

LOCATION: _____ | LOGGED BY: J. Peck | METHOD OF BORING: 4¼" HSA

Begin 13:41 — 5' continuous sampling

DEPTH (BGS)	SAMPLE NO.	SAMPLE TYPE	BLOWS (6")	REC. (')	SOIL CLASSIFICATION	DESCRIPTION AND REMARKS Density/Consistency, Color, Plasticity, Soil Types, Texture, Fabric, Bedding, Moisture, Other Characteristics	SAMPLES	MOISTURE (%)	PENETROMETER	PID HNu (ppm)
0				4.1	CL	0-0.6 Dark brown clay - moist and coh. - dense (cover)				0
				↓	↓	0.6-1.4 Dark brown - black Foundry sand + slag				↓
				↓	S	loose and dry				
2				R	A	1.4-2.8 Reddish-brown Foundry sand + slag				
				V	N	loose and moist - pebbles to 1.5".				
				N	D	2.8-3.0 Yellow Furnace brick debris				
				#1		3.0-3.6 Same as 1.4-2.8' PL-SB-12 ← *	*	14:00		*
4						3.6-3.8 Yellow Furnace brick debris				
						3.8-4.1 Same as 1.4-2.8'				
				1.4		5.0-6.4 Dark brown - black Foundry sand				
6				↓		and slag, pieces up to 4" dia.				
				R	S	- loose and moist				
				V	A					
				N	N					
8				#2	D	* Sample PL-SB-12 collected				
						From 1.4-4.1 Ft interval.				
10						Bottom of boring = 10.0' BGS				

FIELD BOREHOLE LOG

PROJECT NAME: Pratt & Letchworth | SURFACE ELEV.: _____ | BOREHOLE NO.: SB-13

PROJECT NO.: OT-3070 | REFERENCE ELEV.: _____ | DATE STARTED: 2/18/93

CLIENT: _____ | CONTRACTOR: E+E | DATE FINISHED: 2/18/93

LOCATION: _____ | LOGGED BY: J. Peck | METHOD OF BORING: 3¼" HSA

Begin 12:55 — 5' Continuous sampling

DEPTH (BGS)	SAMPLE NO.	SAMPLE TYPE	BLOWS (6")	REC. (')	SOIL CLASSIFICATION	DESCRIPTION AND REMARKS Density/Consistency, Color, Plasticity, Soil Types, Texture, Fabric, Bedding, Moisture, Other Characteristics	SAMPLES	MOISTURE (%)	PENETROMETER	PID HNu (ppm)
0				2.8 ↓		0-2.8 Black Foundry sand + slag w/ 2 intervals (2" each) of yellow Furnace brick debris PL-SB-13 * loose + dry	*	13	30*	0 ↓
2				1st R U N	↑ S A N D					
4					↓					
6				1.3 ↓ 2nd R U N		5.0-6.3 Black Foundry sand + slag w/ several 2-3 Fragments of yellow Furnace brick loose + dry				
8						* Sample PL-SB-13 collected 0-1.3' interval				
10						Bottom of boring = 10' BGS				

FIELD BOREHOLE LOG

PROJECT NAME: Pratt & Letchworth
PROJECT NO.: CT-3070
CLIENT: _____
LOCATION: _____

SURFACE ELEV.: Test pit
REFERENCE ELEV.: _____
CONTRACTOR: E+E
LOGGED BY: J. Peck

BOREHOLE NO.: SB-14
DATE STARTED: 2/18/92
DATE FINISHED: 2/18/92
METHOD OF BORING: Test pit - backhoe

Backhoe test pit Walia present
14:39

DEPTH (BGS)	SAMPLE NO.	SAMPLE TYPE	BLOWS (6")	REC. (")	SOIL CLASSIFICATION	DESCRIPTION AND REMARKS Density/Consistency, Color, Plasticity, Soil Types, Texture, Fabric, Bedding, Moisture, Other Characteristics	SAMPLES	MOISTURE (%)	PENETROMETER	PID HNu (ppm)
0					↓	0-3.0' Brownish-red clay - moist dense & cohesive (cover)				0
					CLAY	3.0-3.7' Brick, Wire, Wood, metal debris				↓
2						3.7-6.3 Black Foundry sand & slag loose & moist				
					↑ Debris					
4										
					SAND					
6						Bottom of test pit = 6.3' BGS				
8										

FIELD BOREHOLE LOG

PROJECT NAME: Pratt Letchworth | SURFACE ELEV.: _____ | BOREHOLE NO.: SB-15

PROJECT NO.: OT 3070 | REFERENCE ELEV.: _____ | DATE STARTED: 2/18/92

CLIENT: _____ | CONTRACTOR: E+E | DATE FINISHED: 2/18/92

LOCATION: _____ | LOGGED BY: J. Peck | METHOD OF BORING: 4 1/4" HSA

Begin 15:19 5' Continuous Sampling.

DEPTH (BGS)	SAMPLE NO.	SAMPLE TYPE	BLOWS (6")	REC. (')	SOIL CLASSIFICATION	DESCRIPTION AND REMARKS Density/Consistency, Color, Plasticity, Soil Types, Texture, Fabric, Bedding, Moisture, Other Characteristics	SAMPLES	MOISTURE (%)	PENETROMETER	HNu (ppm)
0				2.7		0-0.7 Concrete aggregate (road)				0
				↓		0.7-2.7 Pale reddish-brown clay -no slag, dense, moist & cohesive (native clay)	X		X	↓
2										
4						Bottom of boring = 5.0' BGS				
						X No Analytical Sample collected as per Taspal WAkia NYDEC				

FIELD BOREHOLE LOG

PROJECT NAME: Pratt+LetchWorth
PROJECT NO.: OT ~~3090~~ 3070
CLIENT: _____
LOCATION: _____

SURFACE ELEV.: _____
REFERENCE ELEV.: _____
CONTRACTOR: EVE, Inc
LOGGED BY: J. Peck

BOREHOLE NO.: SB-16
DATE STARTED: 2/10/93
DATE FINISHED: 2/10/93
METHOD OF BORING: 4 1/4" ID. HSA.

DEPTH (BGS)	SAMPLE NO.	SAMPLE TYPE	BLOWS (6")	REC. (")	SOIL CLASSIFICATION	DESCRIPTION AND REMARKS Density/Consistency, Color, Plasticity, Soil Types, Texture, Fabric, Bedding, Moisture, Other Characteristics	SAMPLES	MOISTURE (%)	PENETROMETER	HNu (ppm)
						Begin 16:22 5' Continuous Sampling				
0				32	CONC	0-0.6 Concrete Aggregate (parking lot)				
				↓		0.6-1.7 Grey clay, slag & debris				
					CL	dense, moist & cohesive PL-SB-16 ← *	*	16.4	*	
2						1.7-3.2 Black Foundry sand & slag				
					SAND	(1-4" Diameter slag at 2.5-2.9')				
						loose & moist				
4					↓					
5						Bottom of Boring = 5.0'				
						* Sample PL-SB-16 collected 1.7-3.2' interval				

FIELD BOREHOLE LOG

PROJECT NAME: Pratt & Letchworth | SURFACE ELEV.: _____ | BOREHOLE NO.: BHW-1

PROJECT NO.: OT 3080 | REFERENCE ELEV.: _____ | DATE STARTED: 2/19/93

CLIENT: _____ | CONTRACTOR: E&E Inc | DATE FINISHED: 2/19/93

LOCATION: _____ | LOGGED BY: J. Peck | METHOD OF BORING: 4¼" I.D. HSA.

