PHASE II – COMPREHENSIVE SITE ASSESSMENT
FOR AREAS SOUTH OF THE RACEWAY

OXFORD PAPER MILL
21 CANAL STREET
LAWRENCE, MASSACHUSETTS

MADEP RTN 3-2691

VOLUME I of III – Report, Figures, Tables, and Appendices A through C

Prepared for:

Office of Planning & Development
City of Lawrence
147 Haverhill Street
Lawrence, Massachusetts 01840

Prepared by:

Stone & Webster Massachusetts, Inc.
A Shaw Group Company
100 Technology Center Drive
Stoughton, MA 02072

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ACM	Asbestos Containing Material
ags	above ground surface
AUL	Activity and Use Limitation
bbf	below basement floor
bgs	below ground surface
btg	below transformer pit grade
CDM	Camp Dresser & McKee, Inc.

CEC	cation exchange capacity
COL	City of Lawrence
COPCs	Contaminants of Potential Concern
CSA	Comprehensive Site Assessment
EPA	Environmental Protection Agency
EPH	extractable petroleum hydrocarbons
Eh	redox potential

List of Acronyms (continued)

FIRM	Flood Insurance Rate Map
GenCorp	GenCorp, Inc.
GIS	Geographic Information System
GWFM	Groundwater Flow Model
g/mL	gram per milliliter
HHERAR	Human Health and Ecological Risk Assessment Report
HSO_3	sulfurous acid
HCl	hydrochloric acid
IDW	Investigation-Derived Waste
IWPA	Interim Wellhead Protection Area
LFR	Levine-Fricke Recon
L/kg	liters per kilogram
LSP	Licensed Site Professional
LTBI	Location To Be Investigated
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
mL/g	milliliter per gram
µg/L	micrograms per liter
MADEP	Massachusetts Department of Environmental Protection
MCP	Massachusetts Contingency Plan
MEK	methyl ethyl ketone

MeOH	methanol
MHD	Massachusetts Highway Department
MIBK	methyl isobutyl ketone
MS/MSD	Matrix Spike/Matrix Spike Duplicate
NaOH	sodium hydroxide
$NaHSO_4$	sodium bisulphate
Na_2S	sodium sulfide
ng/L	parts per trillion

List of Acronyms (continued)

NPDES	National Pollutant Discharge Elimination System
NOR	Notice of Responsibility
OHM	Oil and/or Hazardous Materials
OPM	Oxford Paper Mill
ORP	oxidation-reduction potential
OTO	O’Reilly, Talbot & Okun Associates, Inc.
PAH	polycyclic aromatic hydrocarbons
PARCCS	Precision, Accuracy, Representativeness, Comparability, Completeness, and Sensitivity
PCB	polychlorinated biphenyls
PHC	petroleum hydrocarbons
PPE	Personal Protective Equipment
ppm	parts per million
QA / QC	Quality Assurance / Quality Control
QAPP	Quality Assurance Project Plan
RAM	Release Abatement Measure
RAP	Remedial Action Plan
RCRA	Resource Conservation and Recovery Act

RTN	Release Tracking Number
SAP	Sampling and Analysis Plan
SVOC	semi-volatile organic compounds
S&W	Stone & Webster Massachusetts, Inc.
THF	tetrahydrofuran
TPH	total petroleum hydrocarbon
TSCA	Toxic Substance Control Act

List of Acronyms (continued)

UCL	Upper Concentration Limit
VOC	volatile organic compounds
XRF	X-ray Fluorescence

1.0 INTRODUCTION

The purpose of this report is to provide a Phase II - Comprehensive Site Assessment (CSA) report for areas south of the raceway at the Oxford Paper Mill (OPM) in Lawrence, Massachusetts for submittal to meet the regulatory requirements of the Massachusetts Department of Environmental Protection (MADEP) and the Environmental Protection Agency (EPA). The Oxford Paper Mill has been assigned release-tracking number (RTN) 3-2691 by the MADEP. Comprehensive Response Actions were conducted by Stone & Webster Massachusetts, Inc. (Stone & Webster or S&W), A Shaw Group Company, in accordance with the Massachusetts Contingency Plan (MCP), 310 CMR 40.0800, on behalf of the City of Lawrence (COL), the owner of the Oxford Paper Mill property. Massachusetts Highway Department (MHD) has also assumed the responsibility to conduct activities under an MCP Release Abatement Measure (RAM) plan for areas south of the raceway in conjunction with proposed bridge construction. The general site location is depicted on Figure 1 (Site Locus Map). Figure 2 shows the complete Oxford Paper Mill Site, including the areas north and south of the raceway. Figure 3 shows the area south of the raceway, the area that this Phase II – CSA report is focused on.

The area south of the raceway (the Site) is in an area of commercial development within downtown Lawrence, Massachusetts. The property at one time contained buildings that were once part of a paper mill. Currently, the property does not contain any buildings due to the aboveground demolition activities conducted by MHD in order to develop the property for the relocation of Canal Street and the placement of a bridge over the Spicket River, which ultimately will help revitalize the downtown area of Lawrence. The area south of the raceway contains vegetation that includes trees around the perimeter. The Site is bounded to the north by the raceway, to the east by the Spicket River, to the west by a commercial parking lot, and to the south by Canal Street. Access to the property is partially restricted by fencing along the south and west boundaries. However, the Site can be accessed from the raceway and Spicket River. A Site Plan for the area south of the raceway is presented in Figure 3.

The information contained in this Phase II – CSA report is separate and different from the information contained in the Phase II – CSA report prepared for areas north of the raceway that was submitted in August 2006 by S&W (S&W, 2006). This report will also include information gathered by MHD during their on-going demolition activities.

2.0 BACKGROUND

2.1 General Information

The former OPM Site, RTN 3-2691, is located on approximately three acres of land in Lawrence, Massachusetts, immediately northwest of the intersection of Canal Street and the Spicket River (refer to the Site Locus Map attached as Figure 1). A small portion of the OPM is located north of Canal Street on the eastern bank of the Spicket River (an urban surface water body that abuts the OPM). The OPM is transected by a raceway, which discharges to the Spicket River. All nine of the buildings that once occupied the OPM site south of the raceway

(Building Nos. 1, 2, 3, 4, 5, 6, 13, 1A, and 28) have been demolished and removed off-site. Only the sub-basement and basement portions of these buildings currently remain buried on-site. The entire Site has been backfilled with 15 feet or greater of clean fill prior to the proposed bridge construction. Buildings north of the raceway were demolished in the 1970s. The OPM is surrounded by either a wooden stockade or chain-linked fence. Oxford Paper ceased operations at the Site in the mid-1970s. The COL took ownership of the property in 1983.

Properties surrounding the OPM are used for residential, commercial, institutional, and industrial purposes. GenCorp, Inc. (GenCorp), the Everett Mills property, and Union Street are west of the Site. Canal Street and the North Canal are south of the OPM beyond which are other historic mill buildings. The Spicket River is north and east of the Site. The Lawrence General Hospital is beyond the Spicket River to the north. The Everett Mills property is currently used for commercial purposes. The GenCorp facility, which was formerly occupied by Bolta Products and used for manufacturing rubber, is currently vacant. The GenCorp facility was used most recently for manufacturing plastics and vinyl coated fabrics, polyvinyl chloride, and resins. Methyl isobutyl ketone (MIBK), methyl ethyl ketone (MEK), and tetrahydrofuran (THF) were used as part of these manufacturing operations.

Based on a review of the Massachusetts Geographic Information System (GIS) map (Lawrence) (refer to Figure 4), the OPM is not within an Interim Wellhead Protection Area (IWPA) or Zone II. Mr. Madden at the Lawrence Water Department indicated that the COL obtains its water from the Merrimack River. Water is drawn from one well in the Merrimack River; this well is located in the river at the foot of Ames Street (i.e., at the intersection of Ames Street, Water Street, and Riverside Drive), approximately 1.5 miles west and cross gradient of the OPM. The city's reservoir is approximately 1.5 miles northeast of the OPM on Ames Hill. According to Mr. Madden, several car washes and only one residence have private water supply wells in the city. The closest private well is at a car wash approximately 1 mile from the OPM. Based on a review of Massachusetts Surface Water Quality Standards (314 CMR 4.00), the Spicket and Merrimack Rivers are Class B surface water bodies (i.e., designated as habitat for fish, other aquatic life, and wildlife, and for primary and secondary contact recreation).

According to the Federal Emergency Management Agency, Flood Insurance Rate Map (FIRM) for the City of Lawrence, Massachusetts (Community Panel Number 250087 0002B), the northwestern portion of the OPM is within Zone A17 (i.e., an area of 100-year flood) and portions of the north and southeastern areas of the Site are within Zone B (i.e., an area between the limits of the 100-year and 500-year flood).

2.2 Ownership History and Historic Paper Mill Activities

HMM Associates conducted a preliminary site assessment in 1992, which summarized the history of the OPM. The following information is drawn from the HMM report (HMM, 1992). The HMM report states that paper making had been conducted on the Site for 135 years, first under the name Russell Paper Company, then Champion International, Oxford, Ethyl, and finally Pleasant Valley Paper Mills. Operations ceased completely in 1974. The COL took ownership of the OPM in 1983.

Pulping of the wood chips was done by the "soda and sulphite" chemical process, which produced a foul odor (HMM, 1992) and typically used a base (lime or sodium hydroxide) plus sulfurous acid (HSO_3). Another pulping process, called the kraft chemical pulping process, uses sodium hydroxide (NaOH) and sodium sulfide (Na_2S), and may have also been used at the OPM Site. The process was most likely conducted in steel digesters under steam pressure. Some papers were coated with clay, which was stored in silos that were once present on the property. Buildings identified on the Sanborn maps include the "soda pulp mill", the "chemical mill" (No. 15), a machine building, (No. 3), and a building containing "beating engines" and a "rotary bleacher" (No. 6). Bleaching of pulp may have been done using chlorine or hypochlorite. An open coal bin, boiler room, and "black ash room" are also identified on some Sanborn maps. Note that building numbers, arrangements, and uses changed over the years according to the Sanborn maps.

Contaminants that may be present on the Site due to former paper mill operations include polycyclic aromatic hydrocarbons (PAHs) from coal, coal ash, and other combustion operations; chlorinated organic compounds that may have been formed during pulp bleaching operations; and sulfides from chemical pulp residues. The chlorinated organic compounds and sulfides would most likely have been released to surface water and air, as opposed to soil, because they are associated with mill operations that involved water discharges (to the raceway most likely) and air emissions (sulfur compounds and other volatile organic compounds (VOCs) from stacks and process tanks). In addition, underground storage tanks contained fuel oils; therefore, petroleum hydrocarbons (PHCs) may be present in soil and groundwater. Transformers containing polychlorinated biphenyls (PCBs) have historically been present on-site.

2.3 Environmental Compliance and Permit History

Since the Site is within the 100 year floodplain of the Spicket River (i.e., it is considered to be Bordering Land Subject to Flooding), a Notice of Intent (a written notice filed by any person intending to remove, fill, dredge, or alter an Area Subject to Protection under the Wetlands Protection Act) has been filed by both MHD and the COL with the Lawrence Conservation Commission.

MHD has been given a National Pollutant Discharge Elimination System (NPDES) permit for dewatering activities that are being conducted as part of the demolition activities associated with the area south of the raceway.

2.4 Regulatory History

A Notice of Responsibility (NOR) was issued to the COL on May 15, 1989; the NOR indicated that contaminant conditions at the former OPM render the Site a "Location To Be Investigated" (LTBI). According to an October 23, 1989 letter from MADEP to the COL, the Emergency Response Branch concluded that no further emergency response actions at the Site were necessary at the time and the case was referred to the Site Management Branch. The Site was first listed as an LTBI on MADEP's "List of Confirmed Disposal Sites and Locations to be

Investigated" on January 15, 1990. As a Transition Site under the MCP, the August 2, 1996 deadline for submittal of a Licensed Site Professional (LSP) Evaluation Opinion, as specified in the MCP (310 CMR 40.0610(3)(b)), applied to the Site. Neither one of the submittals listed in 310 CMR 40.0610(5)(a) through (c) (i.e., an LSP Evaluation Opinion, statement pursuant to 310 CMR 40.0610(4)(b), or Response Action Outcome Statement) nor a Tier Classification Submittal was submitted to MADEP by this deadline. As such, the Site was categorically classified as a Tier IB disposal Site on August 2, 1996.

On November 23, 1999, the Site was Tier Classified by Mr. Kevin Scully, LSP of Stone & Webster. The numerical ranking for the Site was 558, and a Tier 1A Permit Application Submittal was sent to MADEP on November 29, 1999 for administrative and technical review. A Site visit was conducted by MADEP on February 3, 2000. During this meeting and subsequence discussions with Mr. Kevin Scully and Ms. Ann Roche of MHD, Mr. Larry Mach of MADEP indicated that the Site would be classified Tier 1B. On March 3, 2000, MADEP classified the Site as a Tier 1B (Permit # W008661).

2.5 Soil and Groundwater Categories

For screening purposes only, the analytical results have been compared to applicable MCP S-3/GW-3 Standards throughout this report. Soil and groundwater categories have been developed by MADEP to facilitate the characterization of site risk where releases have occurred. Appropriate categories for this site have been identified in accordance with 310 CMR 40.0990. These categories are also discussed in the Method 3 Risk Characterization provided in Appendix L.

2.5.1 Soil Categorization

Soil categorization is described in Section 40.0933 of the MCP. Three criteria are assessed to identify the soil category: accessibility, frequency of use, and intensity of use. Accessibility is determined by identifying how close to the surface oil and hazardous material (OHM) is located and whether there are physical barriers such as pavement preventing access to it. At this site, surface soils are considered “accessible” and subsurface soils are considered "potentially accessible". Frequency of use describes how often a receptor has access to or use of the disposal site. Intensity of site use is an indication of the likelihood of contacting or disturbing the soil in a manner which will increase exposures to OHM.

Soils that are located at a depth of 15 feet or greater are defined under the MCP as being “isolated” from exposure. All soils located beneath the basement and sub-basement of the former site buildings as well as the soils located within the Transformer No. 6 / Courtyard Area are considered “isolated” (see Figure 3). Clean fill (greater than 15 feet) has been placed over the entire Site as part of the proposed relocation of Canal Street and bridge construction. Under the MCP (310 CMR 40.0933) soil is categorized as S-1, S-2, or S-3, based on the current and reasonably foreseeable site activities and uses as identified in the MCP. For the purpose of soil categorization, the potential for exposure is described by a qualitative analysis of the accessibility of the soil in combination with information about the Site activities and uses. The criteria contained in the MCP (310 CMR 40.0933) were used to describe exposure potential at the Site.

Since the entire Site has been backfilled with clean fill (greater than 15 feet), an S-3 category is applicable to soils on the Site in the future. For the future, it is anticipated that the Site will be used as a passive area where a bridge will be built over the Site, and hence have a low intensity and frequency of use.

2.5.2 Groundwater Categorization

As described in 310 CMR 40.0932, MADEP has identified three groundwater quality categories under the MCP, each reflective of a type of risk that may be posed by OHM in groundwater. Different combinations of these criteria are applicable at sites depending upon the groundwater resource characteristics.

The GW-1 category is applicable to locations where groundwater is, or may in the future be, a drinking water source. Based on a review of the MADEP Bureau of Waste Site Cleanup Site Scoring Map (refer to Figure 4), the Site is not located within a designated Zone II, Interim Wellhead Protection Area, a Potentially Productive Aquifer, or the Zone A of a Class A Surface Water Body. In addition, the Site and surrounding areas are serviced by municipal water and is not indicated to be within 500 feet of any private wells. Therefore, an MCP GW-1 Groundwater Category classification is not considered applicable to the Site.

The GW-2 category applies to locations where OHM may volatilize from the groundwater and migrate into an occupied structure. Since no currently occupied buildings exist on-site and an Activity and Use Limitation (AUL) will prevent future building construction, the current and future classification of Site groundwater in the GW-2 category (as defined in 310 CMR 40.0932(2)) is not considered applicable.

The GW-3 category is intended to protect environmental receptors in surface water, which may be exposed to OHM when groundwater discharges to surface water. As is the case at all sites, the GW-3 groundwater category is applicable. The Spicket River, which abuts the Site, is a potential surface water receiving body for site related groundwater. Therefore, completion of an exposure pathway between contaminants in groundwater and this nearby surface water body is considered possible. Consequently, consistent with the requirements of 310 CMR 40.0932(2), where all groundwater is assumed to eventually discharge to surface waters, the groundwater at the Site is classified as a GW-3 Groundwater Category.

In summary, based on the above soil and groundwater categorizations, applicable MCP Categories are S-3 for soil and GW-3 for groundwater.