DEPTH (BGS)	SAMPLE NO.	SAMPLE TYPE	BLOWS (6")	REC. (')	SOIL CLASSIFICATION	DESCRIPTION AND REMARKS Density/Consistency, Color, Plasticity, Soil Types, Texture, Fabric, Bedding, Moisture, Other Characteristics	SAMPLES	MOISTURE (%)	PENETROMETER	HNu (ppm)
0				4.2	CL	0.0-0.2 light brownish-gray topsoil (cover)				
				↓	WOOD	0.2-1.3 med. brownish-gray clay w/slag - dense, moist & coh.				
				↓	SAND	1.3-1.7 Wood debris	BL-BHW-1	09	1.5	*
					CL	1.7-2.9 Black Foundry sand w/slag - loose & moist ← *				
				5.7	↓	2.9-4.2 Pale reddish-brown clay - dense, moist & coh (native)				
				↓		5.0-10.0 Pale reddish-brown clay - dense moist & coh.				
10				5.7	C	10.0-13.5 Same as 5-10'				
				↓	L	13.5-15.0 Same as 5-10 w/ Few rounded				
					A	granite pebbles ¼"-2.5" dia.				
					Y					
				5.7	↓	15.0-20.0 Dark yellowish-brown clay w/				
				↓	↓	Few rounded granite pebbles ½ to 1" dia.				
						- dense, moist & coh.				
20				3.2		20.0-23.2 Same as 15-20 w/ pebbles				
				↓		½ to 3" dia.				
				3.3		25-28.3 Same as 15-20 w/ rounded to				
				↓		subangular granite pebbles				
						¼" to 2" dia. - moist & coh.				
30						Bottom of boring = 30.0'				
						Dry Hole - grouted to surface				
						* Sample BL-BHW-1 collected From				
						1.7-2.9' interval				

FIELD BOREHOLE LOG

PROJECT NAME: Pratt & Letchworth | SURFACE ELEV.: _____ | BOREHOLE NO.: BHW-2

PROJECT NO.: OT-3080 | REFERENCE ELEV.: _____ | DATE STARTED: 2/19/92

CLIENT: _____ | CONTRACTOR: E+E, Inc. | DATE FINISHED: 2/19/92

LOCATION: _____ | LOGGED BY: J. Peck | METHOD OF BORING: 4¼" I.D. HSA.

Begin 14:34 — 5' Continuous sampling

DEPTH (BGS)	SAMPLE NO.	SAMPLE TYPE	BLOWS (6")	REC. (')	SOIL CLASSIFICATION	DESCRIPTION AND REMARKS (Density/Consistency, Color, Plasticity, Soil Types, Texture, Fabric, Bedding, Moisture, Other Characteristics)	SAMPLES	MOISTURE (%)	PENETROMETER	PID HNu (ppm)
0				2.1	SAND	0.0-2.1 Black Foundry sand w/slag. - loose & dry				0
							PL-BHW-2A	14:50	✱	
				3.4	S	5.0-7.0 Black Foundry sand w/slag - loose & dry	PL-BHW-2			
					A	7.0-7.3 Red Foundry sand & slag loose & dry		15:15	✱✱	
					N	7.3-8.4 Black Foundry sand w/slag				
					D	- loose & dry.				
10				2.0		10.0-12.0 Black Foundry slag & sand - loose & dry				
				2.2		15.0-15.3 Black Foundry sand w/slag - loose & dry				
						15.3-15.6 4" red brick fragment				
20						15.6-17.2 Black Foundry sand w/slag - WET ✱				
				0.9		20.0-20.9 Black Foundry sand w/slag - Wet - oil sheen on water (large piece of brick blocking end of sample barrel)				
				5.7	CL	25-27.2 Black clay - organic odor - wet - w/numerous ¼" gastropod shells & small sand stringers				
30					S	27.2-28.4 Brown clay - wet - w/shells as above becoming sandier bottom .2'. - dense & cohesive				
					A					
					N					
					D	28.4-28.7 Buff to white F-M sand w/numerous ¼" gastropod shells - wet & loose				
						28.7-29.3 Medium gray F sand w/no shells - wet & loose.				
						29.3-30.0 Dk. brown F-sand w/silt. - wet - no shells				
						30.0-30.7 Same as 29.3-30.0 but w/ sub-rounded granite pebbles to ½" dia"				
	1					Bottom of boring = 30.7				
						✱ - Sample PL-BHW-2A collected 0-2.1 & archived as per Jaspal Walia - split sample given to Walia				
						✱✱ - Sample PL-BHW-2 collected & submitted for analysis as per Jaspal Walia.				

MONITORING WELL CONSTRUCTION LOG

PROJECT: Pa H-Letchworth | LOCATION: Grant+Amherst/Buffalo NY | DRILLER: EE Inc/Paul Barth
PROJECT NO.: OT-3080 | BORING: BHW-2 | DRILLING METHOD: 4¼" I.D. HSA.
GROUND ELEV.: _____ | DATE: 2/19/93 | DEVELOPMENT METHOD: Bailer
FIELD GEOLOGIST: John Rocks

ELEV. OF TOP OF PROTECTIVE CASING: _____ ft. AMSL
ELEV. OF TOP OF RISER PIPE: _____ ft. AMSL
STICK-UP TOP OF PROTECTIVE CASING: _____ ft.
STICK-UP RISER PIPE: _____ ft.
GROUND SURFACE ELEV.
DEPTH BOTTOM OF SURFACE CASING: _____ ft.
DEPTH TOP OF GROUT INVASION BARRIER: _____ ft.
DEPTH TOP OF SEAL: 4.7 ft.
DEPTH TOP OF SECONDARY SAND PACK: _____ ft.
DEPTH TOP OF PRIMARY SAND PACK: 8.0 ft.
DEPTH TOP OF SCREEN 9.8 ft.
DEPTH BOTTOM OF SCREEN: 29.8 ft.
DEPTH BOTTOM OF SCREEN CAP: 30.0 ft.
DEPTH BOTTOM OF SAND PACK: 30.0 ft.
DEPTH OF HOLE: 30.4 ft.

LOCKING COVER
WELL CAP
I.D. x LENGTH OF PROTECTIVE CASING: x5.0 ft.
1/4" WEEP HOLE
TYPE OF SURFACE SEAL: _____
I.D. OF SURFACE CASING: _____ ft.
TYPE OF SURFACE CASING: _____
RISER PIPE I.D. .166 ft.
TYPE OF RISER PIPE: Sch. 40 PVC 2" ID
BOREHOLE DIA.: 7 ft.
TYPE OF BACKFILL: Type I Portland Cement
TYPE OF BARRIER: _____
TYPE OF SEAL: Pel-Plug Hi Yield W. Bentonite Pellets
TYPE OF SAND PACK: #4 Q-ROK Graded Quartzite
TYPE OF SCREEN: Sch 40 PVC
SLOT SIZE x LENGTH: .010 x 20 ft.
I.D. OF SCREEN: .166 ft.
BOREHOLE DIA.: _____ ft.
TYPE OF SAND PACK: #4 Q-ROK Graded Quartzite
TYPE OF BACKFILL BELOW OBSERVATION WELL: _____

C Supporting Documentation and Pertinent Records

New York State Department of Environmental Conservation
270 Michigan Avenue, Buffalo, New York, 14203-2999

Thomas C. Jorling
Commissioner

October 28, 1992

Mr. Scott Thorsell
Ecology & Environment, Inc.
368 Pleasantview Drive
Lancaster, NY 14086

Dear Mr. Thorsell:

Pratt and Letchworth Site (915045)

We have reviewed your October 22, 1992 response to our comments dated October 6, 1992 on the Phases I, II and III Work Plans and find it acceptable. Please send us four copies of the corrected pages of the Work Plans for our records. If you have any questions, please call me at 716-851-7220.

Yours truly,

Jaspal S. Walia

Jaspal S. Walia, P.E.
Environmental Engineer II

JSW/ad

cc: Mr. Glen Bailey
Mr. Michael Rivara
Mr. Martin Doster
Dr. Frances Yang
Mr. Robert Elia

ecology and environment, inc.
BUFFALO CORPORATE CENTER
368 PLEASANTVIEW DRIVE, LANCASTER, NEW YORK 14086, TEL. 716/684-8060
International Specialists in the Environment

November 20, 1992

Mr. Jaspal S. Walia, P.E.
New York State Department
of Environmental Conservation
270 Michigan Avenue
Buffalo, NY 14203-2999

RE: Continuation of Phase 1 of the Pratt & Letchworth IRM Work Plan.

Dear Mr. Walia:

As you are aware, Ecology and Environment, Inc. was unable to complete sampling for the Phase 1 soil sampling task due to the encroachment of a clay and gravel cap which was recently used to cover other portions of the site. This cover material appears to be approximately 0 to 2 feet thick in the proposed sampling area and is believed to be from another local construction site. As a result, E & E and 189 Tonawanda St. Corp. propose the following procedures to be used in addition to the approved IRM work plan procedures in order to clear the encroaching clay cover material.

1. An air-hammer equipped with a wide clay spade bit will be used to break through and remove the denser clay cover material overlying the original ground surface.

2. The air-hammer will be used to excavate an access hole of approximately 1-foot in diameter and to a depth not to exceed the thickness of the recently applied clay cap.

3. All materials removed during this excavation will be containerized and covered on-site. These materials will then either be sampled and tested for disposal as is or maintained and combined with other materials to be excavated as according to Phase 2 of the IRM work plan.

4. Once the recent cover material has been removed and access to the original surface layer is obtained, sampling procedures as outlined in the IRM work plan will be followed until the remaining proposed samples have been collected.

5. Because the clay spade bit will only be involved with the removal of the cover material and not the underlying soils it will not be decontaminated between sampling nodes.

6. Personnel to operate the powered equipment may be provided by 189 Tonawanda St. Corp. or its contractor.

If the above outlined procedures are acceptable to your department, E & E and 189 Tonawanda St. Corp. are prepared to continue sampling as soon as next Tuesday, November 24, 1992 at 09:30 a.m. Please call me at 684-8060 if you have any additional questions or concerns.

Sincerely,

ECOLOGY AND ENVIRONMENT, INC.

G. Scott Thorsell
Project Manager

sv/0T-3050
[ENV]4503

cc: Robert Elia
George Panepinto
Project File 0T-3000

ecology and environment, inc.
International Specialists in the Environment
BUFFALO CORPORATE CENTER
368 Pleasantview Drive, Lancaster, New York 14086, Telephone: 716/684-8060

TELECOPIER 716/684-0844

TELECOPIER TRANSMISSION FORM

DATE: 12/18/92 TIME: _____ TOTAL NO. OF PAGES: 5
(Including Transmission Form)

TO: Mr. Jaspal S. Walia

COMPANY: N.Y. State Dept. of Environmental Conservation

TELECOPIER PHONE NO.: 716 / 851 - 7008

FROM: Scott Thorsell

SPECIAL INSTRUCTIONS: Wed like to start wed. @ 8AM if possible. Please note lab analytical reports not attached to FAX transmission. EST

JOB CHARGE: 01971 SENT BY: _____

ecology and environment, inc.
BUFFALO CORPORATE CENTER
368 PLEASANTVIEW DRIVE, LANCASTER, NEW YORK 14086, TEL. 716/684-8060
International Specialists in the Environment

December 18, 1992

Mr. Jaspal S. Walia, P.E.
New York State Department
of Environmental Conservation
270 Michigan Avenue
Buffalo, NY 14203

Dear Mr. Walia:

Please find enclosed one copy of the analytical results for PCBs provided by Ecology and Environment, Inc.', (E & E's) Analytical Services Center (ASC) for the two sampling events completed for the Pratt & Letchworth (P&L) IRM Phase 1 work plan. These samples were collected in accordance with the approved work plan with modifications noted in my November 20, 1992 letter to you.

The analyses for these samples show that the PCB Aroclor 1260 was found in various concentrations in the "oil spill" area (see attached Figure 1). The occurrence of the PCBs as Aroclor 1260 is consistent with previous investigations at this location, as noted in the IRM Phase 3 work plan (see page 2-3). As is evident from the attached figure, however, additional sampling is necessary in order to fully delineate both the vertical and horizontal extent of the PCB concentrations in this area.

As a result of the Phase 1 investigation to date, E & E proposed to continue this investigation in the following manner. Eight additional sampling nodes, as indicated in the attached Figure 2, should be sampled at the three depth intervals in the same manner as described in the approved work plan or as described below. Additionally, an attempt will be made to sample eleven of the previous nodes not sampled at the depths below 6 inches due to refusal at the 6-12 inch and 12-18 inch depths.

In order to perform this sampling at depth, the following procedure will be used. First, a hand shovel will be used to clear a small area (approximately 1 foot in diameter) of surface soils to expose the underlying obstructing layer. This layer, which appears in most cases to be a compacted and solidified slag material, will then be broken through using either a hand held slam bar and steel bit or an air hammer

recycled paper

driven steel bit, whichever is less disruptive to the soil and yet appropriate to the conditions. Once this layer is broken through, any underlying unconsolidated materials will be sampled using precleaned stainless steel sampling tools. These tools may consist of either a hand auger, hand held trowel, or sampling spoon. The sample depth interval and type of material will be recorded in the field log book for each sample. All non-disposable materials will be decontaminated in accordance with the approved work plan between each sampling location. All soils removed by these investigative activities will be properly containerized on-site until such determination for disposal is made during the Phase 2 investigation.

If the above-described practices are deemed appropriate by your department, E & E is prepared to begin this field effort on Wednesday, December 23, of next week. I will be out of town on on December 22, and therefore find December 23 more appropriate. I'll look forward to hearing from you soon. I can be reached by telephone at 716/684-8060 or by FAX at 716/684-0844.

Sincerely,

ECOLOGY AND ENVIRONMENT, INC.