2.6 Results of Previous Investigations

The following are the results of previous investigations focusing on the south side of the raceway:

Briggs Associates, Inc., 1984

In December 1984, Briggs Associates, Inc. (Briggs) completed an Environmental Site Investigation of the former OPM property in accordance with Massachusetts General Laws (M.G.L.) Chapter 21E. The study consisted of a Site reconnaissance, a review of information at the Lawrence Fire Department regarding storage tanks on the property, excavation of five shallow (to a maximum depth of 7 feet below ground surface (bgs)) test pits (TP-1B thorough TP-5B), and collection and analysis of soil samples for VOCs, Resource Conservation and Recovery Act (RCRA)-8 metals, and oil and grease. Briggs concluded that, "RCRA metals, oil and grease, and volatile organics concentration were all within limits not to represent an issue," and "all factors indicate that the area is environmentally acceptable."

Eckenfelder, Inc. 1984 through 1992

Eckenfelder, Inc. conducted investigations of the GenCorp, Inc. site between 1984 and 1992. These studies were conducted in phases (i.e., Phase I-A, Phase I-B, Phase II, Phase III-A, Phase III-B, Phase IV-A, Phase IV-B, and Phase IV-C). Eckenfelder's Phase IV investigations, which were completed between September 1990 and December 1992, included sampling and analysis of soil and groundwater on the former OPM Site. The scope and results of their work on the former OPM Site are presented below.

Eckenfelder's Phase IV groundwater investigation program included: installation of monitoring wells on both the GenCorp, Inc. and former OPM property; collection of two rounds of groundwater samples from existing wells; collection of a third round of groundwater samples from a limited number of wells; and collection of surface and subsurface soil samples. The following paragraphs summarize soil and groundwater analytical results for the OPM property.

Soil

With the exception of 0.12 mg/kg of methylene chloride in surface soil sample G-19 (south side), no VOCs were detected in soil. Low levels of semi-volatile organic compounds (SVOCs) (i.e., benzo(a)anthracene, benzo(b)fluoranthene, bis-(2-ethylhexyl) phthalate, di-n-butyl phthalate, chrysene, fluoranthene, and pyrene) were detected in soil at various depths. PHCs were detected in three subsurface soil samples (B-16XD (north side), B-22 (north side), and B-18 (south side)) at concentrations ranging from 13 to 1720 mg/kg. PCBs (Aroclor 1254) were detected in two surface soil samples, G-19 (south side) and G-22 (north side) at 0.165 and 0.34 μg/kg, respectively. Mercury was detected in surface soil at one location (i.e., B-19 (south side)) at a concentration of 43 mg/kg. Lead and zinc were detected in surface soil sample G-18 (south side) at 230 and 200 μg/kg, respectively. Phenols were also detected in soil sample G-18 at 59.5 mg/kg.

Groundwater

VOCs (i.e., benzene, chloroform, ethylbenzene, toluene, 2-chloro-ethyl vinyl ether, MIBK, MEK, acetone, THF) were detected at low concentrations in groundwater during Eckenfelder's Phase IV investigation.

Analytical results indicated the presence of low levels of PCBs in three wells (B-18D (south side), B-20D (north side), and B-22D (north side)) on the former OPM Site at concentrations close to the detection limit (concentrations ranged from 0.5 to 2.9 µg/L). Data validation concluded that the PCBs values for these wells were false positives. No PCBs were detected in deep bedrock wells or in wells along the downgradient perimeter of the former OPM Site.

Elevated levels of several metals (arsenic, chromium, mercury, lead) were detected in groundwater. Arsenic was detected in wells B-16D (north side) and B-22D (north side) at 212 and 370 µg/L, respectively. Analytical results indicated the presence of mercury in monitoring well B-19 (south side) at 440 µg/L and lead in monitoring well B-16D (north side) at 16 µg/L.

Phenanthrene was detected in groundwater collected from monitoring well B-22S (north side) at a concentration of 70 µg/L. pesticides (beta BHC) were detected in B-22D (north side) at a concentration of 0.09 µg/L.

Based on the results of this study, Eckenfelder, Inc. concluded that the shallow VOC plume emanating from the GenCorp, Inc. property has decreased in size and no longer extends onto the former OPM property.

<u>Eckenfelder, Inc., 1994</u>

In October 1994, Eckenfelder, Inc. collected groundwater samples from 20 existing monitoring wells located on and around the OPM site (both north and south sides). The samples were analyzed for VOCs, PCBs, arsenic, chromium, mercury, and zinc. Low to non-detectable levels of VOCs were present in groundwater. PCBs were not detected in any of the groundwater samples. Concentrations of arsenic, chromium, mercury, and zinc were consistent with previous sampling results.

<u>Eckenfelder, Inc., 1995</u>

In May 1995, Eckenfelder, Inc. collected surface water samples from locations within the Spicket River, North Canal, and raceway. The samples were analyzed for VOCs via EPA Method 8240 and tetrahydrofuran (THF). With the exception of 1.1 µg/L of 1,2-dichloroethene (1,2-DCE) in the Spicket River at General Street (SW-1) and 2.7 µg/L of carbon disulfide in the raceway (SW-11), no VOCs were detected in the surface water samples collected.

<u>Eckenfelder, Inc. 1997</u>

<u>Groundwater</u>

To date, there have been two monitoring well nests (B-18 and B-19) associated with groundwater sampling on the south side of the raceway at the OPM Site. The B-18 monitoring well nest (S, D, and XD) was located on the OPM property before it was decommissioned in

1997 due to the implementation of MHD's demolition project. The B-19 monitoring well nest (S, D, and XD) was installed downgradient and across Canal Street (off-site) to replace the B-18 monitoring well nest.

Groundwater for the B-18 monitoring well nest was last sampled in November of 1996, during a sampling event conducted by Eckenfelder for GenCorp (Eckenfelder, Inc., 1997). During the November 1996 sampling event, the B-18 monitoring wells were sampled and analyzed for VOCs, SVOCs, PCBs, priority pollutant metals, cyanide, and diesel range organics or petroleum hydrocarbons. There were no exceedances of MCP standards for these parameters during this event. The B-19 monitoring well nest still exists today and is used primarily by GenCorp, Inc. as detection wells for PCBs and VOCs (sampled semi-annually). To date, no PCBs or VOCs samples have exceeded MCP standards. Low levels of metals (barium, calcium, and magnesium) were detected in the November 1999 sampling event for the B-19 monitoring wells (Camp Dresser & McKee Inc., 2003).

Figure 3 shows the locations of the B-18 and B-19 monitoring well nests installed by GenCorp on the south side of the OPM property.

2.7 Asbestos Air Monitoring

Due to the presence of asbestos in surface soils, real-time air monitoring for asbestos has been conducted by MHD during all site activities. An asbestos air-monitoring plan and action levels were established for the project through consultation with the EPA and MADEP. Real time asbestos-containing material (ACM) air monitoring results produced by MHD for areas south of the raceway indicate that actions levels were never exceeded.

In addition, equipment operators were required to wash equipment parts that contacted soil before leaving the Site. All site wash water was collected and treated in MHD's on-site treatment system prior to being discharged.

2.8 Tier Classification

As described above, the OPM property has undergone a succession of environmental investigations beginning in 1984. The Site is a listed MCP disposal site, RTN 3-2691. The Site first came to MADEP's attention in 1989, after a release of petroleum product to the Spicket River. The Site was a transition site that was classified as a default Tier 1B site in 1996, because required MCP submittals were not filed with the MADEP. The Site was classified as Tier 1A by Stone & Webster for the COL in November 1999. After a site visit and subsequent discussions, MADEP re-classified the Site as Tier 1B, which is the current site status.

3.0 PHASE II-COMPREHENSIVE SITE ASSESSMENT ACTIVITIES

The purpose of the Phase II CSA field program was to fill gaps in data necessary to characterize the source, extent, and migration pathways of OHM, and the risk or harm posed to health, safety, public welfare, and the environment. As property owner, the COL has responsibility to ensure that the property is sufficiently remediated to satisfy all regulatory requirements and allow for its intended use. This includes conducting all necessary environmental assessment and remediation activities that are not dealt with by MHD and GenCorp (now controlled by Camp Dresser & McKee, Inc. (CDM)). To date, the COL, represented by Stone & Webster, has conducted environmental assessment activities for soil conditions below building basements and the Transformer No. 6 / Courtyard Area on the OPM site.

Environmental assessment work at the OPM site is being conducted under two separate RAM plans, one by Stone & Webster and the other by MHD. MHD's RAM Plan deals with the demolition of site buildings that were south of the raceway, disposal of contaminated and uncontaminated demolition debris associated with these buildings, decontamination of the basements of site buildings and backfill with structural material in anticipation of bridge construction, removal of PCB-contaminated transformers and all soils contaminated by PCBs released from these transformers, and final grading for the southern portion of the site. This Phase II report will summarize MHD's results for PCB concrete sampling of site buildings prior to demolition activities as well as the results for PCB soil sampling of transformer areas. This information was gathered as part of MHD's RAM Plan and scope of work for the project.

The following section describes the objective of field activities conducted by S&W for the COL from 2001 to 2005. S&W conducted soil sampling to define the extent and characteristics of contamination beneath the basement soils and the Transformer No. 6 / Courtyard Area. Soil sampling was conducted below Buildings Nos. 1, 2, 3, 4, 5, 6, and 28. All sampling procedures for site buildings sub-basement soils is described in the OPM Sampling and Analysis Plan (SAP) completed by S&W in April 2001. Groundwater sampling was conducted in the Transformer No. 6 / Courtyard Area.

<u>Building No.1</u>

- Advancement of seven soil borings through the concrete basement floor. The concrete basement floor was penetrated using a concrete corer and a Geoprobe was then used to advance the boring into the soil below the basement floor. Refer to Figure 5 for the Building No. 1 sample locations.

- A discrete soil sample was taken from the first six inches of soil, followed by samples taken from subsequent 2-foot intervals. If contaminants of potential concern (COPCs) were not present above MCP standards in the 0-0.5 ft. sample at a given location, then samples collected below that depth interval were not analyzed unless visual staining was present. If one or more COPCs were present above its respective MCP standard, then both the 0-2 ft. and 2-4 ft. sample intervals were analyzed. Samples were analyzed at an off-site laboratory for PCBs, pesticides, Extractable Petroleum Hydrocarbon (EPH), VOCs, RCRA 8 Metals plus beryllium & zinc, and PAHs.

<u>Building No. 2</u>

- Advancement of eight soil borings through the concrete basement floor. The concrete basement floor was penetrated using a concrete corer and a Geoprobe was then used to advance the boring into the soil below the basement floor. Refer to Figure 5 for the Building No. 2 sample locations.

- A discrete soil sample was taken from the first six inches of soil, followed by samples taken from subsequent 2-foot intervals. If COPCs were not present above MCP standards in the 0-0.5 ft. sample at a given location, then samples collected below that depth interval were not analyzed unless visual staining was present. If one or more COPCs were present above its respective MCP standard, then both the 0-2 ft. and 2-4 ft. sample intervals were analyzed. Samples were analyzed at an off-site laboratory for PCBs, pesticides, EPH, VOCs, RCRA 8 Metals plus beryllium & zinc, and PAHs.

Building No. 3

- Advancement of 50 soil borings through the concrete basement floor. The concrete basement floor was penetrated using a concrete corer and a Geoprobe was then used to advance the boring into the soil below the basement floor. Refer to Figure 6 for the Building No. 3 sample locations.

- Collection of soil samples at 0-0.5 ft., 0.5-2 ft., and 2-4 ft. below the basement floor. Samples were analyzed by a mobile laboratory for PCBs, lead by X-ray fluorescence (XRF), and PAHs. A discrete sample was taken from the first six inches of soil, followed by samples taken from the subsequent 2-foot intervals. Sampling within each 2-foot depth interval was biased toward visually stained soil. Initially, the 0-0.5 ft. below basement sample interval from each sampling location was analyzed at the on-site laboratory and at an off-site laboratory (PCBs, pesticides, EPH, VOCs, RCRA 8 Metals plus beryllium & zinc, and PAHs). If COPCs were not present above MCP standards in the 0-0.5 ft. sample at a given location, then samples collected below that depth interval were not analyzed unless visual staining was present. If one or more COPC were present above its respective MCP standard, then both the 0.5-2 ft and 2-4 ft. sample intervals were analyzed.

In order to detect seepage of PCBs through the concrete floor, the sampling program was on a grid of 25-foot on center.

Building No. 4

- Advancement of three soil borings through the concrete basement floor. The soil borings were advanced using an electric jack hammer with split spoon attachments, due to the limited access and space. Refer to Figure 5 for the Building No. 4 sample locations.

- A discrete soil sample was taken from the first six inches of soil, followed by samples taken from subsequent 2-foot intervals. If COPCs were not present above MCP standards in the 0-0.5 ft. sample at a given location, then samples collected below that depth interval were not analyzed unless visual staining was present. If one or more COPCs were present above its respective MCP standard, then both the 0-2 ft. and 2-4 ft. sample intervals were analyzed. Samples were analyzed at an off-site laboratory for PCBs, pesticides, EPH, VOCs, RCRA 8 Metals plus beryllium & zinc, and PAHs.

Building No. 5

- Advancement of one soil boring through the concrete basement floor. The soil boring was advanced using an electric jack hammer with split spoon attachments, due to the limited access and space. Refer to Figure 5 for the Building No. 5 sample locations.

- A discrete soil sample was taken from the first six inches of soil, followed by samples taken from subsequent 2-foot intervals. If COPCs were not present above MCP standards in the 0-0.5 ft. sample at a given location, then samples collected below that depth interval were not analyzed unless visual staining was present. If one or more COPCs were present above its respective MCP standard, then both the 0-2 ft. and 2-4 ft. sample intervals were analyzed. Samples were analyzed at an off-site laboratory for PCBs, pesticides, EPH, VOCs, RCRA 8 Metals plus beryllium & zinc, and PAHs.

Building No. 6

- Advancement of 16 soil borings through the concrete basement floor. The soil borings were advanced using an electric jack hammer with split spoon attachments and the Geoprobe, due to the limited access and space. Refer to Figure 5 for the Building No. 6 sample locations.

- A discrete soil sample was taken from the first six inches of soil, followed by samples taken from subsequent 2-foot intervals. If COPCs were not present above MCP standards in the 0-0.5 ft. sample at a given location, then samples collected below that depth interval were not analyzed unless visual staining was present. If one or more COPCs were present above its respective MCP standard, then both the 0-2 ft. and 2-4 ft. sample intervals were analyzed. Samples were analyzed at an off-site laboratory for PCBs, pesticides, EPH, VOCs, RCRA 8 Metals plus beryllium & zinc, and PAHs.

In order to detect seepage of PCBs through the concrete floor, the sampling program was on a grid of 25-foot on center.

Building No. 28

- Advancement of six soil borings through the concrete basement floor. The concrete basement floor was penetrated using a concrete corer and a Geoprobe was then used to advance the boring into the soil below the basement floor. Refer to Figure 7 for the Building No. 28 sample locations.

- A discrete soil sample was taken from the first six inches of soil, followed by samples taken from subsequent 2-foot intervals. If COPCs were not present above MCP standards in the 0-0.5 ft. sample at a given location, then samples collected below that depth interval were not analyzed unless visual staining was present. If one or more COPCs were present above its respective MCP standard, then both the 0-2 ft. and 2-4 ft. sample intervals were analyzed. Samples were analyzed at an off-site laboratory for PCBs, pesticides, EPH, VOCs, RCRA 8 Metals plus beryllium & zinc, and PAHs.

Transformer No. 6 / Courtyard Area

- Advancement of 16 soil borings in and around the former location of Transformer No. 6. Eleven of the 16 soil borings were completed by S&W in March and May 2005. Levine-Fricke Recon (LFR) completed five borings in September 2004 with S&W taking samples from these borings. Each S&W soil boring was advanced 25 feet beyond the bottom of the 8-foot transformer pit excavation (to approximately 33 feet bgs). For each soil boring, a sample was collected at 5, 15, and 25 foot intervals below the transformer pit grade (btg). Four of the 16 soil borings were completed as monitoring wells. Samples were collected through the use of a ATV drilling rig and a truck sonic drilling rig. Refer to Figure 8 for the locations of the Transformer No. 6 / Courtyard area soil borings and monitoring wells. Soil samples were analyzed at an off-site laboratory for PCBs, PAHs, EPH, and RCRA 8 metals plus Zn & Be. Groundwater samples were analyzed at an off-site laboratory for PCBs, PAHs, and EPH.