G. Scott Thorsell
Project Manager

oio/0T3090
[ENV]4630

Enclosures

cc: Robert Elia

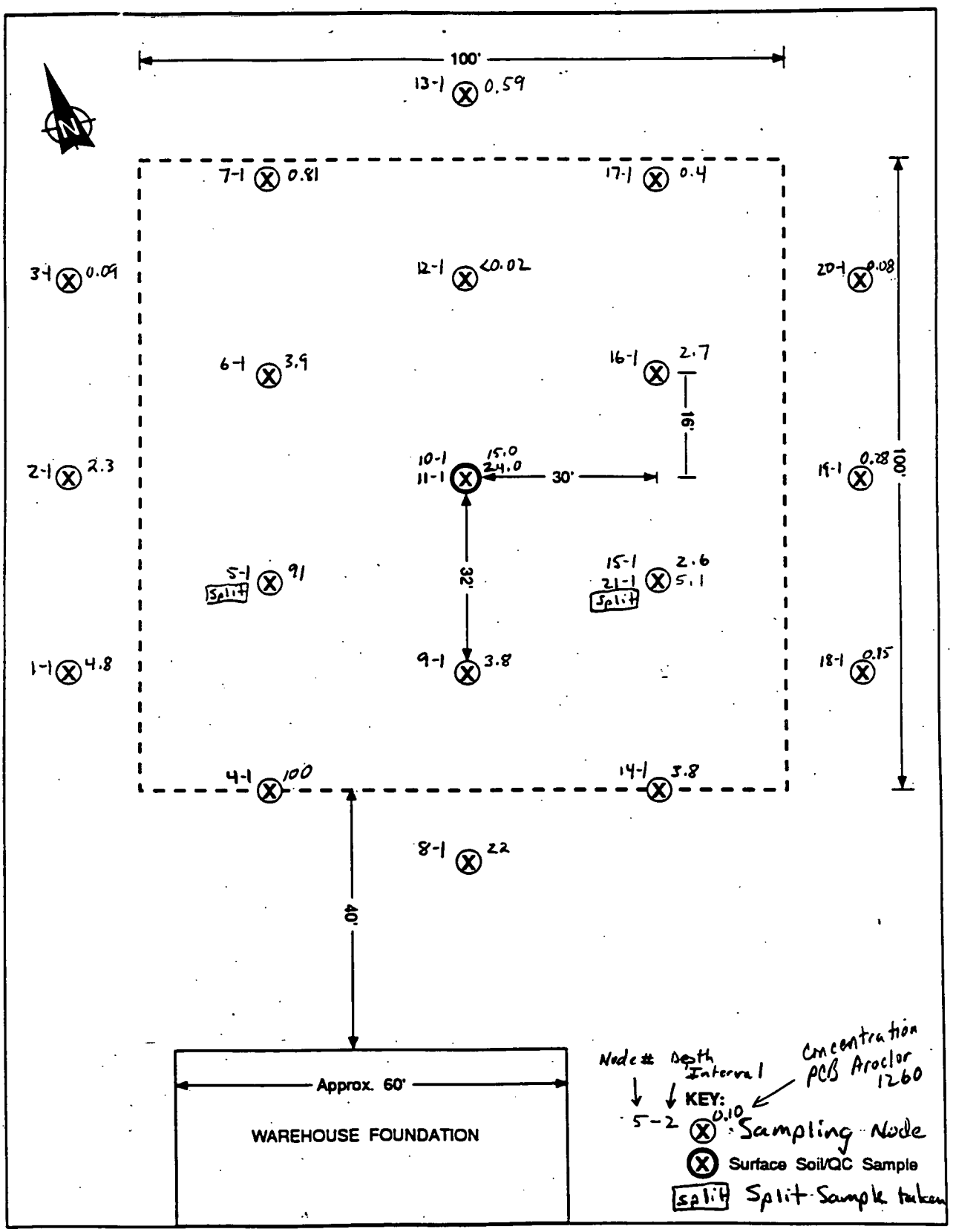


Figure 1
OIL SPILL/DRUM STORAGE AREA AND SAMPLING LOCATIONS

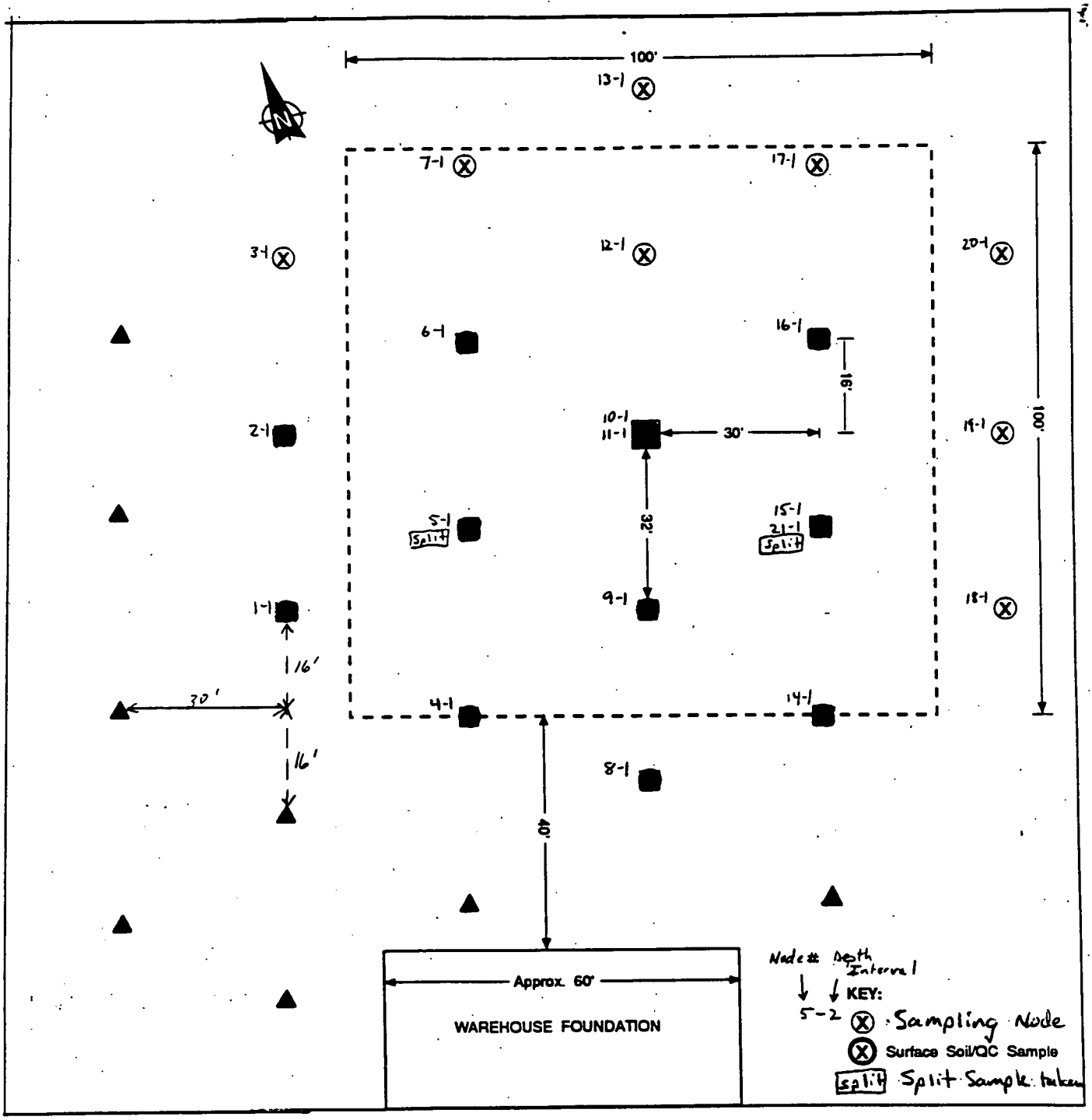


Figure 2
OIL SPILL/DRUM STORAGE AREA AND SAMPLING LOCATIONS

Key:
▲ = Proposed New Sample Node
■ = Node to Resample at Depth

ecology and environment

OTD3758

Thorsell

Called to clear utilities
iN 1511
Pat.
local Sewer
water 851-4747
853-2459

Legal Jur/Date ved.

ecology and environment, inc.