3.1 Health and Safety

S&W developed and implemented a worker Health and Safety Plan for the work performed on the south side of the raceway at the OPM in Lawrence, MA (S&W, updated April 2006). Also, MHD's Health and Safety Plan was followed by on-site workers. On-site personnel read and signed the Health and Safety Plan before performing work on the south side of the OPM site. Due to the asbestos found throughout the areas south of the raceway, work was conducted in Level C personal protective equipment (PPE) unless conditions dictated otherwise and no action levels were reached. Asbestos air monitoring was conducted during all investigative activities south of the raceway.

3.2 Building Sub-Basement Floor Soil Borings

As part of the Phase II CSA, soil borings were advanced through the concrete basement floors of all buildings utilizing a concrete corer and/or electric jack hammer with split spoon attachments and then advanced into the soil to a target depth with a Geoprobe. The obstructions and limited access encountered during these investigations determined whether a concrete corer or electric jack hammer was used. Geoprobe refusal was also encountered during these investigations, which limited the advancement of some of the soils borings. Soil boring locations within each building were chosen based on accessibility and site historical information. The locations of the soil borings are depicted on Figures 5, 6, and 7. Soil samples from all sub-basement investigations were sent to a certified laboratory and analyzed for PCBs, PAHs, EPH, VOCs, pesticides, and RCRA 8 metals plus beryllium & zinc. Analytical results are discussed in Section 5.1. A soil description and boring log for each boring is provided in Appendix A. Refer to Section 3.0 for a summary of the number of soil borings performed in each of the buildings.

3.3 Transformer No. 6 / Courtyard Area Soil Borings

As part of the Phase II CSA and site remediation goals, additional assessment activities (monitoring well construction/soil borings) in the Transformer No. 6 / Courtyard area were conducted to determine the nature and extent of PCB contamination in this area. These activities were done based on sampling results from the S&W and LFR sampling event on September 3, 2004. Refer to Figure 9 for sample locations investigated during the 2004 sampling event. This sampling event was conducted by advancing into transformer pit/courtyard soils to target depths with a Geoprobe. Additional assessment activities conducted by S&W (March and May 2005) included PCB soil sampling from soil borings that were advanced by using an ATV drilling rig with hollow stemmed augers and a sonic drilling rig mounted on a truck. During the March 2005 investigation, the ATV drilling rig had difficulties advancing through the rubble/till that was present in the Transformer No. 6 / Courtyard area and thus limiting the advancement of soil borings during the investigation. During the May 2005 investigation, a more powerful truck sized sonic drilling rig was used to complete the soil boring/monitoring well construction program. Soil samples from the March and May 2005 site investigations were sent to a certified laboratory and analyzed for PCBs, PAHs, EPH, and RCRA 8 metals plus beryllium & zinc. Analytical results are discussed in Section 5.1. Soil boring/sample locations for the Transformer No. 6 / Courtyard area from the March and May 2005 sampling events are presented on Figure 8. A soil description and boring log for each boring is provided in Appendix A.

3.4 Monitoring Well Construction

Groundwater monitoring wells were installed in four borings, SB-2 (MW-2), SB-9 (MW-9), SB-10 (MW-10), and SB-11 (MW-11) in and around the Transformer No. 6 / Courtyard area (refer to Figure 8). There was difficulty constructing MW-2 in the initial soil boring for SB-2 and therefore MW-2 was constructed approximately five feet away in a separate boring. The monitoring wells were constructed using two-inch schedule-40 flush jointed PVC. Due to the continuous fluctuation of groundwater height in the area, which corresponds with the adjacent Spicket River water levels, the top of the well screen was set below the water table encountered during the date of installation. Depending on the time of year, the water level in each of the four wells could be above or below the top of the ten-foot screen. Each well was extended to seven feet above ground surface (ags) with a solid PVC riser that was capped with a locking expansion cap and housed in a four-inch padlocked steel stand-pipe. Initially each well was extended to three feet bgs but due to backfilling operations in the area each well was extended an additional four feet.

Each monitoring well consisted of a sand pack in the annular space around the PVC completed to approximately two feet above the top of the well screen, approximately two to three feet of hydrated bentonite, and up to ground level with additional sand. Cuttings from the borings were considered to be impacted with PCBs and therefore were not used to backfill the remaining annulus. All four monitoring wells were typical overburden monitoring well installations. The monitoring well construction logs from the Transformer No. 6 / Courtyard area are presented in Appendix A. The monitoring well construction logs pertaining to GenCorp Inc. decommissioned monitoring wells (B-18 well nest) on the OPM property were not readily available from their reports.

3.5 Monitoring Well Development

Following the well construction of the Transformer No. 6 / Courtyard area monitoring wells, S&W developed the four installed monitoring wells MW-2, MW-9, MW-10, and MW-11 using the procedures outlined in the EPA's Low Flow Groundwater Sampling Procedure (EPA, 1996a). The monitoring wells were developed by throttling the Whale® pumps which were powered by a 12-volt battery supply to slow the flow rate down. The purpose of the development process was to remove the fine sediments that may have entered the well screen and to bring the well into hydraulic connection with the aquifer. At a minimum, three well volumes were removed from the well casing prior to considering well development activities complete. A well volume was determined to contain approximately 0.16 gallons of water per linear foot of well casing. After the wells were purged to remove the majority of sediments, low flow development was used. Temperature, pH, conductivity, turbidity, dissolved oxygen, and salinity were recorded and development was continued until parameters had stabilized. All development water was containerized within 55-gallon drums for off-site disposal. Monitoring well development records are presented in Table 3-1. The monitoring well development records pertaining to GenCorp Inc. decommissioned monitoring wells (B-18 well nest) on the OPM property were not readily available from their reports.

3.6 Groundwater Purging and Sampling

Due to the extreme rains and high water in the Spicket River during the spring of 2005, the raceway adjacent to the monitoring well grid flooded and spilled into the Transformer No. 6 / Courtyard area monitoring well grid. Therefore, the MW-2 and MW-9 monitoring wells were not accessible and were sampled approximately one month after they were installed. However, this was not the case for MW-10 and MW-11, as these wells were sampled two weeks after they were installed. Groundwater samples were collected from the four installed monitoring wells (MW-2, MW-9, MW-10, and MW-11) using the EPA's low flow protocol. The purge water was monitored for pH, temperature, conductivity, specific conductivity, dissolved oxygen, ORP, and turbidity throughout each purge cycle. Upon stabilization of these in-situ parameters, a groundwater sample was collected from each monitoring well. Groundwater parameters collected during low flow sampling are included in Table 3-2. The groundwater samples were collected on April 20, May 20, and May 25, 2005. For comparison purposes, these groundwater samples were filtered (dissolved) and non-filtered (total) prior to PCB analysis. Groundwater samples were sent to a certified laboratory and analyzed for PCBs, PAHs, and EPH. Analytical results are discussed in Section 5.3. Monitoring well/sample locations for the Transformer No. 6 / Courtyard area from the April and May 2005 sampling events are presented on Figure 8.

3.7 Wellhead Surveying and Water Level Gauging

As part of Phase II CSA activities, S&W surveyed all of the soil borings and monitoring well locations in the Transformer No. 6 / Courtyard area. The top of the PVC and steel standpipe casings were surveyed to within ± 0.01 feet vertically using a surveyor's level and rod. The relative elevations of the top of the PVC and steel standpipe casings, as well as depth to groundwater measured in separate gauging rounds, are provided in Table 3-3. Depth to groundwater measurements were taken on two separate occasions, July 1 and July 20, 2005. The groundwater contour maps for the Transformer No. 6 / Courtyard area (for the south area in general) are shown on Figures 10 and 11.

3.8 Laboratory Analytical Methods & QA / QC

As part of Phase II CSA activities, soil samples were analyzed for PCBs, PAHs, EPH, pesticides, VOCs, RCRA 8 Metals plus beryllium & zinc. Soil samples were analyzed using modified EPA Method 8082 for PCBs, EPA Method 8270C for PAHs, MADEP EPH for EPH, EPA Method 8081 for pesticides, EPA Method 8260B for VOCs, and EPA Method 6010B/7417A for RCRA 8 Metals plus beryllium & zinc. Groundwater samples were analyzed for PCBs, PAHs, and EPH.

Quality control (QC) samples were collected and submitted for laboratory analysis to monitor and evaluate laboratory and sampling performance. The field QC samples collected included rinsate blanks, trip blanks, field duplicates, and matrix spike/matrix spike duplicate samples. Field duplicates were submitted at a frequency of 10% and the matrix spike/matrix spike duplicates were submitted at a frequency of 5% of total samples collected. Rinsate blanks were submitted at a frequency of 5% of the total samples collected and one trip blank was included in each cooler containing VOC samples.

All data collected for analysis from the sub-basement and Transformer No. 6 / Courtyard area investigations were validated by Kestrel Environmental Technologies, Inc.

3.9 Sample Handling / Preservation

Following sample collection, all samples were placed in coolers containing ice and maintained at a temperature of 4^0C (±2^0C). Additionally, soil samples collected for VOC analysis were placed in a 30mL vial and preserved with methanol (MeOH) and another 30mL vial preserved with sodium bisulphate ($NaHSO_4$). Groundwater samples collected for EPH analysis were placed in a 1L amber bottle and preserved with hydrochloric acid (HCl). Groundwater samples collected for PCB analysis were not filtered in the field but rather by laboratory personnel. This was used for comparison purposes only between the filtered (dissolved) and non-filtered (total) PCB groundwater samples. All samples were delivered to the lab with a Chain of Custody form.

3.10 Decontamination Procedures

Sampling equipment that required decontamination included the split-spoon attachments to the hollow stemmed augers and the electric jack hammer, Geoprobe down-hole tools, and the inside of the core barrel used in sonic drilling. Due to the asbestos concerns, vehicle decontamination was conducted on all vehicles prior to leaving the Site. Disposable plastic spoons and Ziploc® bags were used for composite sample collection. The disposable equipment was bagged and discarded after each use, and therefore no decontamination was necessary.

The split spoon samplers were decontaminated as follows:

1. Alconox bath to remove soils adhering to equipment;
2. Potable water rinse;
3. Methanol rinse; and
4. Distilled water rinse.

3.11 Investigative Derived Wastes

The PCB contaminated soils, purge water, decon water, and decon pads from the March, April, and May 2005 investigations in the Transformer No. 6 / Courtyard area as well as the lead and PCB contaminated soil from the sub-basement March 2004 confirmatory sampling of Building Nos. 2 and 6 were transported off-site for disposal. Appendix J presents the uniform hazardous waste manifests for the Investigative Derived Waste (IDW). All unused soil collected with the Geoprobe was put back into the boring hole created by the Geoprobe.

4.0 GEOLOGY AND HYDROGEOLOGY

4.1 Regional Geology

Based on the soil survey for the northern part of Essex County, Massachusetts, the overlying surficial deposits consist primarily of loamy soils formed over compact glacial till. Two drumlins are located near the Site, including Prospect Hill to the northeast and a smaller hill located to the northwest. The thickness of glacial till is often on the order of 15 to 20 feet, although thicknesses of up 175 feet have been observed in the drumlin area (Eckenfelder, Inc., 1998).

According to the GenCorp Phase II Groundwater Model Report conducted by Eckenfelder, Inc. in 1998, bedrock underlying the OPM site lies within the Merrimack Belt lithotectonic zone. Major faults further subdivide the Merrimack belt into individual tectonic zones – each of which has a different and distinct lithology. Furthermore, the OPM site is located north of the Clinton-Newbury fault, which is accompanied by a series of many smaller faults and associated disrupted geologic strata. The bedrock lithology consists of a series of meta-sedimentary rock types of the Berwick formation. The encountered bedrock of the OPM site is composed of phyllite, argillite, and quartzite with minor amounts of calcareous metagraywacke and schist (Eckenfelder, Inc., 1998).

4.2 Site Specific Geology

The area south of the raceway is relatively flat. The western portion of the site is at a higher elevation than the eastern portion. The average elevation of the Site is approximately 30 feet above mean sea level (msl).

The soils onsite are part of Urban Land, which consists of nearly level to moderately steep areas where the soils have been altered or obscured by urban works and structures. The site soils are part of the Paxton-Woodbridge-Monatauk association where the area is nearly level to steep, well drained and moderately well drained, loamy soils formed over compact glacial till (Soil Survey of Essex County, Massachusetts Northern Part, 1981).

The geology on the south side of the OPM was assessed through a subsurface boring program as described in Sections 3.2 and 3.3. Based on observations of the split spoon samples, the general geologic profile was found to consist primarily of an assemblage of loamy and sandy soils. The mixture of differing sediment sizes indicates that the materials are not well sorted, and are consistent with glacial deposits. The soil borings also revealed similar conditions of differing amounts of loam, sand and gravel with coal ash, bricks, and debris encountered throughout the area south of the raceway. Refer to Appendix A for soil boring logs.

Bedrock was not encountered on the south side of the OPM. Bedrock coring was not conducted as part of the Phase II CSA. Soil borings were advanced from 0 to 6 feet below all basement concrete floors during site building investigations, and from 0 to 25 feet btg during the Transformer No. 6 / Courtyard area investigation (25 feet btg corresponds to 33 bgs).

4.3 Regional Hydrologic Setting

The property lies between Canal Street and the raceway that transects the OPM property. The eastern portion of the site is bordered by the Spicket River. Surface water run-off flows into these respective water bodies. The raceway flows into the Spicket River and both flow to the east/southeast, and eventually into the Merrimack River.
No streams, rivers, drainage basins or ponds exist on the Site. The area south of the raceway contains vegetation that includes trees around the perimeter. Wetland vegetation does not exist along the property boundaries or on the Site.

4.4 Regional Hydrogeology

Water bodies surround the Site to the north and east. The raceway is to the north and the Spicket River to the east of the Site. Regional groundwater flow is to the south/southeast towards the Spicket and Merrimack Rivers and localized groundwater flow is discussed further in Section 4.5.

4.5 Site Specific Hydrogeology

This section describes the hydraulic properties of the South Area of the OPM, specifically the groundwater flow, vertical hydraulic gradient, hydraulic conductivity, and the river's influence on groundwater. Hydraulic conductivity testing was conducted on monitoring wells MW-2, MW-9, MW-10, and MW-11. Both rising head and falling head data was obtained and the data is presented in a memorandum contained in Appendix D of S&W's groundwater report entitled, *Modeling Efforts for the Oxford Paper Mill – Former Transformer Area #6, Lawrence, MA*, located in Appendix K of this Phase II CSA. This entire section references this report. Hydraulic conductivity values ranged from 0.31 feet per day (ft/d) to 8.21 ft/d with an arithmetic and geometric mean of 2.87 ft/d and 1.81 ft/d, respectively. According to Figure 6-12 presented in the CDM Phase II CSA – *Generalized Spatial Distribution Log Hydraulic Conductivity Overburden* (CDM 2003), S&W's measured values are consistent with those results presented in the report for the OPM property south of the Raceway. In order to determine the maximum loading to the Spicket River, the hydraulic conductivity value determined for well MW-2 (7.2 ft/d or 2.5E-03 cm/s), (refer to Appendix D – Table 2 (Appendix K)) was used in the BIOSCREEN Model. This value is representative of a fine to medium grained sand (Stratified Drift).

A synoptic gauging round conducted by CDM (8/9/99) depicted a northeasterly flow towards the Spicket River in proximity to the OPM Former Transformer No. 6 / Courtyard Area. This is consistent with S&W gauging rounds conducted on July 1 and 20, 2005 (see Figures 10 and 11). The gradient extrapolated from this figure (Phase II CSA Figure 6-13) was approximately 0.01 ft/ft. As part of CDM's groundwater flow model (CDM 2001), simulated versus observed water table contour maps were developed. These figures are presented in the groundwater flow model (GWFM) and identified as Figures 4.5 (November 1993 Simulation), 4.7 (November 2000 Simulation), 4.11 (1993 – 1998 Simulation), and 4.13 (1999 – 2001 Simulation). Groundwater gradients extrapolated from these figures were in the range of 0.005 to 0.01 ft/ft; however, the hydraulic control is principally based on wells located within the GenCorp site. Groundwater gradients vary seasonally and are towards the east- northeast. The flow field gradient used in BIOSCREEN is based on simulations using a 0.01 ft/ft and 0.10 ft/ft gradient. These values will provide conservative estimates of mass loading to the Spicket River.

5.0 ANALYTICAL RESULTS

The sub-basement floor soil and confirmatory samples, which were collected by S&W from areas south of the raceway at the OPM site between 2001 and 2005, are included in this Phase II CSA Report. Also included are the soil and groundwater samples collected by S&W from the Transformer No. 6 / Courtyard area between March and May of 2005. The results of MHD's assessment activities for site buildings are also summarized in Section 5.2. The results of previous investigations conducted in areas south of the raceway are discussed in Section 2.6. Phase II assessment activities were discussed in Section 3.0. A summary of the nature and extent of contamination of all the data included in this Phase II is discussed in Section 6.0 and Method 3 Risk Characterization is discussed in Section 8.0.

5.1 Sub-Basement Floor Soil Laboratory Analytical Results

5.1.1 Sub-Basement Floor Soil Sampling in Building No. 1

On August 8 and 9, 2001, the COL, represented by S&W, collected sub-basement floor soil samples to define the nature and extent of contamination below Building No. 1. Ten samples were collected from seven locations and analyzed for PCBs, pesticides, EPH, VOCs, RCRA 8 Metals plus beryllium & zinc, and PAHs. Soils below the basement floor of Building No. 1 were below MCP S-3/GW-3 Standards for all parameters mentioned above except for EPH components. Soil sample B-1-2 (0-0.5’) exceeded the S-3/GW-3 Standard for benzo(a)pyrene (0.7 mg/kg) with a concentration of 1.7 mg/kg (EPH by MADEP Method). No other sample collected below Building No. 1 exceeded this standard. A summary of analytical results for soils below Building No. 1 are presented in Table 5-1. The laboratory analytical reports for all parameters from the August 2001 sampling event are included in Appendix B. Building No. 1 soil borings are identified in Figure 5. Soil boring logs for Building No. 1 are presented in Appendix A.

5.1.2 Sub-Basement Floor Soil Sampling in Building No. 2

On June 18 and 19, 2001, the COL, represented by S&W, collected sub-basement floor soil samples to define the nature and extent of contamination below Building No. 2. Eleven samples were collected from eight locations and analyzed for PCBs, pesticides, EPH, VOCs, RCRA 8 Metals plus beryllium & zinc, and PAHs. Soils below the basement floor of Building No. 2 were below MCP S-3/GW-3 Standards for all parameters mentioned above except for lead, EPH components, and PAH. The elevated level of lead was detected in soil boring at intervals B-2-6 (0-2’), B-2-6 (2-4’), and B-2-6 (4-4.5’). Lead concentrations ranged from 1500 mg/kg to 2700 mg/kg. The vertical extent of lead contamination at B-2-6 is 4.5’ due to refusal at this depth where rock and brick were encountered.

Soil sample B-2-1 (0-0.5’) exceeded S-3/GW-3 Standards for benzo(a)anthracene (4 mg/kg), benzo(a)pyrene (0.7 mg/kg), benzo(b)fluoranthene (4 mg/kg), and dibenzo(a,h)anthracene (0.8 mg/kg) with concentrations of 4.7 and 5.8, 5.4 and 5.6, 5.4 and 6.6, and 1.5 mg/kg, respectively. Soil sample B-2-2 (0-0.5’) exceeded S-3/GW-3 Standards for benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene (4 mg/kg) with concentrations of 18, 18, 19, 2.2, and 9.6 mg/kg, respectively. Soil samples B-2-5 (0-2’) and B-2-6 (0-2’) exceeded S-3/GW-3 Standards for benzo(a)pyrene with concentrations of 1.3 and 1.1 mg/kg, respectively. Soil sample B-2-7 (0-0.5’) exceeded S-3/GW-3 Standards for benzo(a)pyrene with a concentration of 1.3 mg/kg. A summary of analytical results for soils below Building No. 2 are presented in Table 5-1. The laboratory analytical reports for all parameters from the June 2001 sampling event are included in Appendix C. Building No. 2 soil borings are identified on Figure 5. Soil boring logs for Building No. 2 are presented in Appendix A.

5.1.3 Sub-Basement Floor Lead Confirmatory Soil Sampling in Building No. 2

On March 8, 2004, the COL, represented by S&W, collected lead confirmatory samples from a 10'x 10'x 4.5' excavation that previously contained lead contaminated soil that was sampled on June 18 and 19, 2001 (see Section 5.1.2). A total of three samples were collected from the excavation, two side-wall samples and one bottom sample. A third and fourth side-wall sample was not collected due to the excavation being open (at grade level) on the north and east sides. The excavation was open on these sides due a significant elevation change between Building No. 2 and Buildings No. 4 and 6. The lead confirmatory samples for Building No. 2 were below MCP S-3/GW-3 Standards. The lead concentrations ranged from 21 mg/kg (TP2-3) to 130 mg/kg (TP2-2). A summary of the lead confirmatory analytical results below Building No. 2 are presented in Table 5-1. The laboratory analytical reports for the lead confirmatory sampling from the March 2004 sampling event are included in Appendix C. On September 16, 2004, approximately 41.06 cubic yards of contaminated soil (lead and low level PCBs) were removed and transported off-site by MHD. The lead contaminated soil below the basement floor of Building No. 2 was part of this total. A copy of the non-hazardous waste manifest is included in Appendix J. The excavation location in Building No. 2 is identified on Figure 5. Figure 12 represents the location of lead confirmatory samples taken from the Building No. 2 excavation.

5.1.4 Sub-Basement Floor Soil Sampling in Building No. 3

On May 7, 2001 through May 14, 2001 and on May 31, 2001, the COL, represented by S&W, collected sub-basement floor soil samples to define the nature and extent of contamination below Building No. 3. Seven-three (73) samples from 50 locations were analyzed by both on-site (mobile) and off-site (fixed) laboratories. Samples were analyzed by a mobile laboratory for PCBs, lead by XRF, and PAHs, while samples were also analyzed by a fixed laboratory for PCBs, pesticides, EPH, VOCs, RCRA 8 Metals plus beryllium & zinc, and PAHs. Soils below the basement floor of Building No. 3 were below MCP S-3/GW-3 standards for all parameters mentioned above except for PCBs (including EPA action level), EPH, PAH, and metals. PCB levels ranged from non-detected (ND) to 2.8 mg/kg. Aroclor 1254 was detected above the applicable EPA action level of 1.0 mg/kg at concentrations of 2.8 mg/kg and 2.1 mg/kg in samples B-4 (2-4') and B-24 (0-0.5'), respectively. Aroclor 1254 was not detected in the other intervals of B-4. The vertical extent of PCB contamination at B-24 is 1 foot bgs due to refusal encountered at this depth. Refusal at this depth is relatively consistent with soil borings B-22, B-23, and B-46, which were in close proximity to B-24.

Aroclor 1248 was also detected at a concentration of 1.6 mg/kg in sample B-46 (0-0.5') which is above the EPA action level of 1.0 mg/kg. Aroclor 1248 was detected below this action level in B-46 (0.5-2') and B-46 (2-4') at concentrations of 0.58 mg/kg and 0.40 mg/kg, respectively. Aroclor 1248 was not detected in the other soil borings. Note that although PCBs were detected in sample B-21 (0-0.5') at a concentration of 1.8 mg/kg by the mobile laboratory, PCBs were not detected in this sample by the fixed laboratory at the 0.120 mg/kg detection limit. The mobile (on-site) laboratory data is presented in Table 5-4. Based on the extensive level of quality control by the fixed laboratory, the non-detect outcome for sample B-21 was carried forward. A summary of analytical results for PCBs below Building No. 3 is presented in Table 5-1. The laboratory analytical reports for all parameters from the May 2001 sampling event are included in Appendix D.

Soil samples B-1 (0.5-2’), B-1 (2-4’), B-3 (4-6’), B-4 (2-4’), B-4 (4-6’), B-9 (0-0.5’), B-16A (0-0.5’)DUP, B-21 (0-0.5’), B-22 (0-0.5’), B-26 (0-0.5’), B-32 (0-0.5’), B-32 (0-0.5’)DUP, B-33 (0-0.5’), B-34 (0-0.5’), B-36 (0-0.5’), B-38 (0-0.5’), B-40 (0-0.5’) B-43 (0-0.5’), B-43 (0-0.5’)DUP, and B-46 (0-0.5’) exceeded S-3/GW-3 Standards for benzo(a)pyrene (0.7 mg/kg) with concentrations of 0.81, 1.0, 5.3, 1.7, 1.7, 11, 2.3, 30, 2.4, 17, 2.9, 0.81, 0.80, 1.4, 1.9, 1.0, 0.70, 2.9, 2.8 and 4.1, and 3.0 and 4.3 mg/kg, respectively. Soil samples B-3 (4-6’), B-9 (0-0.5’), B-18 (0-0.5’), B-21 (0-0.5’), B-26 (0-0.5’), and B-43 (0-0.5’)DUP exceeded S-3/GW-3 Standards for benzo(a)anthracene (4 mg/kg) with concentrations of 6.1, 16, 7.8, 34, 40, and 4.2 mg/kg, respectively. Soil samples B-3 (4-6’), B-9 (0-0.5’), B-21 (0-0.5’), B-26 (0-0.5’), and B-43 (0-0.5’)DUP exceeded S-3/GW-3 Standards for benzo(b)fluoranthene (4 mg/kg) with concentrations of 6.2, 12, 37, 45, and 5.0 mg/kg, respectively. Soil samples B-21 (0-0.5’) and B-26 (0-0.5’) exceeded S-3/GW-3 Standards for indeno(1,2,3-cd)pyrene (4 mg/kg) with concentrations of 11 and 18 mg/kg, respectively. Soil sample B-26 (0-0.5’) exceeded S-3/GW-3 Standards for chrysene (40 mg/kg) and dibenzo(a,h)anthracene (0.8 mg/kg) with concentrations of 41 and 3.9 mg/kg, respectively. The laboratory analytical reports for all parameters from the May 2001 sampling event are included in Appendix D. Building No. 3 soil boring locations are identified on Figure 6.

C_{19}-C_{36} Aliphatics ranged from non-detected (ND) to 38,000 mg/kg. C_{19}-C_{36} Aliphatics were detected in B-24 (0-0.5’) at a concentration of 38,000 mg/kg which exceeds the MCP S-3/GW-3 Standard (5,000 mg/kg). The vertical extent of contamination is estimated at 1.0 foot bgs due to the refusal encountered at this depth. Refusal at this depth is consistent with other borings advanced in this area which may be caused by a buried foundation. C_{19}-C_{36} Aliphatics were detected in B-42 (0-0.5’) at a concentration of 6,500 mg/kg. The vertical extent of the contamination at B-42 is estimated at 2.0 feet bgs due to the refusal encountered at this depth.

C_{11}-C_{22} Aromatics ranged from non-detected (ND) to 19,000 mg/kg. C_{11}-C_{22} Aromatics were detected in B-35 (0-0.5’) at a concentration of 19,000 mg/kg which exceeds the MCP S-3/GW-3 Standard (5,000 mg/kg). The vertical extent of contamination is estimated at a depth of 0.5 feet. B-35 (0.5-2’) and B-35 (2-4’) intervals contained C_{11}-C_{22} Aromatics below MCP S-3/GW-3 Standards. A summary of analytical results for EPH below Building No. 3 is presented in Table 5-1. The laboratory analytical reports for all parameters from the May 2001 sampling event are included in Appendix D.

Elevated levels of arsenic (greater than 30 mg/kg) were detected in borings B-36, B-38, and B-48. Arsenic concentrations ranged from 35 mg/kg to 67 mg/kg in these borings. Soil boring B-36 had arsenic concentrations that ranged from 14 mg/kg (4-6’) to 62 mg/kg (0-0.5’). Soil boring B-38 had arsenic concentrations that ranged from 7.9 mg/kg (4-6’) to 65 mg/kg (0.5-2’). Soil boring B-48 had arsenic concentrations that ranged from 6.2 mg/kg (2-4’) to 65 mg/kg (0-0.5’). Slag and fly ash were observed in the soil samples. A summary of analytical results for metals below Building No. 3 is presented in Table 5-1. The laboratory analytical reports for all parameters from the May 2001 sampling event are included in Appendix D. Building No. 3 soil boring locations are identified on Figure 6. Soil boring logs for Building No. 3 are presented in Appendix A.

5.1.5 Sub-Basement Floor PCB and EPH Confirmatory Soil Sampling in Building No. 3

In May and June 2002, the COL, represented by S&W, collected PCB and EPH confirmatory samples from five different excavations that previously contained soil determined to be contaminated with PCBs and EPH during the May 2001 sampling event. Three areas around sample locations B-35, B-42, and B-46 were excavated to dimensions of 20'x 20'x 0.5'. One area around sample location B-4 was excavated to dimensions of 10'x 10'x 4'. Another area around sample location B-24 was excavated to dimensions of 10'x 10'x 1'. Confirmatory samples that were collected from excavated areas around B-4, B-24, and B-46 were analyzed for PCBs, and confirmatory samples from B-24 also were analyzed for EPH. Confirmatory samples that were collected from excavated areas around B-35 and B-42 were analyzed only for EPH. A total of sixty-seven (67) samples were collected from the side and bottom walls of all five of the excavations. All PCB and EPH confirmatory samples for Building No. 3 were below MCP S-3/GW-3 Standards. A summary of the PCB and EPH confirmatory analytical results below Building No. 3 is presented in Table 5-1. The laboratory analytical reports for the PCB and EPH confirmatory sampling from the June 2002 sampling event are included in Appendix D. Approximately 98.9 cubic yards of PCB and EPH contaminated soil from below the basement floor of Building No. 3 were transported off-site. Excavation locations in Building No. 3 are identified on Figure 6. Due to the PCB and EPH confirmatory results, the entire basement area of Building No. 3 was backfilled by MHD. No further sampling was required in this area.

5.1.6 Sub-Basement Floor Soil Sampling in Building No. 4

On June 20 and July 11, 2001, the COL, represented by S&W, collected sub-basement floor soil samples to define the nature and extent of contamination below Building No. 4. Three samples were collected from three locations and analyzed for PCBs, pesticides, EPH, VOCs, RCRA 8 Metals plus beryllium & zinc, and PAHs. Soils below the basement floor of Building No. 4 were below MCP S-3/GW-3 Standards for all parameters mentioned above. A summary of analytical results for soils below Building No. 4 is presented in Table 5-1. The laboratory analytical reports for all parameters from the June and July 2001 sampling events are included in Appendix E. Building No. 4 soil boring locations are identified on Figure 5. Soil boring logs for Building No. 4 are presented in Appendix A.

5.1.7 Sub-Basement Floor Soil Sampling in Building No. 5

On August 8 and 9, 2001, the COL, represented by S&W, collected sub-basement floor soil samples to define the nature and extent of contamination below Building No. 5. One sample was collected from one location and analyzed for PCBs, pesticides, EPH, VOCs, RCRA 8 Metals plus beryllium & zinc, and PAHs. Soils below the basement floor of Building No. 5 were below MCP S-3/GW-3 Standards for all parameters mentioned above. A summary of analytical results for soils below Building No. 5 is presented in Table 5-1. The laboratory analytical reports for all parameters from the August 2001 sampling event are included in Appendix F. Building No. 5 soil boring locations are identified on Figure 5. Soil boring logs for Building No. 5 are presented in Appendix A.

5.1.8 Sub-Basement Floor Soil Sampling in Building No. 6

On July 10 and 11, 2001 and July 21 and 22, 2003, the COL, represented by S&W, collected sub-basement floor soil samples to define the nature and extent of contamination below Building No. 6. Twenty-one (21) samples were collected from 16 locations and analyzed for PCBs, pesticides, EPH, VOCs, RCRA 8 Metals plus beryllium & zinc, and PAHs. Soils below the basement floor of Building No. 6 were below MCP S-3/GW-3 Standards for all parameters mentioned above except for PCBs (including EPA action level), EPH, and PAH. PCB levels ranged from non-detected (ND) to 345 mg/kg. Aroclor 1260 was detected at concentrations of 4.1 mg/kg, 345 mg/kg, and 140 mg/kg in B-6-3 (0-1'), B-6-4 (0-0.5'), and B-6-4 (0.5-2'), respectively. The vertical extent of PCB contamination at B-6-3 is 1 foot due to refusal encountered at this depth. The vertical extent of PCB contamination at B-6-4 is 2 feet due to the refusal encountered at this depth. Soil sample B-6-3 (0-0.5') exceeded S-3/GW-3 Standards for benzo(a)pyrene (0.7 mg/kg) with concentrations of 2.1 and 0.83 mg/kg. Soil sample B-6-4 (0-0.5') exceeded S-3/GW-3 Standards for benzo(a)anthracene (4 mg/kg), benzo(a)pyrene (0.7 mg/kg), benzo(b)fluoranthene (4 mg/kg) with concentrations of 4.3, 4.4, and 9.5 mg/kg, respectively. A summary of analytical results for soils below Building No. 6 are presented in Table 5-1. The laboratory analytical reports for all parameters from the July 2001 sampling event are included in Appendix G. Building No. 6 soil boring locations are identified on Figure 5. Soil boring logs for Building No. 6 are presented in Appendix A.