BUFFALO CORPORATE CENTER
368 PLEASANTVIEW DRIVE, LANCASTER, NEW YORK 14086, TEL. 716/684-8060
International Specialists in the Environment

January 5, 1993

Mr. Jaspal S. Walia, P.E.
New York State Department
of Environmental Conservation
270 Michigan Avenue
Buffalo, NY 14203-2999

Re: Revisions to the IRM Phase 3 work plan for the Pratt & Letchworth Site.

Dear Mr. Walia:

After a review of the available information and consideration of the comments made at our December 15, 1992 meeting, Ecology & Environment, Inc.,(E & E) and 189 Tonowanda Street Corporation have prepared an alternative investigative approach for the IRM Phase 3 work plan. In support of this alternative approach and for your information the following items have been provided: a copy of the January 27, 1992 audit report, copies of site photographs (for loan only please), and a site base map indicating the locations of the proposed sampling locations. Changes to the Phase 3 work plan then are summarized below.

In developing the previously approved IRM phase 3 program a great deal of emphasis was placed upon visual inspection of the surficial features and conditions of the site in order to evaluate possibly contaminated areas and to determine optimum test pit locations. This approach has since been hindered by on-site activities which have resulted in the removal of many of the abandoned plant buildings and covering of much of the site with a layer of clay. In order to maintain an approach that allows for a visual inspection of soil profiles over a significant number of locations around the site, E & E proposes that a soil boring program be used instead of the test pit approach that was originally proposed. In this program up to 16 borings will be made using either a drill rig or backhoe mounted auger and Laskey Sampler. Each boring will be between 5 and 10 feet deep and will be sampled over the entire depth interval.

As provided in the attached base map six of these locations have been sited by E & E based upon historical information and typical pathways of concern. At each of these six locations one (1) sample will be collected from the most likely contaminated interval, if present, and will be analyzed for the full TCL parameters. Up to 10 additional borings will be installed in the same manner as described above at other locations on the property where the DEC determines there may be additional concerns. Samples for these additional borings will be collected but analysis will be performed only if visual observation and/or field screening indicate that contaminants may be present. For the previously approved IRM phase 3 work plan other aspects of that plan, such as monitoring well installation and hammer pit and paint vat sampling, will not be altered or revised at this time.

It is the request of E & E and 189 Tonowanda St. that once this revised approach has been reviewed by the state that a meeting be held with all concerned parties in order to discuss the additional boring locations and any other concerns the state may have with this approach. When this consensus has been reached E & E will schedule the work to be done and prior to mobilization for this work will submit a revised scope of work which will describe in detail the agreed revised approach.

Thank you in advance for your consideration. If you should have any questions or concerns regarding this program and/or when you are ready to meet, please call me at 684-8060.

Yours Truly,

ECOLOGY AND ENVIRONMENT, INC.

G. Scott Thorsell
Project Manager

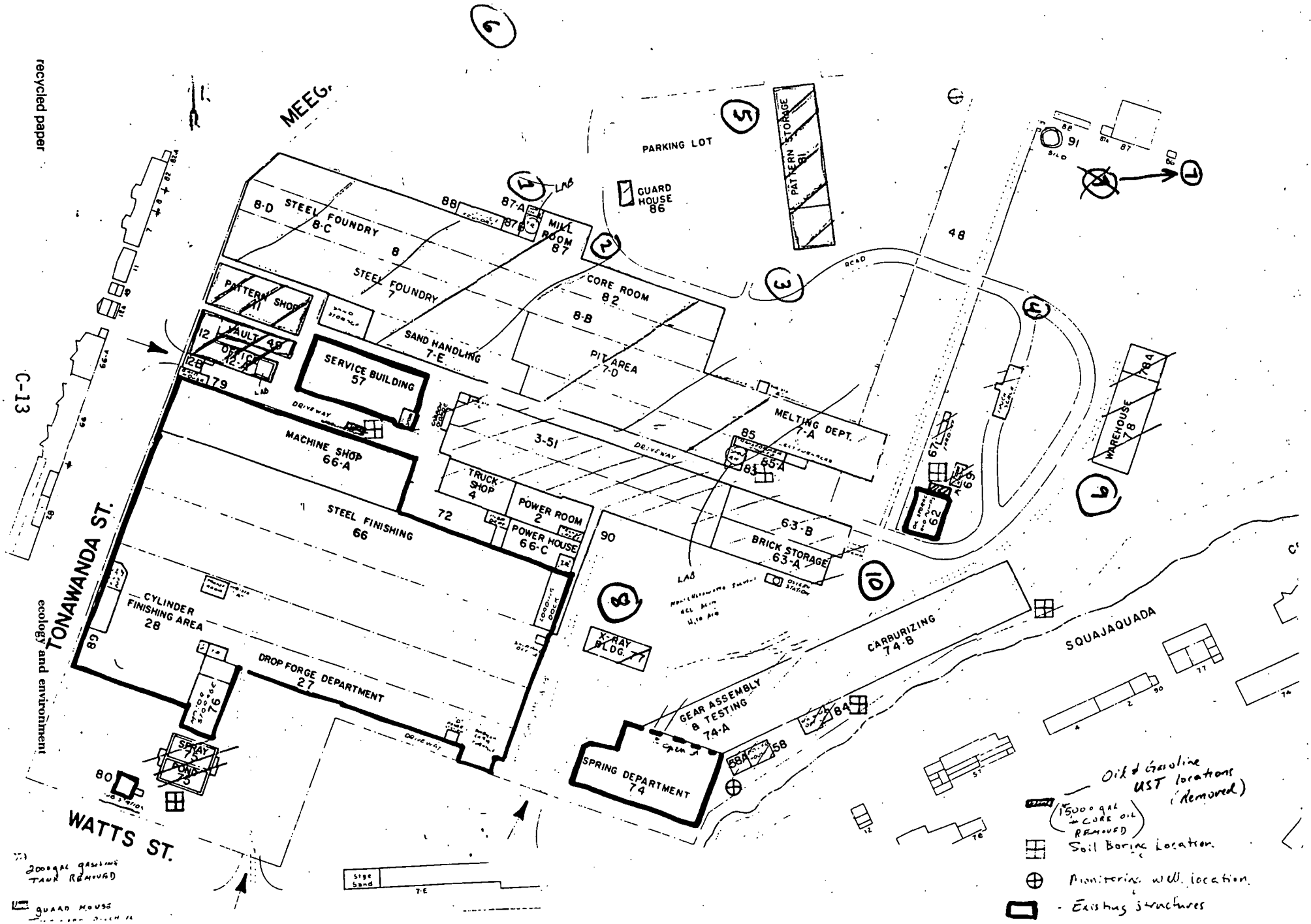
jg/0T3080
[ENV]4664

Enclosure

cc: Robert Elia
George Panepinto
Martin Doster
Glen Bailey
Mike Rivera
Joe Forti

2 wells = semi vol. metals. Surface Soil.