5.1.9 Sub-Basement Floor PCB Confirmatory Soil Sampling in Building No. 6

On March 8, 2004, the COL, represented by S&W, collected PCB confirmatory samples from a 20'x 40'x 2' excavation that contained PCB contaminated soil from the B-6-3 and B-6-4 sample locations that were sampled on July 10 and 11, 2001. A total of six confirmatory samples were collected from the excavation, three side-wall samples and three bottom samples. Five of the six PCB confirmatory samples for Building No. 6 were above the EPA action level and MCP S-3/GW-3 Standards. The PCB concentrations from these samples ranged from 0.325 mg/kg (TP6-1) to 17,100 mg/kg (TP6-4). A summary of the PCB confirmatory analytical results below Building No. 6 is presented in Table 5-1. The laboratory analytical reports for the PCB confirmatory sampling from the March 2004 sampling event are included in Appendix G. Approximately 33.57 cubic yards of PCB contaminated soil from below the basement floor of Building No. 6 were transported off-site by MHD. A copy of the waste manifest is included in Appendix J. Excavation locations in Building No. 6 are identified on Figure 5. Figure 13 represents the location of PCB confirmatory samples taken from the Building No. 6 excavation.

5.1.10 Sub-Basement Floor Soil Sampling in Building No. 28

On July 20, 2005, the COL, represented by S&W, conducted soil sampling below the basement floor of Building No. 28 to define the nature and extent of contamination in the basement subsoil. The nature and extent of contamination below the basement floor of Building No. 28 was assumed to be minimal based on the historical information. All soil boring/sample locations conducted for Building No. 28 are presented on Figure 7.

A total of six (6) soil borings (B-28-1 through B-28-6) were advanced to six feet below the concrete basement floor of Building No. 28 with the use of a Geoprobe. The basement concrete floor thickness was eight inches throughout the entire sampling area. For each soil boring, a sample was collected from 0 to 0.5 feet, 0.5 to 2 feet, 2 to 4 feet, and 4 to 6 feet intervals below the concrete basement floor of Building No. 28. As outlined in the April 2001 SAP, samples from the 0 to 0.5 foot interval were analyzed first for COPCs. If the COPCs exceeded MCP S-3/GW-3 clean-up standards for this interval, then the 0.5 to 2 feet, 2 to 4 feet, and 4 to 6 feet intervals would also be analyzed. Not all of depths were reached for each soil boring due refusal encountered in the Building No. 28 sampling area. A total of twenty-eight (28) samples were collected through the use of a Geoprobe at these depth intervals for the six soil borings.

Soil samples were analyzed by Severn Trent Laboratories, Inc. of Westfield, MA for concentrations of PCBs, PAHs, EPH, VOCs, pesticides, and RCRA 8 Metals including beryllium and zinc. All samples were collected and analyzed according to the May 2001 SAP completed by S&W. Samples B-28-1, B-28-3, B-28-4, and B-28-6 were analyzed for PCBs and EPH only. Samples B-28-2 and B-28-5 were analyzed for PCBs, PAHs, EPH, VOCs, pesticides, and RCRA 8 Metals including Beryllium and Zinc. The laboratory analytical results for the 0 to 0.5 foot interval from sub-basement soils collected on July 20, 2005 for Building No. 28 were below the applicable MCP S-3/GW-3 clean-up standards for the site. Therefore, the subsequent depth intervals were not analyzed by the laboratory and a total of eight (8) samples were analyzed by the laboratory. A summary of the laboratory analytical data from the July 20, 2005 soil sampling event for Building No. 28 is presented in Table 5-1. Copies of the laboratory analytical results are included in Appendix H. Appendix A presents the soil boring logs from the July 2005 site investigation of Building No. 28. No monitoring wells were installed during the Building No. 28 investigation due to the known historical information as well as the analytical results from soil sampling conducted on July 20, 2005.

5.1.11 Building No. 6 Area – Transformer No. 6 and Courtyard Area Soil Sampling

The Transformer No. 6 / Courtyard area is located on the southeastern portion of Building No. 6 (refer to Figure 3). On September 3, 2004, the COL, represented by S&W, collected PCB soil samples from soil borings that were performed by LFR in the courtyard and the former Transformer No. 6 area east of Building No. 6. A total of five soil borings (B-1 through B-5) were advanced to 20 feet btg (refer to Figure 9). MHD made an excavation to eight feet bgs from the prior PCB confirmatory sampling events (March 2004). The soil borings from this sampling event were advanced 20 feet beyond the bottom of the eight foot excavation (to approximately 28 feet bgs). For each soil boring, a sample was collected at approximately every five feet. A total of twenty-two (22) samples were collected through the use of a Geoprobe. Thirteen (13) of the twenty-two (22) samples collected exceeded the EPA action level. The PCB concentrations (Aroclor 1016 and Aroclor 1260) ranged from non-detected (ND) to 25,000 mg/kg (B4-15).

As part of site remedial actions, additional soil samples were collected to determine the nature and extent of PCB contamination based on the sampling results from the September 3, 2004 investigation. MHD last excavated the Transformer No. 6 / Courtyard area prior to the September 3, 2004 sampling event. The grade at the bottom of the excavation (transformer pit) is where the majority of soil borings were advanced in March and May 2005 investigations. Several soil borings were advanced around the transformer pit, which were at a higher elevation of approximately 2 to 8 feet.

A total of 11 soil borings (SB-1, SB-2, SB-4, and SB-6 through SB-13) were advanced to 25 feet btg. MHD made an excavation to eight feet bgs from prior PCB confirmatory sampling events. The soil borings from the March and May 2005 sampling events were advanced 25 feet beyond the bottom of the eight foot excavation (to approximately 33 feet bgs). For each soil boring, a sample was collected at the 5, 15, and 25 foot intervals below the transformer pit grade. Not all of depths were reached for each soil boring due to the rubble/till present in the Transformer No. 6 / Courtyard area. A total of twenty-nine (29) samples were collected through the use of an ATV drilling rig and a truck sonic drilling rig at these intervals.

Each grab sample was analyzed by Severn Trent Laboratories, Inc. of Westfield, MA for concentrations of PCB, PAHs, and EPH. RCRA 8 metals plus Zn & Be were also analyzed on a select number of samples. All samples were collected and analyzed in accordance with the requirements of the MCP regulations outlined in the April 2001 SAP completed by S&W. Nineteen (19) of the twenty-nine (29) samples collected exceeded the EPA PCB action level of 1 mg/kg. PCB concentrations (Aroclor 1260) ranged from non-detect (ND) to 610 mg/kg (SB-4-5). There were no concentrations of RCRA 8 metals plus Zn & Be, PAHs, or EPH that exceeded the MCP S-3/GW-3 clean-up standards from the March and May 2005 investigations.

A summary of all PCB soil boring analytical results below the Transformer No. 6 / Courtyard area is presented in Table 5-1. The laboratory analytical reports for all PCB soil boring data from the September 2004 sampling event and the March and May 2005 sampling events are included in Appendix I. Soil boring locations in the courtyard and Transformer No. 6 area are identified on Figure 8. Appendix A presents the soil borings logs from the March and May 2005 site investigations of the Transformer No. 6 / Courtyard area.

MHD also collected samples six inches below S&W sample locations for each boring during the September 2004 sampling event (see Figure 9). MHD results from the September 2004 sampling event are presented in Section 5.2.8.

5.2 MHD Concrete Sampling of OPM Buildings

LFR, the environmental consultant for MHD, collected concrete samples from the floors, walls, and ceilings of the sub-basement, basement, and first floors levels of all site buildings (Buildings No. 1, 2, 3, 4, 5, and 6). LFR also collected sediment, transformer, concrete, and soil samples in and around some of the site buildings as part of their assessment for the area south of the raceway. PCBs are of main concern on the site due to the multiple transformers that once occupied the area. For the Site, the EPA issued a PCB action level of 1.0 mg/kg. LFR used a PCB sampling grid for all site buildings. MHD's assessment activities for site buildings are summarized below.

5.2.1 Sediment/Debris and Concrete Sampling in Building No. 1

First Floor - Sediment/Debris

On April 17, 2001, MHD, represented by LFR, collected four sediment/debris samples from the first floor of Building No. 1. These sediment/debris samples were analyzed for PCBs, pesticides, herbicides, metals, VOCs, SVOCs, EPH, total petroleum hydrocarbon (TPH), and asbestos. PCB concentrations for all four samples were below the EPA action level of 1.0 mg/kg. The text and data summary of all analytes is provided in LFR's "Laboratory Results and Management of Building Debris, Sediments, and Contents of Building No. 1" (Appendix M).

Basement Floor - Concrete

On July 26, 2001, MHD, represented by LFR, collected twenty-seven (27) concrete samples from the basement floor of Building No. 1. These concrete basement floor samples were analyzed for PCBs and TPH. These samples were then compared to the EPA PCB action level of 1.0 mg/kg. All twenty-seven (27) samples were below the EPA action level. There were also three concrete Building No. 1 basement floor composite samples that were analyzed for PCBs, pesticides, Herbicides, metals, VOCs, SVOCs, EPH, and TPH. PCBs were below the EPA action level for these samples. The text and data summary of all analytes is provided in LFR's "Laboratory Results, Sampling of Concrete Floors, and Walls, Building No. 1 Basement" (Appendix M).

Basement Walls - Concrete

On July 26, 2001, MHD, represented by LFR, collected ten concrete samples from the basement walls of Building No. 1. These concrete basement wall samples were analyzed for PCBs and TPH. All ten samples were below the EPA action level. There were also three concrete Building No. 1 basement wall composite samples that were analyzed for PCBs, pesticides, Herbicides, metals, VOCs, SVOCs, EPH, and TPH. PCBs were below the EPA action level for these samples. The text and data summary of all analytes is provided in LFR's "Laboratory Results, Sampling of Concrete Floors, and Walls, Building No. 1 Basement" (Appendix M).

A summary of LFR's analytical results for the sediment/debris, concrete basement floor and wall samples for Building No. 1 is presented in Table 5-3. Figures 14A through 14C represent LFR's Building No. 1 sample locations.

5.2.2 Sediment/Debris/Sludge, Tunnel, and Concrete Sampling in Building No. 2

Basement Floor - Sediment/Debris/Sludge

On August 22, 2000, MHD, represented by LFR, collected two sediment/debris/sludge composite samples from the basement floor of Building No. 2. These sediment/debris/sludge composite samples were analyzed for PCBs, pesticides, herbicides, metals, VOCs, SVOCs, EPH, TPH, and asbestos. PCB concentrations for both samples were below the EPA action level. The text and data summary of all analytes is provided in LFR's "Laboratory Results and Management of Floor Sediment/Debris in Building No. 2" (Appendix M).

Basement Tunnel

On May 1, 2001, MHD, represented by LFR, collected three discrete samples and one composite sample from the basement tunnel located in Building No. 2. These samples were analyzed for PCBs and TPH. All four samples were below the EPA action level for PCBs. The text and data summary of all analytes is provided in LFR's "Laboratory Results Sampling of Concrete Floors, Walls, and Ceiling in Building No. 2" (Appendix M).

Basement Floor - Concrete

On May 1, 2001, MHD, represented by LFR, collected twelve (12) concrete samples from the basement floor of Building No. 2. These concrete basement floor samples were analyzed for PCBs and TPH. All twelve (12) samples were below the EPA action level. There were also three concrete Building No. 2 basement floor composite samples that were analyzed for PCBs, pesticides, herbicides, metals, VOCs, SVOCs, EPH, and TPH. PCBs were below the EPA action level for these samples. A sludge sample (B2-12,50) was collected from the basement floor of Building No. 2 and analyzed for PCBs and TPH. This sample had a PCB concentration (Aroclor 1254) of 2.49 mg/kg which is above the EPA action level of 1.0 mg/kg. The text and data summary of all analytes is provided in LFR's "Laboratory Results Sampling of Concrete Floors, Walls, and Ceiling in Building No. 2" (Appendix M).

Basement Walls – Concrete

On May 1, 2001, MHD, represented by LFR, collected ten concrete samples from the basement walls of Building No. 2. These concrete basement wall samples were analyzed for PCBs and TPH. All ten samples were below the EPA action level for PCBs. The text and data summary of all analytes is provided in LFR's "Laboratory Results Sampling of Concrete Floors, Walls, and Ceiling in Building No. 2" (Appendix M).

Basement Ceiling - Concrete

On May 1, 2001, MHD, represented by LFR, collected four concrete samples from the basement ceiling of Building No. 2. These concrete basement ceiling samples were analyzed for PCBs and TPH. All four samples were below the EPA action level for PCBs. The text and data summary of all analytes is provided in LFR's "Laboratory Results Sampling of Concrete Floors, Walls, and Ceiling in Building No. 2" (Appendix M).

First Floor Slab – Concrete

On April 27, 2001, MHD, represented by LFR, collected three concrete samples from the first floor slab of Building No. 2. These concrete first floor slab samples were analyzed for PCBs and TPH. All three samples were above the PCB EPA action level of 1.0 mg/kg. PCB concentrations (Aroclor 1248, Aroclor 1254, and Aroclor 1260) for these samples ranged from 1.06 mg/kg (B2-15,41) to 1.3 mg/kg (B2-36,102). There were also three concrete Building No. 2 first floor slab composite samples that were analyzed for PCBs, pesticides, herbicides, metals, VOCs, SVOCs, EPH, and TPH. PCBs concentrations (Aroclor 1248 and Aroclor 1254) for two of the three samples were above the EPA action level. The PCB concentrations ranged from 0.975 mg/kg (B2-Comp3) to 1.57 mg/kg (B2-Comp2). The text and data summary of all analytes is provided in LFR's "Laboratory Results Sampling of Concrete Floors, Walls, and Ceiling in Building No. 2" (Appendix M).

A summary of LFR's analytical results for the basement sediment/debris/sludge, basement tunnel, concrete basement floor, walls, and ceiling, and the first floor concrete slab samples for Building No. 2 is presented in Table 5-3. Figures 15A through 15F represent LFR's Building No. 2 sample locations.

5.2.3 Pillar and Concrete Sampling in Building No. 3

Basement Floor - Concrete

On March 15 and 16, 2001, MHD, represented by LFR, collected thirty-three (33) concrete samples from the basement floor of Building No. 3. These concrete basement floor samples were analyzed for PCBs and TPH. Of the thirty-three (33) samples collected, there were eight samples above the EPA action level for PCBs.. PCB concentrations (Aroclor 1248 and Aroclor 1254) for these samples ranged from 1.13 mg/kg (Field Duplicate 2) to 18.1 mg/kg (B3-100,240). The text and data summary of all analytes is provided in LFR's "Notification and Certification of Self-implementing On-Site Cleanup and Disposal of PCB Remediation Waste, Building No. 3 Basement (Excluding First Floor), Oxford Paper Mill, Canal Street, Lawrence, MA" (Appendix M).

Basement Walls - Concrete

On March 15 and 16, 2001 and April 5, 2001, MHD, represented by LFR, collected twenty-five (25) concrete samples from the basement walls of Building No. 3. These concrete basement wall samples were analyzed for PCBs and TPH. All twenty-five (25) samples were below the EPA action level for PCBs. The text and data summary of all analytes is provided in LFR's "Notification and Certification of Self-implementing On-Site Cleanup and Disposal of PCB Remediation Waste, Building No. 3 Basement (Excluding First Floor), Oxford Paper Mill, Canal Street, Lawrence, MA" (Appendix M).

Basement Ceiling – Concrete

On March 16, 2001 and April 6, 2001, MHD, represented by LFR, collected thirteen (13) concrete samples from the basement ceiling of Building No. 3. These concrete basement ceiling samples were analyzed for PCBs and TPH. One of the thirteen (13) samples collected was above the EPA action level for PCBs. The PCB concentration (Aroclor 1254) of the sample was 4.94 mg/kg (B3-57,166).

On March 2, 2001, MHD, represented by LFR, collected three coating samples from the basement ceiling of Building No. 3. The coatings on the ceiling were located near cracks that could be observed and the residue appeared to have migrated from either pipes embedded in the ceiling concrete or from the first floor above. These coating samples were analyzed for PCBs and TPH. All three samples were above the EPA action level. PCB concentrations (Aroclor 1254) ranged from 1.81 mg/kg (B3-12,120) to 7.8 mg/kg (Building 3 Ceiling). The TPH concentrations in this area ranged from 193,000 mg/kg (Building 3 Ceiling 2) to 217,000 mg/kg (Building 3 Ceiling). The text and data summary of all analytes is provided in LFR's "Notification and Certification of Self-implementing On-Site Cleanup and Disposal of PCB Remediation Waste, Building No. 3 Basement (Excluding First Floor), Oxford Paper Mill, Canal Street, Lawrence, MA" (Appendix M).

First Floor Slab - Concrete

On April 6, 2001, MHD, represented by LFR, collected twenty-three (23) concrete samples from the first floor slab of Building No. 3. These concrete first floor slab samples were analyzed for PCBs and TPH. Five of the twenty-three (23) samples collected were above the EPA action level for PCBs. PCB concentrations (Aroclor 1248 and Aroclor 1254) for these samples ranged from 1.21 mg/kg (B3-100,36) to 1.75 mg/kg (B3-50,17). The text and data summary of all analytes is provided in LFR's "Notification and Certification of Self-implementing On-Site Cleanup and Disposal of PCB Remediation Waste, Building No. 3 First Floor and Basement, Oxford Paper Mill, Canal Street, Lawrence, MA" (Appendix M).

Pillars on First Floor Slab

On March 19, 2001, MHD, represented by LFR, collected seven concrete samples from the pillars located on the first floor slab of Building No. 3. These concrete first floor pillar samples were analyzed for PCBs and TPH. All seven samples were below the EPA action level for PCBs. The text and data summary of all analytes is provided in LFR's "Notification and Certification of Self-implementing On-Site Cleanup and Disposal of PCB Remediation Waste, Building No. 3 First Floor and Basement, Oxford Paper Mill, Canal Street, Lawrence, MA" (Appendix M).

A summary of LFR's analytical results for the concrete basement floor, walls, and ceiling, and the first floor concrete slab samples for Building No. 3 is presented in Table 5-3. Figures 16A through 16D represent LFR's Building No. 3 sample locations.

5.2.4 Transformer No. 3 Located Adjacent to Building No. 3 (First Floor Level)

On July 28 and August 23, 2000 and April 7, 2001, MHD, represented by LFR, collected thirty-five (35) concrete samples from the first floor slab level in and around Transformer No. 3. Transformer No. 3 was located next to Building No. 3. These concrete first floor slab samples were analyzed for PCBs and TPH. Two of the thirty-five (35) samples collected were above the EPA action level for PCBs. PCB concentrations (Aroclor 1260) for these samples ranged from 1.28 mg/kg (Transformer #3-7) to 21.7 mg/kg (Grid I). The text and data summary of all analytes is provided in LFR's "Notification and Certification of Self-implementing On-Site Cleanup and Disposal of PCB Remediation Waste, Building No. 3 First Floor and Basement, Oxford Paper Mill, Canal Street, Lawrence, MA" (Appendix M).

A summary of LFR's analytical results for the first floor concrete slab samples around Transformer No. 3 for Building No. 3 is presented in Table 5-3. Figures 17A through 17G represent LFR's Transformer No. 3 area / Building No. 3 sample locations.

5.2.5 Sediment/Debris and Concrete Sampling in Building No. 4

Basement Floor – Sediment/Debris

On February 20, 2001, MHD, represented by LFR, collected one sediment/debris sample from the basement floor of Building No. 4. This sediment/debris sample was analyzed for PCBs, pesticides, herbicides, metals, VOCs, SVOCs, EPH, and TPH. The total PCB concentration of the sample was 106.2 mg/kg (Aroclor 1242 fraction = 65.3 mg/kg and Aroclor 1254 fraction = 40.9 mg/kg). This sample was above the EPA action level. The text and data summary of all analytes is provided in LFR's "Laboratory Results and Management of Floor Sediments/Debris in Building No. 4 Basement" (Appendix M).

Sub-Basement Floor - Concrete

On May 4, 2001, MHD, represented by LFR, collected fifteen (15) concrete samples from the sub-basement floor of Building No. 4. These concrete sub-basement floor samples were analyzed for PCBs and TPH. All fifteen (15) samples were below the EPA action level for PCBs. There were also three concrete Building No. 4 sub-basement floor composite samples that were analyzed for PCBs, pesticides, herbicides, metals, VOCs, SVOCs, EPH, and TPH. PCBs were below the EPA action level for these samples. The text and data summary of all analytes is provided in LFR's "Laboratory Results, Sampling of Concrete Floors, Walls, and Ceilings, Building No. 4 Basement and Sub-basement" (Appendix M).

Sub-Basement Walls – Concrete

On May 4, 2001, MHD, represented by LFR, collected eight concrete samples from the sub-basement walls of Building No. 4. These concrete sub-basement wall samples were analyzed for PCBs and TPH. All eight samples were below the EPA action level for PCBs. The text and data summary of all analytes is provided in LFR's "Laboratory Results, Sampling of Concrete Floors, Walls, and Ceilings, Building No. 4 Basement and Sub-basement" (Appendix M).

Sub-Basement Ceiling - Concrete

On May 4, 2001, MHD, represented by LFR, collected four concrete samples from the sub-basement ceiling of Building No. 4. These concrete sub-basement ceiling samples were analyzed for PCBs and TPH. All four samples were below the EPA action level for PCBs. The text and data summary of all analytes is provided in LFR's "Laboratory Results, Sampling of Concrete Floors, Walls, and Ceilings, Building No. 4 Basement and Sub-basement" (Appendix M).

Basement Floor - Concrete

On May 3, 2001, MHD, represented by LFR, collected fifteen (15) concrete samples from the basement floor of Building No. 4. These concrete basement floor samples were analyzed for PCBs and TPH. Two of the fifteen (15) samples collected were above the EPA action level for PCBs. PCB concentrations (Aroclor 1254 and Aroclor 1260) for these samples ranged from 3.31 mg/kg (B4-29,9) to 22.6 mg/kg (B4-16,35). There were also three concrete Building No. 4 basement floor composite samples that were analyzed for PCBs, pesticides, herbicides, metals, VOCs, SVOCs, EPH, and TPH. PCBs were below the EPA action level for these samples. The text and data summary of all analytes is provided in LFR's "Laboratory Results, Sampling of Concrete Floors, Walls, and Ceilings, Building No. 4 Basement and Sub-basement" (Appendix M).

Basement Walls - Concrete

On May 3, 2001, MHD, represented by LFR, collected eight concrete samples from the basement walls of Building No. 4. These concrete basement wall samples were analyzed for PCBs and TPH. All eight samples were below the EPA action level for PCBs. The text and data summary of all analytes is provided in LFR's "Laboratory Results, Sampling of Concrete Floors, Walls, and Ceilings, Building No. 4 Basement and Sub-basement" (Appendix M).

Basement Ceiling - Concrete

On May 3, 2001, MHD, represented by LFR, collected four concrete samples from the basement ceiling of Building No. 4. These concrete basement ceiling samples were analyzed for PCBs and TPH. All four samples were below the EPA action level for PCBs. The text and data summary of all analytes is provided in LFR's "Laboratory Results, Sampling of Concrete Floors, Walls, and Ceilings, Building No. 4 Basement and Sub-basement" (Appendix M).

A summary of LFR's analytical results for the basement sediment/debris, concrete sub-basement floor, walls, and ceiling, and the concrete basement floor, walls, and ceiling samples for Building No. 1 is presented in Table 5-3. Figures 18A through 18H represent LFR's Building No. 4 sample locations.

5.2.6 Sediment/Debris Sampling in Building No. 5

Basement Floor – Sediment/Debris

On April 13, 2001, MHD, represented by LFR, collected one sediment/debris sample from the basement floor of Building No. 5. This sediment/debris sample was analyzed for PCBs, pesticides, herbicides, metals, VOCs, SVOCs, EPH, and TPH. PCB concentration (Aroclor 1260) of the sample was 50.4 mg/kg. This sample was above the EPA action level. The text and data summary of all analytes is provided in LFR's "Laboratory Results and Management of Building Debris, Contents, and Sediments in Building No. 5" (Appendix M).

A summary of LFR's analytical results for the basement sediment/debris samples for Building No. 5 is presented in Table 5-3. Figure 19 represents LFR's Building No. 5 sample locations.

5.2.7 Sediment/Debris, Vat, and Concrete Sampling in Building No. 6

Basement Floor – Sediment/Debris

On February 22, 2001 and April 13, 2001, MHD, represented by LFR, collected three sediment/debris composite samples from the basement floor of Building No. 6. These sediment/debris composite samples were analyzed for PCBs, pesticides, herbicides, metals, VOCs, SVOCs, EPH, and TPH. All three of the composite samples collected were above the EPA action level for PCBs. PCB concentrations (Aroclor 1254 and Aroclor 1260) for these samples ranged from 2.69 mg/kg (Sediments 2) to 50.4 mg/kg (B5-Basement). The text and data summary of all analytes is provided in LFR's "Laboratory Results and Management of Floor Sediments/Debris in Building No. 6 Basement" (Appendix M).

Vat

On August 28, 2000, MHD, represented by LFR, collected one composite sample from the vat area of Building No. 6. This composite vat sample was analyzed for PCBs, pesticides, herbicides, metals, VOCs, SVOCs, EPH, and TPH. The PCB concentration for the sample was below the EPA action level.

Sub-Basement Floor - Concrete

On June 1, 2001, MHD, represented by LFR, collected seventeen (17) concrete samples from the sub-basement floor of Building No. 6. These concrete sub-basement floor samples were analyzed for PCBs and TPH. One of the seventeen (17) samples collected was above the EPA action level. The PCB concentration (Aroclor 1260) for this sample was 838 mg/kg (B6-109,12). There were also three concrete Building No. 6 sub-basement floor composite samples that were analyzed for PCBs, pesticides, herbicides, metals, VOCs, SVOCs, EPH, and TPH. PCBs were below the EPA action level for these samples. The text and data summary of all analytes is provided in LFR's "Laboratory Results, Sampling of Concrete Floors, Walls, and Ceilings, Building No. 6" (Appendix M).

Sub-Basement Walls - Concrete

On June 1, 2001, MHD, represented by LFR, collected eight concrete samples from the sub-basement walls of Building No. 6. These concrete sub-basement wall samples were analyzed for PCBs and TPH. Six of the eight samples collected were above the EPA action level for PCBs. PCB concentrations (Aroclor 1254 and Aroclor 1260) for these samples ranged from 1.31 mg/kg (B6-124,0) to 178 mg/kg (B6-132,10). The text and data summary of all analytes is provided in LFR's "Laboratory Results, Sampling of Concrete Floors, Walls, and Ceilings, Building No. 6" (Appendix M).

Sub-Basement Ceiling - Concrete

On June 1, 2001, MHD, represented by LFR, collected eight concrete samples from the sub-basement ceiling of Building No. 6. These concrete sub-basement ceiling samples were analyzed for PCBs and TPH. One of the eight samples collected was above the EPA action level for PCBs. The PCB concentration (Aroclor 1254) for this sample was 11.1 mg/kg (B6-110,11). The text and data summary of all analytes is provided in LFR's "Laboratory Results, Sampling of Concrete Floors, Walls, and Ceilings, Building No. 6" (Appendix M).

Basement Floor - Concrete

On May 31, 2001, MHD, represented by LFR, collected seventeen (17) concrete samples from the basement floor of Building No. 6. These concrete basement floor samples were analyzed for PCBs and TPH. Five of the seventeen (17) samples collected were above the EPA action level for PCBs. PCB concentrations (Aroclor 1254) for these samples ranged from 1.12 mg/kg (B6-125,13) to 6.48 mg/kg (B6-40,25). With regard to TPH, sample (B6-65,5) had a concentration of 24,700 mg/kg. There were also three concrete Building No. 6 basement floor composite samples that were analyzed for PCBs, pesticides, herbicides, metals, VOCs, SVOCs, EPH, and TPH. Two of the three samples were above the EPA action level for PCBs, with PCB concentrations (Aroclor 1254) ranging from 2.54 mg/kg (B6-Comp3) to 3.94 mg/kg (B6-Comp1). The text and data summary of all analytes is provided in LFR's "Laboratory Results, Sampling of Concrete Floors, Walls, and Ceilings, Building No. 6" (Appendix M).

Basement Walls - Concrete

On May 31, 2001, MHD, represented by LFR, collected nine concrete samples from the basement walls of Building No. 6. These concrete basement wall samples were analyzed for PCBs and TPH. Two of the nine samples were above the EPA action level. PCB concentrations (Aroclor 1254) for these samples ranged from 1.24 mg/kg (B6-0,25) to 3.16 mg/kg (B6-75,60). The text and data summary of all analytes is provided in LFR's "Laboratory Results, Sampling of Concrete Floors, Walls, and Ceilings, Building No. 6" (Appendix M).

Basement Ceiling - Concrete

On May 31, 2001, MHD, represented by LFR, collected eight concrete samples from the basement ceiling of Building No. 6. These concrete basement ceiling samples were analyzed for PCBs and TPH. Two of the eight samples were above the EPA action level. PCB concentrations (Aroclor 1254) for these samples ranged from 1.26 mg/kg (B6-50,53) to 174 mg/kg (B6-75,30). The text and data summary of all analytes is provided in LFR's "Laboratory Results, Sampling of Concrete Floors, Walls, and Ceilings, Building No. 6" (Appendix M).

First Floor Slab - Concrete

On April 30, 2001, MHD, represented by LFR, collected seventeen (17) concrete samples from the first floor slab of Building No. 6. These concrete first floor slab samples were analyzed for PCBs and TPH. Six of the seventeen (17) samples collected were above the EPA action level for PCBs, with PCB concentrations (Aroclor 1248, Aroclor 1254, Aroclor 1260) ranging from 1.14 mg/kg (B6-118,24) to 2.32 mg/kg (B6-125,25). There were also three concrete Building No. 6 first floor slab composite samples that were analyzed for PCBs, pesticides, herbicides, metals, VOCs, SVOCs, EPH, and TPH. One of the three samples was above the EPA action level. The

PCB concentration (Aroclor 1248) for this sample was 174 mg/kg (B6-Comp2). The text and data summary of all analytes is provided in LFR's "Laboratory Results, Sampling of Concrete Floors, Walls, and Ceilings, Building No. 6" (Appendix M).

A summary of LFR's analytical results for the basement sediment/debris, vat, concrete sub-basement floor, walls, and ceiling, concrete basement floor, walls, and ceiling, and the first floor concrete slab samples for Building No. 6 is presented in Table 5-3. Figures 20A through 20H represent LFR's Building No. 6 sample locations.

5.2.8 Building No. 6 Area – Transformer No. 6 and Courtyard Area Soil Sampling, Building No. 13, and Building No. 28

On April 13, 2004, MHD, represented by LFR, collected PCB confirmatory soil samples from an excavation made in and around the courtyard and the Transformer No. 6 area east of Building No. 6 (refer to Figure 21). The majority of the excavation was excavated to four feet bgs while a portion of the excavation was made deeper to eight feet bgs. A total of five confirmatory soil samples were collected from the excavation made to four feet bgs, two sidewall samples and three bottom samples. All five samples that were collected were above the EPA action level. The PCB concentrations (Aroclor 1260) for these samples ranged from 1.68 mg/kg (SW-2(2-3')) to 6,480 mg/kg (B-1(4')). Also, a total of five confirmatory soil samples were collected from the deeper portion of the excavation that was made to eight feet bgs, four sidewall samples and one bottom sample. All five samples were above the EPA action level. The PCB concentrations (Aroclor 1260) for these samples ranged from 438 mg/kg (B-4(8')) to 2,530 mg/kg (SW-5(6')). The text and data summary of all analytes is provided in LFR's "Results of Soil Sampling, Excavation at Former Transformer No. 6 Area" (Appendix M).

On April 28, 2004, MHD, represented by LFR, collected PCB confirmatory composite soil samples from the same excavation that was sampled on April 13, 2004 (see above). However, this time the entire excavation was excavated to a depth of eight feet bgs instead of just a portion being excavated to this depth (refer to Figure 22). A total of ten confirmatory composite soil samples were collected in and around the excavation. Four of the ten confirmatory composite samples were taken from an area where the former pad of Transformer No. 6 was once located. These samples were taken from a depth of 8 to 10 feet bgs. All four of the samples collected were above the EPA action level. The PCB concentrations (Aroclor 1260) for these samples ranged from 3,860 mg/kg (S2 Comp) to 5,630 mg/kg (S4 Comp). Three of the ten confirmatory samples were composites taken from the bottom of the excavation (eight feet bgs). All three of the samples collected were above the EPA action level. The PCB concentrations (Aroclor 1260) for these samples ranged from 1,070 mg/kg (Base 3 Comp) to 8,150 mg/kg (Base 1 Comp). There were also three composite confirmatory samples taken just outside the excavated area from a depth of 1 to 8 feet bgs. All three of these samples were above the EPA action level. The PCB concentrations (Aroclor 1260) for these samples ranged from 74.2 mg/kg (S6 Comp) to 6,240 mg/kg (S5 Comp). The text and data summary of all analytes is provided in LFR's "Results of Soil Sampling, Additional Excavation at Former Transformer No. 6 Area" (Appendix M).