Red marker made on 2/15/83 w/ Regal Wabia meeting.



recycled paper

ecology and environment

C-13

Thorsell

ecology and environment, inc.
BUFFALO CORPORATE CENTER
368 PLEASANTVIEW DRIVE, LANCASTER, NEW YORK 14086, TEL. 716/684-8060
International Specialists in the Environment

January 5, 1993

Mr. Jaspal S. Walia, P.E.
New York State Department
of Environmental Conservation
270 Michigan Avenue
Buffalo, NY 14203-2999

Re: Revisions to the IRM Phase 3 work plan for the Pratt & Letchworth Site.

Dear Mr. Walia:

After a review of the available information and consideration of the comments made at our December 15, 1992 meeting, Ecology & Environment, Inc.,(E & E) and 189 Tonowanda Street Corporation have prepared an alternative investigative approach for the IRM Phase 3 work plan. In support of this alternative approach and for your information the following items have been provided: a copy of the January 27, 1992 audit report, copies of site photographs (for loan only please), and a site base map indicating the locations of the proposed sampling locations. Changes to the Phase 3 work plan then are summarized below.

In developing the previously approved IRM phase 3 program a great deal of emphasis was placed upon visual inspection of the surficial features and conditions of the site in order to evaluate possibly contaminated areas and to determine optimum test pit locations. This approach has since been hindered by on-site activities which have resulted in the removal of many of the abandoned plant buildings and covering of much of the site with a layer of clay. In order to maintain an approach that allows for a visual inspection of soil profiles over a significant number of locations around the site, E & E proposes that a soil boring program be used instead of the test pit approach that was originally proposed. In this program up to 16 borings will be made using either a drill rig or backhoe mounted auger and Laskey Sampler. Each boring will be between 5 and 10 feet deep and will be sampled over the entire depth interval.

As provided in the attached base map six of these locations have been sited by E & E based upon historical information and typical pathways of concern. At each of these six locations one (1) sample will be collected from the most likely contaminated interval, if present, and will be analyzed for the full TCL parameters. Up to 10 additional borings will be installed in the same manner as described above at other locations on the property where the DEC determines there may be additional concerns. Samples for these additional borings will be collected but analysis will be performed only if visual observation and/or field screening indicate that contaminants may be present. For the previously approved IRM phase 3 work plan other aspects of that plan, such as monitoring well installation and hammer pit and paint vat sampling, will not be altered or revised at this time.

It is the request of E & E and 189 Tonowanda St. that once this revised approach has been reviewed by the state that a meeting be held with all concerned parties in order to discuss the additional boring locations and any other concerns the state may have with this approach. When this consensus has been reached E & E will schedule the work to be done and prior to mobilization for this work will submit a revised scope of work which will describe in detail the agreed revised approach.

Thank you in advance for your consideration. If you should have any questions or concerns regarding this program and/or when you are ready to meet, please call me at 684-8060.

Yours Truly,

ECOLOGY AND ENVIRONMENT, INC.

G. Scott Thorsell
Project Manager

jg/0T3080
[ENV]4664

Enclosure

cc: Robert Elia
George Panepinto
Martin Doster
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Joe Forti

ecology and environment, inc.
BUFFALO CORPORATE CENTER
368 PLEASANTVIEW DRIVE, LANCASTER, NEW YORK 14086, TEL. 716/684-8060
International Specialists in the Environment

February 15, 1993

Mr. Jaspal Walia, P.E.
New York State Department
of Environmental Conservation
270 Michigan Avenue
Buffalo, NY 14203

Re: Revisions to the Pratt & Letchworth Site IRM Phase 3 Site Characterization Work Plan.

Dear Mr. Walia:

Per our Meeting on February 5, 1993, it is Ecology and Environment, Inc.'s (E & E's) understanding that the above-referenced revisions as originally proposed to you in my letter of January 5, 1993, has been excepted and approved by your department. Based upon this understanding and as a result of our meeting, the additional 10 soil borings to be selected by NYSDEC were located by you and are presented in the attached Figure 1.

E & E is prepared to begin this soil boring program the week of February 15, 1993. During this same field effort the two proposed monitoring wells described in the Phase 3 work plan will also be installed. All of this work will be performed according to those guidelines and procedures outlined or referenced in the IRM work plan. Although the soil boring program represents a change in the scope of work originally presented by the IRM work plan, the procedures to be used will be the same as those for the soil borings to be advanced for the monitoring wells with the exception that a 5-foot Laskey sampling tube will be used in place of the 2-foot split spoon. In this way, continuous sampling will be performed.

As indicated in Figure 1, E & E has located 6 soil boring locations where samples will be collected for full TCL analyses. If a zone of most likely contaminated material from these borings is not evident by means of field screening and/or visual observation, these samples will then be collected from the near surface materials and substituted for the full TCL samples. From the additional 10 soil borings located by NYSDEC, samples will be collected in a similar manner, but analyzed only if contaminants are evident. The analyses to be performed for these