On September 3, 2004, MHD, represented by LFR, collected PCB soil samples from soil borings in the courtyard and the former Transformer No. 6 area east of Building No. 6. A total of five soil borings (B-1 through B-5) were advanced to 20 feet btg. MHD made an excavation to eight feet bgs from the prior PCB confirmatory sampling events (April 2004). The soil borings from this sampling event were advanced 20 feet beyond the bottom of the eight foot excavation (to approximately 28 feet bgs). For each soil boring, a sample was collected at approximately every five feet. A total of twenty (20) samples were collected through the use of a Geoprobe. Seventeen (17) of the twenty (20) samples exceeded the EPA action level for PCBs. The PCB concentrations (Aroclor 1016 and Aroclor 1260) ranged from 0.28 mg/kg to 3,400 mg/kg (B5-15). The text and data summary of all analytes is provided in LFR's "Revised Results of Soil Sampling for PCBs, Former Transformer No. 6 Area" (Appendix M).

S&W also collected samples six inches above from LFR's sample locations for each boring during the September 2004 sampling event (see Figure 9). S&W's results from the September 2004 sampling event are presented in Section 5.1.11.

A summary of LFR's PCB soil boring analytical results below the courtyard and Transformer No. 6 area is presented in Table 5-3. S&W's soil boring locations in the courtyard and Transformer No. 6 area are identified on Figure 8.

Building No. 13 - Silos

Building No. 13 was demolished as an asbestos-contaminated structure and transported off-site as such.

Building No. 28

Upon completion of the demolition and foundation removal of Building No. 28, LFR performed confirmatory sampling of the remaining soils for asbestos; the results of the sampling indicated the presence of asbestos in the remaining soils. MHD is currently removing the soils in 6-10 inch "lifts", and the sampling program will continue until the asbestos containing soil is completely removed.

5.3 Groundwater Laboratory Analytical Results

As part of site remedial actions, monitoring wells were installed in the Transformer No. 6 / Courtyard area to determine if the groundwater was impacted with PCB contamination. A total of four monitoring wells (MW-2, MW-9, MW-10, and MW-11) were installed in and around the Transformer No. 6 / Courtyard area. Due to the complications encountered during the drilling activities in this area, MW-2 and MW-9 were installed in March 2005 while MW-10 and MW-11 were installed in May 2005. Therefore, these wells were sampled at different times based on when they were installed. S&W collected groundwater samples from the four monitoring wells on April 20, May 20, and May 25, 2005. For comparison purposes, these groundwater samples were filtered (dissolved) and non-filtered (total) prior to analysis. Monitoring well/groundwater sample locations for the Transformer No. 6 / Courtyard area from the April and May 2005 sampling events are presented on Figure 8.

Each groundwater sample was analyzed by Severn Trent Laboratories, Inc. of Westfield, MA for concentrations of PCB, PAHs, and EPH. All samples were collected and analyzed in accordance with the requirements of the MCP regulations outlined in the March 2005 Quality Assurance Project Plan (QAPP) completed by S&W. Five (5) of the six (6) non-filtered (total) samples collected exceeded the GW-3 MCP Method 1 clean-up standard for PCBs (0.3 µg/L). Total PCB concentrations (Aroclor 1016 and Aroclor 1260) ranged from non-detect (ND) to 7.1 µg/L (MW-2). There were no concentrations of PAHs or EPH that exceeded the MCP GW-3 standards from the April and May 2005 investigations. A summary of the laboratory analytical data from the April and May 2005 groundwater sampling events for the Transformer No. 6 / Courtyard area is presented in Table 5-2. Copies of the laboratory analytical results are included in Appendix I. Appendix A presents the monitoring well construction logs from the March and May 2005 site investigations of the Transformer No. 6 / Courtyard area.

5.4 Data Assessment

5.4.1 Introduction

The data collected from the areas south of the raceway (as described in Section 3.0) was intended for a Phase II Comprehensive Site Assessment including a Method 3 Risk Characterization (as described in Section 8.0 and Appendix L). Data collected during previous site investigations were not used as part of the risk characterization. S&W will use the PARCCS Parameters to assess the usability of all site data. PARCCS stands for precision, accuracy, representativeness, comparability, completeness, and sensitivity. In order to evaluate these parameters, field duplicates, and matrix spikes and matrix spike duplicates (MS/MSD) were collected and analyzed, and analytical reports, including laboratory QA / QC documentation, were reviewed.

5.4.2 Data Analysis

No fixed laboratory data for all of S&W's sub-basement soil and Transformer No. 6 / Courtyard area data collected were rejected during the data validation process, and all data were judged usable for use in the risk characterization. Some fixed laboratory results were qualified as estimated (flagged with a J) to indicate that the reported concentration is estimated due to limitations identified in the quality control review. Estimated values are usable for risk characterization.

5.4.3 LSP Opinion

Quality control samples from all of S&W's sub-basement soil and Transformer No. 6 / Courtyard area were collected at the frequency required for presumptive certainty and PARCCS criteria were met. There were no deviations from MCP methods. Therefore, the data set may be used in support of MCP opinions.

5.5 Contaminants of Potential Concern (COPCs)

Based on the data collected during this Phase II Site Assessment and used in the Method 3 Risk Characterization, as well as data collected previously from areas south of the raceway, the COPCs have been determined for each media for the south side of the OPM site. The following table summarizes the COPCs in each media for the south side of the OPM site.

Building Sub-Basement and Transformer No. 6 / Courtyard Area Soils	**Building Concrete Surfaces**	**Groundwater**
	EPH by MADEP	
C_9-C_{18} Aliphatics Hydrocarbons	Not Tested	C_9-C_{18} Aliphatics Hydrocarbons
C_{19}-C_{36} Aliphatics Hydrocarbons		C_{19}-C_{36} Aliphatics Hydrocarbons
C_{11}-C_{22} Aromatics Hydrocarbons		C_{11}-C_{22} Aromatics Hydrocarbons
	PAHs	
(All 17 PAHs detected on-site are considered background and therefore were not used in Method 3 Risk Characterization) (See Section 5.6)	Not Tested	None
	VOCs	
None	None	Not Tested
	PCBs	
Aroclor - 1016	Aroclor - 1016	Aroclor-1016
Aroclor - 1254	Aroclor - 1242	Aroclor-1260
Aroclor - 1260	Aroclor - 1248	
	Aroclor - 1254	
	Aroclor - 1260	
Building Sub-Basement and Transformer No. 6 / Courtyard Area Soils	**Building Concrete Surfaces**	**Groundwater**
	Priority Pollutant Metals (Plus Barium and Vanadium)	
Barium	None	Not Tested
Chromium		
Mercury		
Lead		
Arsenic (Attributed to Coal Ash – Background)		
	Asbestos	
Present	Present	Not Tested

5.6 Discussion of PAHs as Background

Concentrations of OHM that are attributable to coal, coal ash, or wood ash are exempt from reporting under the MCP (CMR 40.0317). In addition, fill material containing coal ash/wood ash may be defined as "background" for the purposes of risk assessment as described in 310 CMR 40.0006. PAHs are considered background in areas south of the raceway due to the detection of all PAHs in soil samples at concentrations less than the corresponding MADEP background levels for fill material. PAHs were detected at levels above the S-3/GW-3 Standard concentrations during the site investigation. If related solely to coal ash or wood ash associated with fill material, the soil PAH concentrations would meet the definition of "background" as defined in the MCP. Because PAH contamination in Site soils south of the raceway is likely to be due solely to coal ash and wood ash, the PAHs are treated as meeting the MCP definition of "background" and therefore are exempt. GenCorp Inc. has conducted extensive studies on the area and has shown that elevated levels of PAHs are considered a background condition (Camp Dresser & McKee Inc., 2002).

6.0 NATURE AND EXTENT OF CONTAMINATION

6.1 Soil

LFR and Stone & Webster collected numerous samples from areas south of the raceway during all site investigations. Soil samples collected during these investigations were from excavation and soil boring activities. Asbestos bulk and soil samples were taken from locations throughout the site. The following sections discuss the nature and extent of the soil contamination for areas south of the raceway at the OPM site. For discussion purposes, sub-basement floor soil sampling (S&W) and concrete sampling (LFR) for site buildings will be discussed separately. For comparison purposes only, the analytical results have been compared to applicable MCP S-3/GW-3 Standards and EPA action levels. This section is not a risk assessment and the applicable MCP Standards are presented only for discussion purposes. The Method 3 Characterization is summarized in Section 8.0.

6.1.1 Sub-Basement Floors of Site Buildings

Building Nos. 1, 2, 3, 4, 5, 6, and 28 encompass the majority of the area south of the raceway. Building Nos. 3 and 6 abut the raceway which separates the north and south sides of the entire property. Building Nos. 1, 2, 4, 5, and 13 are located closer to Canal Street. Building No. 28 is located further east on the opposite side of the Spicket River. The south area extends along the entire length of the raceway within the OPM boundary. Refer to Figure 3 for the location of the entire south area. Sub-basement floor soil samples were collected from below all seven site buildings for analysis of PCBs, pesticides, EPH, VOCs, RCRA 8 Metals plus beryllium & zinc, and PAHs. Laboratory analytical results for building sub-basement floor soil samples are summarized in Table 5-1.

6.1.1.1 Sub-Basement Soil (0 to 6 Feet Below Basement Floors (bbf))

EPH carbon fraction ranges, PAHs, metals (namely arsenic and lead), and PCBs were detected in some of the sub-basement floor soil samples at concentrations above applicable MCP S-3/GW-3 Standards. EPH carbon fractions were detected above MCP S-3/GW-3 Standards in Building No. 3 only. The concentrations of the C_{19}-C_{36} Aliphatics fraction were detected in two samples above the MCP Standard (5,000 mg/kg). Soil sample B-24 (0-0.5') and B-42 (0-0.5') had concentrations of 38,000 and 6,500 mg/kg, respectively. Also soil sample B-24 (0-0.5') was above the upper concentration limit (UCL) of 20,000 mg/kg. The concentration of the C_{11}-C_{22} Aromatics fraction was detected in one sample above the MCP Standard (5,000 mg/kg). Soil sample B-35 (0-0.5') had a concentration of 19,000 mg/kg which also exceeds the UCL of

10,000 mg/kg. These areas were excavated and the contaminated EPH soil was removed and transported off-site for final disposal. Confirmatory sampling indicated that the EPH contaminated soil was removed.

The PAHs detected at concentrations greater than applicable MCP Standards were the following six analytes: benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, chrysene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene. The PAHs detected above applicable MCP S-3/GW-3 Standards were identified below five of the seven basement floors (Building Nos. 1-3, 6, and 28) where soil samples were collected (refer to Table 5-1). The PAHs are attributed to coal and coal ash that was used as fill material for this area and are considered exempt from the MCP. PAHs are considered background in areas south of the raceway due to the detection of all PAHs in soil samples at concentrations less than the corresponding MADEP background levels for fill material. Some of the PAH contaminated soil has been removed from the site when the lead, PCB, and EPH removal activities took place.

According to the laboratory results for all sub-basement soil samples, the concentrations of arsenic were above applicable MCP S-3/GW-3 Standards in seven samples that were collected. All seven samples that were above MCP Standards were from below the basement floor of Building No. 3 (refer to Table 5-1). The arsenic concentrations for these samples ranged from 35 mg/kg to 67 mg/kg. The arsenic (coal and coal ash) impacted sub-basement soils are considered to be exempt from the MCP and therefore arsenic is treated as such. Arsenic is likely to be present in site soils other than the areas sampled during this Phase II CSA. Refer to the soil boring log for Building No. 3, which is presented in Appendix A (dated May 7, 2001).
Lead was detected above the MCP S-3/GW-3 Standard in Building No. 2 only. Concentrations of lead were detected in three samples above the MCP Standard (600 mg/kg) and ranged from 1500 mg/kg to 2700 mg/kg. Soil boring B-2-6 contained all three of the soil samples that exceeded the MCP Standard. This area was excavated and the lead contaminated soil was removed and transported off-site for final disposal. Confirmatory sampling indicated that the lead contaminated soil was removed.

The maximum concentrations of barium, chromium, and mercury exceeded the MADEP background concentrations in soil containing coal/wood ash associated with fill material. Therefore, these three metals are considered to be soil COPCs and are carried through the risk characterization (see Appendix L).

The concentrations of PCBs (Aroclor 1248, Aroclor 1254, and Aroclor 1260) from the mobile (Building No. 3 only) and fixed laboratory analyses (refer to Table 5-1) indicate that PCBs are present above applicable MCP Standards (2 mg/kg) and EPA action level (1 mg/kg) below the sub-basement floor of Building Nos. 3 and 6 only. The PCBs concentrations that were detected above the MCP Standard/EPA action level in Building No. 3 ranged from 1.6 mg/kg to 2.8 mg/kg. This PCB contaminated soil below the sub-basement floor of Building No. 3 was excavated and removed off-site. Confirmatory sampling indicated that the PCB contaminated soil was removed. Building No. 3 has since been backfilled with clean fill and no longer requires investigative measures.

However, this is not the case for Building No. 6. The PCB concentrations that were detected above the MCP Standard/EPA action level in Building No. 6 ranged from 4.1 mg/kg to 345 mg/kg. Soil from the area where the elevated PCB samples were taken (crawl space) was excavated and removed off-site. Confirmatory sampling in this area still indicated elevated PCB concentrations (refer to Table 5-1). The original and confirmatory samples were taken below the basement floor which was adjacent to the Transformer No. 6 pad that once occupied the area east of Building No. 6. This area is currently part of an on-going investigation for PCBs that exist, not only in this area, but also in the courtyard. PCB contamination in the Building No. 6 crawl space, courtyard and Transformer No. 6 areas are discussed more in Sections 5.1.8, 5.1.9, 5.1.11, and 5.2.8.

During site investigative activities for the sub-basement areas of all site buildings, some refusal was encountered at different depths which affected the advancement of the Geoprobe. The vertical extent of contamination was bounded by these refusal depths.

6.1.1.2 MHD Concrete Sampling

All of the elevated PCB and TPH sub-basement, basement and first floor slab contaminated sediment, floor, wall, and ceiling concrete samples collected from Building Nos. 1, 2, 3, 4, 5, and 6 have been removed and transported off-site to the appropriate disposal facility. To date, all of the buildings have been removed down to the sub-basement or basement level. Currently, all site buildings have been backfilled and a rough final grade for bridge construction has been completed.

6.1.1.3 Building No. 6 Area – Transformer No. 6 and Courtyard Area Soil Sampling

LFR and Stone & Webster have conducted on-going PCB sampling in the Building No. 6 Area which encompasses the crawl space, Transformer No. 6 area, and the courtyard (refer to Figures 8 and 9). These three areas contain PCB concentrations that exceeded the EPA action level. It is believed that Transformer No. 6 leaked approximately 160 gallons of PCB material in and around these areas, which is evident by the elevated PCBs concentrations detected.

To date, LFR and S&W have characterized soil in these areas to approximately 33 feet bgs. LFR's confirmatory sampling from all sampling events in this area to date have shown PCB concentrations (mostly Aroclor 1260) that range from 0.28 mg/kg to 8,150 mg/kg (refer to Table 5-3). S&W's confirmatory sampling, along with samples collected in September 2004, and March and May 2005 in this area to date have shown PCB concentrations (mostly Aroclor 1260) that range from non-detect (ND) to 25,000 mg/kg (refer to Table 5-1). From all the PCB data collected by LFR and S&W, it is evident that the highest PCB concentrations detected are in the former footprint of Transformer No. 6 (approximately 23 bgs or 15 feet btg). PCB concentrations decrease with depth, that is, deeper than 23 feet bgs and further west or east of the former Transformer No. 6 pad area. However, there are spikes in PCB concentrations throughout these areas which suggest that the PCB material remains in certain areas that do not provide a sufficient migratory pathway.

6.2 Groundwater

Based on the groundwater sampling conducted by S&W in April and May of 2005 in and around the Transformer No. 6 / Courtyard area, it is apparent that the PCB concentrations are present above the GW-3 MCP Method 1 clean-up standard (0.3µg/L). The PCB contaminated groundwater is confined to the boundaries of the transformer pit.

7.0 CONTAMINANT FATE AND TRANSPORT

7.1 Introduction

The previous section of this report discussed the nature and extent of contamination for the area south of the raceway. Based on these data, COPCs were identified for the Site. This section discusses how the contaminant concentration may change with time and how the contaminants may move in the environment. The table in Section 5.5 presents a list of the COPCs, most of which were evaluated in the Method 3 Risk Characterization, as provided in Appendix L and discussed in Section 8.0. The principal contaminants detected in the area south of the raceway consist of PCBs, PAHs, EPH carbon fractions, asbestos, and the metals arsenic and lead. These two metals, plus PCBs, PAHs, EPH carbon fractions, and asbestos were detected most frequently in the sub-basement floor / Transformer No. 6 and Courtyard area soil samples and may have the potential to impact groundwater. Even though PAHs and arsenic are considered to be attributed to the coal ash fill material, they are still discussed in Section 7.0. As such, the focus of this Fate & Transport section will be on these COPCs. Also, barium, chromium, and mercury in soil are discussed in the Method 3 Risk Characterization (Appendix L). Due to the elevated PCB concentrations encountered in the soil and groundwater during the March through May 2005 Transformer No. 6 / Courtyard investigations, a more detailed look at PCB fate and transport was conducted (see Section 7.4).