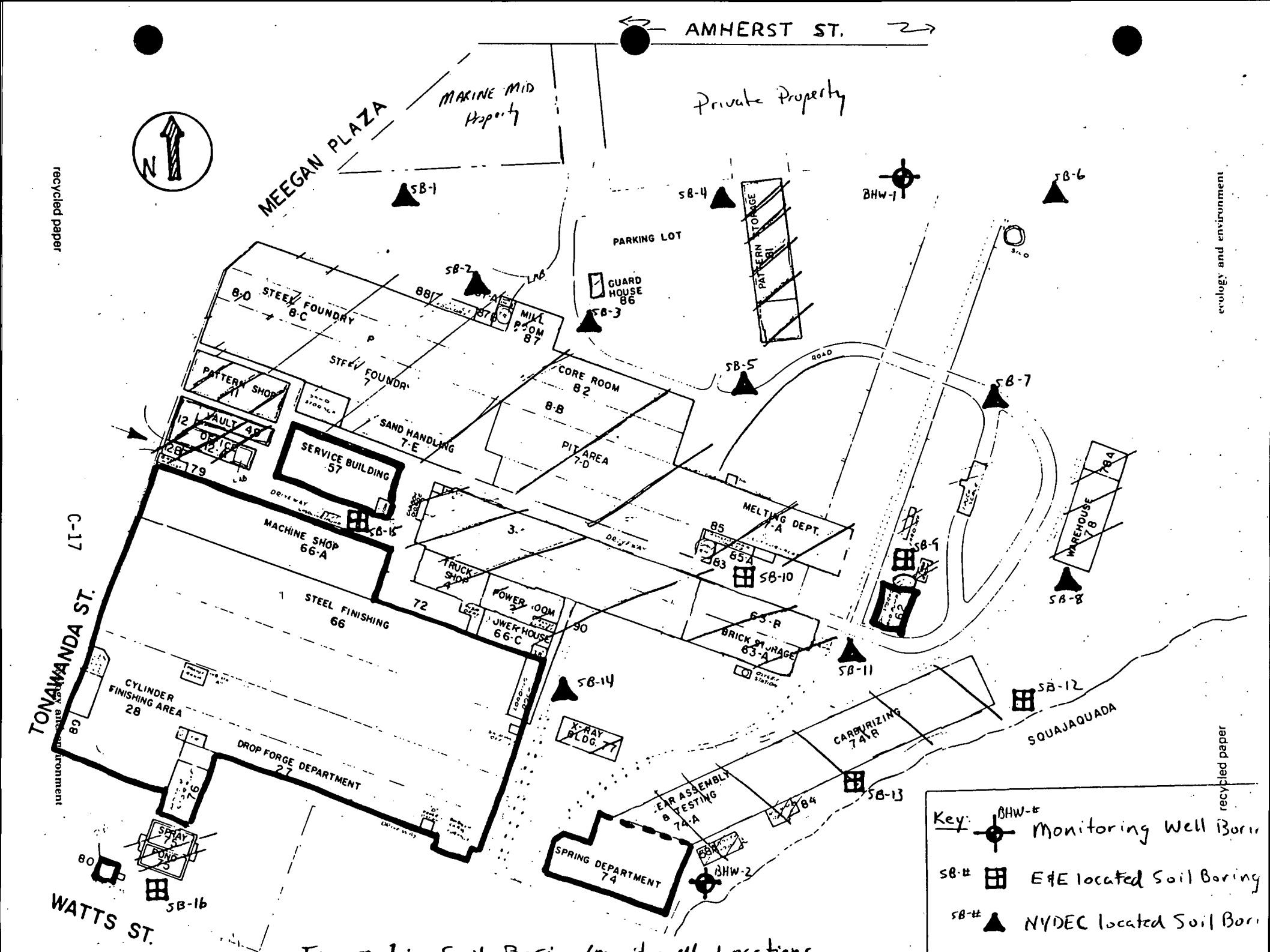

Figure 1: Soil Boring/monit. well Locations

ecology and environment, inc.
BUFFALO CORPORATE CENTER
368 PLEASANTVIEW DRIVE, LANCASTER, NEW YORK 14086, TEL. 716/684-8060
International Specialists in the Environment

January 5, 1993

Mr. Jaspal S. Walia, P.E.
New York State Department
of Environmental Conservation
270 Michigan Avenue
Buffalo, NY 14203-2999

Re: Revisions to the IRM Phase 3 work plan for the Pratt & Letchworth Site.

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Yours Truly,

ECOLOGY AND ENVIRONMENT, INC.

G. Scott Thorsell
Project Manager

jg/0T3080
[ENV]4664

Enclosure

cc: Robert Elia
George Panepinto
Martin Doster
Glen Bailey
Mike Rivera
Joe Forti

Lake View Landfill
851 Robison Road
Erie, PA 9
(814) 825 3
(800) 394-
Office Fax: (814) 825-4338
Lab Fax: (814) 825-4589

Landfill Use Only:
41 42 43 44 47 48 55 ____

Manifest 5434

PADER Site Permit No. 100329

This Account is to be billed to: Downing (Must be filled in by generator)

NON-HAZARDOUS RESIDUAL WASTE MANIFEST

GENERATOR INFORMATION

1. Generator of Waste (must be filled in by Generator): 189 Tonawanda st

Company Address: _____ (number) (street) (city) (state) (zip code)

Pick-up Address: 189 Tonawanda st (number) (street) Buffalo, NY (city) (state) 14207 (zip code)

Generator Telephone Number: (716) 825-6666

Name of Waste: Tar + Black Debris

This manifest represents a non-hazardous waste as per E.P.A. and Pennsylvania D.E.R. regulations.

Estimated Tons: 12 Special handling instructions, if any: _____

This is to certify that the above named material is properly classified, described, packaged, marked, and labeled is in proper condition for transportation according to applicable state and federal law. The waste was consigned to the transporter named below. I certify that the foregoing is true and correct to the best of my knowledge.

Signature: [signature] Authorized Representative (Name and Title) Date: 11/09/94

TRANSPORTER INFORMATION

2. Hauler of Waste (must be filled in by Hauler): Downing Contracting Services

Hauler Address: 191 Ilana st (number) (street) Buffalo, NY (city) 14207 (state) (zip code)

Pick-up Date: _____ Truck Number: _____ Vehicle License Number: _____

The above described waste was picked up and hauled by me to the disposal facility named below. I certify that the foregoing is true and correct to the best of my knowledge.

Driver Signature: [signature] (Name and Title) Date: 11/11/94

DISPOSAL SITE INFORMATION

3. Company Name: Lake View Landfill

Disposal Site Location: 851 Robison Road, East, Erie, PA 16509

Waste subject to this manifest was delivered by the above hauler to this disposal facility and was accepted, except as noted in the discrepancy indication space below.

Disposal Date: 11-15-94 Total Tons: 10.17

Discrepancy Indication Space: _____

Signature of authorized agent: [signature] (Name and Title)

White - Landfill Canary - Generator Final Green - 3rd Party Pink - Hauler Goldenrod - Generator Original

Recycled paper.

ecology and environment

06-004 (1/91)—28c

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

PETROLEUM BULK STORAGE REGISTRATION CERTIFICATE

NYS DEC - REGION 9
270 MICHIGAN AVE
BUFFALO, NY 14203-2999
(716) 851-7220

TANK NUMBER	DATE INSTALLED	TANK TYPE	CAPACITY (GALLONS)	DATE LAST TESTED	TESTING DUE DATE	
1	00/00	Steel/Carbon Steel	20,000			*1
2	00/00	Steel/Carbon Steel	20,000			*1
3	00/00	Steel/Carbon Steel	20,000			*1
4	00/00	Steel/Carbon Steel	20,000			*1

*1 - Aboveground tanks require monthly visual inspections and documented internal inspections as described in 6 NYCRR Pt. 613.

OWNER

BLACK ROCK MARKETING
1 BABCOCK ST.
BUFFALO, N.Y. 14210

SITE

189 TONAWANDA ST. CORP.
189 TONAWANDA ST.
BUFFALO, NY 14207

OPERATOR (Name and Telephone Number)

GEORGE PANEPINTO
(716) 000-0000

EMERGENCY CONTACT (Name and Telephone Number)

GEORGE PANEPINTO
(716) 000-0000

As an authorized representative of the above named facility, I affirm under penalty of perjury that the information displayed on this form is correct to the best of my knowledge. Additionally, I recognize that I am responsible for assuring that this facility is in compliance with all sections of 6 NYCRR Parts 612, 613 and 614, not just those cited below:

- The facility must be re-registered if there is a transfer of ownership.
- The Department must be notified within 30 days prior to adding, replacing, reconditioning, or permanently closing a stationary tank.
- The facility must be operated in accordance with the code for storing petroleum, 6 NYCRR Part 613.
- Any new facility or substantially modified facility must comply with the code for new and substantially modified facilities, 6 NYCRR Part 614.
- This certificate must be posted on the premises at all times. Posting must be at the tank, at the entrance of the facility, or the main office where the storage tanks are located.
- Any person with knowledge of a spill, leak or discharge must report the incident to DEC within two hours (1-800-457-7362).

George Panepinto 11/23/94

Signature of Authorized Representative/Owner — Date

Name of Authorized Representative/Owner (Please Print)

Title

ISSUED BY:
Acting Commissioner Langdon Marsh

PETROLEUM BULK STORAGE ID NUMBER
9-600182

DATE ISSUED: 11/21/94
EXPIRATION DATE: 11/21/99

FEE PAID
$ 250

MAILING CORRESPONDENCE

GEORGE PANEPINTO
BLACK ROCK MARKETING
1 BABCOCK ST.
BUFFALO, N.Y. 14210

C-21

THIS REGISTRATION CERTIFICATE IS NON-TRANSFERABLE

ecology and environment, inc.
BUFFALO CORPORATE CENTER
368 PLEASANTVIEW DRIVE, LANCASTER, NEW YORK 14086, TEL. 716/684-8060
International Specialists in the Environment

Faxes on 10/4 & 10/5
Verbal ok. from Jaspal on 10/6/94 at ~10:

October 3, 1994

Mr. Jaspal S. Walia, P.E.
New York State Department
of Environmental Conservation
270 Michigan Avenue
Buffalo, NY 14203

Dear Mr. Walia:

As per our meeting of August 31, 1994, with 189 Tonawanda St. Corporation, it was agreed that an additional six surface soil samples, to be tested for PCBs, would be collected in the area between the "Oil Spill" area and Scajaquada Creek. The approximate locations of these samples are shown in the attached Figure 1. As surface soil samples, Ecology & Environment, Inc., (E & E) proposes to collect these samples from 0 to 6 inches below ground surface. If the "original" land surface has been covered by the clay cover referenced in previous correspondence, this material will be removed prior to beginning sample collection.

The following summarizes the method to be used for sample collection:

1) Remove any surface debris such as large rocks, branches, etc., in order to expose surface soils.

2) Using either a pre-cleaned, stainless steel hand shovel, table spoon, or hand auger, collect a representative sample of the surface soil between 0 and 6 inches in depth. Place this soil in a pre-cleaned tin pan and composite thoroughly. Remove any rocks, leaves, roots, and sticks during homogenization. All sampling equipment to be reused shall be thoroughly cleaned by scrubbing with soap and water followed by rinsing with copious amounts of potable water.

3) A sample shall be collected by placing a representative sample of the homogenized material in a pre-cleaned 4 or 8 oz. glass jar and

4) All samples will be uniquely labeled with the data and sample location and delivered to E & E's Analytical Services Center for analysis.

5) Samples will be analyzed by USEPA Method 8080 ("Test Methods For Evaluating Solid Waste," EPA 1986a).

If these sampling methods are appropriate, E & E is prepared to begin this field effort on Tuesday, October 11, of next week. I will look forward to discussing this additional sampling task with you soon. I can be reached by telephone at (716) 684-8060, or by FAX at (716) 684-0844.

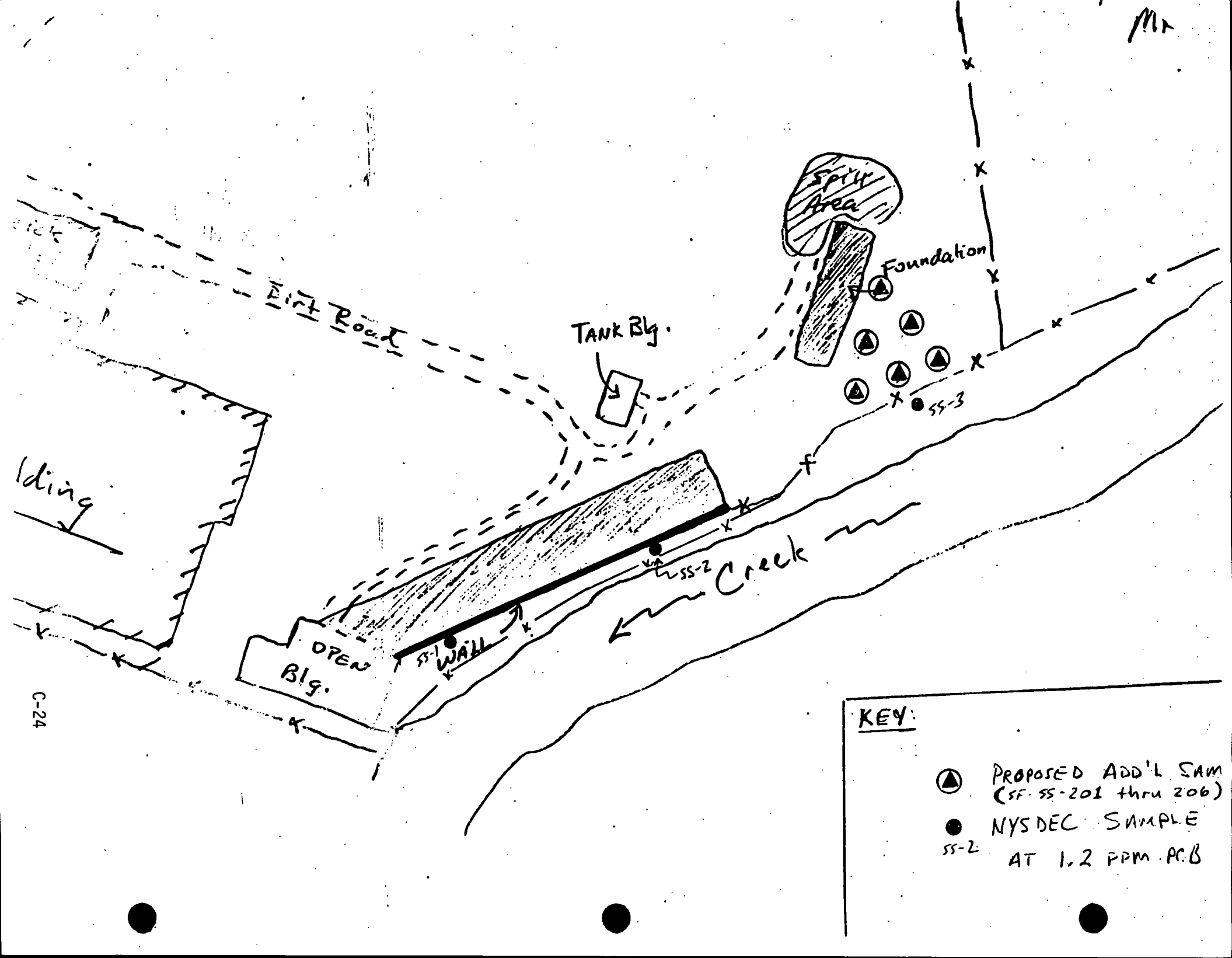
Sincerely,

ECOLOGY AND ENVIRONMENT, INC.

G. Scott Thorsell
Project Manager

OT3090
Enclosure

cc: Robert Elia


Spill Area
Foundation
Dirt Road
TANK Bldg.
Siding
SS-3
SS-2
Creek
SS-1
WALL
OPEN Bldg.
KEY:
PROPOSED ADD'L SAM (SF-SS-201 thru 206)
NYSDEC SAMPLE AT 1.2 PPM PCB
SS-2