7.2 Contaminant Transport Pathways

The contaminants identified in the area south of the raceway may have the potential to migrate through groundwater, soil, air, and via surface water as discussed in the following sections. The rate of groundwater flow, the direction of groundwater flow, the physical properties of the contaminant, and the subsurface soil conditions control the contaminant fate in groundwater. For contaminant migration in soil, the physical properties of the contaminant, subsurface soil conditions including oxidation-reduction potential (ORP), soil pH, cation exchange capacity (CEC) and amount of natural organic carbon in the soil, along with the amount of precipitation, control the transport characteristic of the contaminant in the vadose (unsaturated zone). The volatility of the COPCs, which is dictated by the contaminant's vapor pressure/solubility as represented by Henry's Law constants, controls the contaminant's migration potential in the vapor phase.

7.3 Fate and Transport Processes

The following sections provide a brief review of the major contaminant fate and transport properties and processes that influence the mobility of contaminants in the environment. When released into the environment, most organic chemicals undergo a variety of reactions or processes that affect their transport potential and final fate. For example, given a significant amount of time, all petroleum compounds will break down into carbon dioxide and water (mineralization). This process may be accelerated by natural (indigenous) bacteria present in the subsurface who "work" to reduce the contaminant mass using organic contaminants as a source of energy. Metals, however, have a more limited set of processes that they undergo and are typically controlled by the ORP, pH, CEC conditions of the soil/water and contaminant property. Processes that may be important to areas south of the raceway include the following:

Solution/Dissolution
Sorption
Physical Transport Mechanism

7.3.1 Solution/Dissolution

Solution is the partitioning of a chemical between the non-aqueous and dissolved phases. The degree to which a compound is soluble (i.e., solubility) is a function of various factors including salinity, temperature, dissolved organic carbon, ORP, pH, polarity, and other factors. Solubility of organic compounds varies from sparingly soluble to infinitely soluble (Lyman et al. 1982). Compounds considered to be very water-soluble generally have water solubilities greater than 1,000 milligrams per liter (mg/L). Compounds are considered to have moderate water solubility's if their solubilities are between 100 and 1,000 mg/L. Low water solubilities are generally less than 100 mg/L. The solubility data for the COPCs evaluated in this section are presented in Table 7-1.

Based on the solubility data presented in Table 7-1, the PAHs present in soil have very low water solubilities.

Arsenic can occur in –3, +1, +3, and +5 valence states. However, the important state of arsenic is in the arsenate (+5), or the arsenite (+3) form. Dissolved arsenic species can be absorbed by ferric hydroxides. Arsenic (+5) is more strongly adsorbed than arsenic (+3). Ferric hydroxides are stable over a wide Eh-pH range, thus limiting the mobility of arsenic (Fetter, 1999). Arsenic tends to be mobile over a limited pH/Eh range.

Dissolved lead is always divalent (+2), so this metal is not directly affected by oxidation-reduction conditions, but it can be indirectly controlled by ORP under some conditions. Under oxic (oxygen rich) conditions, lead is soluble, but its concentrations in groundwater are usually limited by adsorption on the surfaces of clays, iron oxides, and manganese oxides (EPRI, 1984). Under sulfate-reducing conditions, lead will precipitate as a sulfide mineral (galena, PbS) that has a very low solubility.

Asbestos is not readily soluble. However, like metals, these layered silicates have been found in aquifers as colloids (Fetter, 1999).

With respect to the EPH carbon fractions, the C_{11}-C_{22} aromatics are the most soluble of the three fractions. The other two fractions, C_9-C_{18} Aliphatics and C_{19}-C_{36} Aliphatics are considered slightly soluble to immobile.

PCBs as a group tend to be hydrophobic (water haters), and as such are not very water soluble. Information indicates that Aroclor-1242 (not a COPC in soil) and one of the most soluble PCBs, has a solubility of 0.45 mg/L.

Based on the residual concentrations of COPCs in the soil, the Solution/Dissolution process is a limited transport mechanism for the metals, PAHs, asbestos and EPH carbon fractions with the possible exception of C_{11}-C_{22} aromatics.

7.3.2 Sorption/Retardation

Sorption is defined as the interaction of an organic or inorganic contaminant with a solid (Piwoni and Keeley, 1996). Sorption processes can be classified as adsorption (adhesion to the solid's surface) and absorption (penetration into the solid). The discussion below covers only the adsorption processes, since absorption can only occur when the aquifer particles are sufficiently porous so that the solute can diffuse into the particle and be absorbed within the interior structure of the mineral. The site geology consists principally of fill underlain by glacial till deposits and loamy sands and silt deposits. Due to the presence of fine-grained sediments encountered, the adsorption process is likely to retain site COPCs, and as such these contaminants are not likely to migrate a significant distance.

Adsorption mechanisms are typically the dominant processes causing retention of large molecular weight organic molecules and inorganic compounds. Adsorption may be a significant process in the fate and transport of contaminants, because it can retard the transport of COPCs. Also, transformation reactions such as biodegradation are affected by the degree of adsorption.

Adsorption is defined as the interaction of a solute with sorption sites on a solid surface. Adsorption is a function of various properties of a given contaminant and the nature of the aqueous and solid media. Contaminant properties that influence sorption for the COPCs include the amount of organic carbon in decimal percent (fraction of organic carbon (f_{oc})) present in the soil/sediment, water solubility, and the soil-water partition coefficient (K_{oc}). Organic carbon data was not obtained as part of the investigation. However, as described in EPA (1997), the organic matter for loam varies between 0.52%-0.71%. The organic carbon is determined by dividing this value by 1.724. Using the lower range, the organic carbon for the loamy soils encountered would be approximately 0.3% or 0.003 in decimal percent.

The partitioning ability of the chemical to be adsorbed to the host media (soil) or to be released to the pore water (groundwater) is directly related to the chemical's K_{oc} and the soil/sediment f_{oc}. The distribution coefficient, K_d, for organic chemicals is calculated using the following equation: $K_d = f_{oc}*K_{oc}$. The soil-water partitioning coefficient for inorganic compounds is more complex and is affected by numerous geochemical parameters and processes, including pH, sorption to clays, organic matter, iron oxides, and other soil constituents; oxidation-reduction conditions, major ion chemistry, and the chemical form (e.g., hydroxide, carbonate, or silicate) of the metal.

The number of significant influencing parameters, and differences in experimental methods, results in as much as seven orders of magnitude variability in measured metal K_d values reported in the literature.

Table 7-2 includes the K_{oc} and the calculated K_d based on a TOC of 0.3% or in decimal percent, 0.003 for organic compounds. The source of the K_d data for inorganic compounds provided in Table 7-2 is for arsenic (+3), 29 L/Kg with an aqueous pH of 6.8. The distribution coefficient for lead varies from 19 L/kg to 1405 L/kg with a geometric mean of 270 L/Kg. The sorption coefficient for arsenic (+3) is based on the following Eh-pH dependent relationship:

Arsenic (+3) Log K_d = 0.0322*pH + 1.24

Based on the K_{oc}, f_{oc} and K_d values presented in Table 7-2, the PAH/PCB compounds adsorb readily to site soils as noted by their high distribution coefficient numbers and do not readily migrate in soil and would have the same fate in groundwater. Additionally, the C_{11}-C_{22} aromatic hydrocarbon is the most mobile of the three EPH carbon fractions with C_{19}-C_{36} aliphatics considered insoluble. As depicted in the table, arsenic may be mobile in site groundwater and may leach from site soils based on their K_d values. However, as previously noted, metals transport in the subsurface is dictated by many factors including soil Eh/pH conditions to name a few.

The retardation factor of a compound can be determined based on the distribution coefficient, K_d, of a compound, the net effective porosity of the soil, and the soil bulk density. Based on a dry bulk density of 1.47 g/mL for a loamy soil (EPA 1997) and an estimated net effective porosity for a silty-sand of 20 percent (Fetter, 1994), the retardation factor for each compound was determined. Retardation Factors are presented in Table 7-3 and were determined as follows:

$$\mathbf{Rf = 1 + (P_b/n) \times K_d}$$

Where:

Rf	=	retardation factor, unitless
P_b	=	dry bulk density, g/mL
n	=	net effective porosity, as void fraction
K_d	=	K_{oc} *f_{oc} (for organic compounds solely), mL/g
f_{oc}	=	fraction of organic carbon, decimal percent
K_{oc}	=	partitioning coefficient, mL/g

As indicated by the calculated retardation values presented in Table 7-3, the heavy molecular weight PAHs and PCBs are highly retarded and bind to site soil. Similarly, the metals arsenic and lead would similarly readily adsorb to site soils. As noted previously, metals transport is highly dependent on soil-water interactions such as Eh/pH, amount of ferric iron present in the soil and the CEC of the soil.

The COPCs solute velocity is presented in Table 7-3. The relationship between retardation and solute velocity is as follows. As determined for the area north of the raceway, groundwater flows at a rate of 0.5 ft/day (see Section 7.3.3), and as such, the center of mass of a contaminant plume consisting of C_{11}-C_{22} aromatics with a retardation factor of 111.25 would migrate approximately 1.65 feet from the source in one year, whereas uncontaminated groundwater would migrate approximately 180 feet in one year. The PAHs are essentially immobile and many of the other COPCs, if present in groundwater, would migrate at tenths of feet per year. Therefore, the Sorption/Retardation process is a significant fate and transport mechanism in prohibiting the migration of site contaminants.

7.3.3 Physical Transport Mechanisms

Other physical transport mechanisms that may be important to the site include the following:

molecular diffusion (diffusion),
advection,
dispersion,
physical transport

Diffusion is a physical process that occurs in subsurface environments. Diffusion will occur in any environment that has a concentration gradient and tends to be more significant in low permeable soils. The magnitude of the gradient determines the rate of the reaction. Under normal conditions, areas of higher concentration move to areas of lower concentration since the system wants to be in equilibrium. The difference between the high and low concentration is related to the concentration gradient. This process tends to spread the contamination outward in all directions from the source. Based on the residual concentration of COPCs in the subsurface soil, and the fairly coarse nature of the soils, diffusion is not likely to be a significant physical transport mechanism due to the permeable nature of the fill and loam deposits.

Advection is a process where dissolved contaminants are carried along with bulk groundwater flow. Many different advection transport models are used to describe the flow of groundwater and contaminants through subsurface media. Factors affecting the advective transport include contaminant concentration, hydraulic gradient, hydraulic conductivity, and effective porosity (Fetter, 1994). The one-dimensional mass flux due to advection can be calculated using the variables identified. The seepage velocity of the groundwater at the site, using maximum determined values, is approximately 0.5 ft/day (North Raceway data). This was determined from the following equation and estimated variables:

$V_{seep} = K*I/n_e$
Where:

$V_{seep} =$ Seepage Velocity, ft/day
$K=$ Hydraulic Conductivity of the subsurface soils, 3.8×10^{-3} cm/sec (Eckenfelder, Inc., 1998)
$I =$ Hydraulic Gradient, Unitless, 0.0098 (maximum)
$n_e=$ Net Effective Porosity, Unitless, 0.2 (typical)

Advection itself is a significant transport mechanism for this site, since groundwater migrates approximately 180 ft/year. However, when retardation and dilution (via precipitation and dispersion) are considered, the solute concentration would be considered negligible, and this pathway is not considered important.

The mixing of contaminants through soil pore spaces in the subsurface is called mechanical dispersion. There are three ideas associated with this type of fluid transport (Fetter, 1994). Fluid will move faster through the center of pores than along the edges. Some fluid molecules may travel along longer flow paths than others to go the same linear distance. Fluid will flow faster through larger pores than smaller ones.

Considering the situations discussed above, not all fluid is traveling at the same velocity since some contaminant water particles are taking a sinuous pathway, allowing mixing of clean water with contaminated water along the flow path, thereby causing some degree of dilution. Dispersion can occur in the longitudinal or transverse direction. Many equations have been developed to determine/represent dispersion coefficients (EPA 1996).

Dispersion should not play a significant role since the K_{oc} and K_d values are fairly high, and contaminants will preferentially adsorb to site soils, thereby reducing dispersion effects in a transverse or vertical direction. As such, dispersion is not considered a significant fate and transport process.

7.3.4 Volatilization

Volatilization is a physical process that depends on the thermodynamic properties of a chemical and the effects of environmental factors. VOC analytes are principally the compounds that are subject to volatilization and are not COPCs at the site.

Volatilization may occur from groundwater into soil gas within the vadose "unsaturated" zone. The rate of volatilization depends upon temperature, vapor pressure, and the difference in concentration between the liquid and vapor phases. The emissions from a source can be estimated with the use of Henry's Law constants, equilibrium chemistry, and other site-specific factors. Henry's Law is used for dilute solutions and represents the ratio of the concentration in the gas to the liquid concentration. Table 7-4 lists the Henry's Law constants for the site COPCs, where available.

From the information presented in Table 7-4, the higher the Henry's Law constant the greater likelihood that the compound will be present in the gas phase surrounding the liquid. Temperature and the chemical composition of water significantly affect Henry's Law constant.

Henry's Law is proportionally related to the vapor pressure and molecular weight of the compound and inversely proportional to the compound solubility. As depicted in Table 7-4, PAHs and PCBs tend to have very low Henry's Law constants, and metals are considered to be non-volatile. With the possible exception of C_{11}-C_{22} Aromatics, all other COPCs are not considered volatile. Therefore, volatilization from site COPCs is not expected to be a major transport process.

7.4 Fate and Transport of PCBs in Transformer No. 6 / Courtyard Area

At the request of the EPA Region 1 Project Manager, S&W was asked to evaluate whether: 1) the CDM proposed Groundwater Alternative: *3.3.4 – Plume Containment with Active Groundwater Collection and Treatment, Raceway Water Level Pumped to Elevation 10 Feet MSL*, would capture the PCBs present in groundwater from the former Transformer No. 6 / Courtyard area. CDM's proposed alternative is described in their Remedial Action Plan for the GenCorp, Inc property (May 2003), if not, 2) whether PCBs present in groundwater could impacts surface water above water quality criteria; and 3) to evaluate the impacts of PCBs leaching from soils as a result of 15 to 20 feet of clean backfill being placed on top of the existing excavation in order to complete the bridge project crossing the OPM site by MHD. The project requires bringing site grade up 15 to 20 feet in proximity to the former Transformer No. 6 / Courtyard area. The following sections will answer these questions.

Note: All references made in the following sections are from S&W's groundwater report entitled, *Modeling Efforts for the Oxford Paper Mill – Former Transformer Area #6, Lawrence, MA*, located in Appendix K of this Phase II CSA.

7.4.1 Oxford Paper Mill – Transformer No. 6 / Courtyard PCB Investigations

LFR conducted a series of investigations for MHD at the Former Transformer No. 6 / Courtyard Area. On April 13, 2004, LFR excavated an area to 4 feet below grade over an approximately 30 foot x 30 foot area. Within a portion of that area, an excavation to a depth of 8 feet was conducted. Six sidewall and four excavation base samples were collected and analyzed for PCBs. Both base and sidewall samples contained levels of PCBs above the EPA action level. Appendix A (in Appendix K) depicts the approximate locations of the borings and provides the analytical results.

On April 28, 2004, LFR continued excavation activities. The excavation was extended to 8 feet across the former transformer area, and the northwest corner of the excavation was continued to a depth of 10.5 feet below transformer grade in order to remove a concrete pad. Three composite base samples and seven composite sidewall samples were collected. With the exception of composite sidewall samples 6 and 7, refer to Appendix B (in Appendix K), PCBs in the other eight samples ranged from 1,070 ppm to 8,150 ppm.

On September 3, 2004, the COL, represented by S&W, collected PCB soil samples from soil borings that were performed by LFR in the courtyard/former Transformer No. 6 area. A total of five soil borings (B-1 through B-5) were advanced to 20 feet below transformer grade (btg), which by this time was already between 8 to 10+ feet below grade level. A sample was collected at approximately five foot intervals and a total of twenty-two (22) soil samples were collected through the use of a Geoprobe. Thirteen (13) of the twenty-two (22) samples collected exceeded the EPA action level of 1 mg/Kg PCBs. The PCB concentrations of Aroclor 1016 and Aroclor 1260 ranged from non detected (ND) to 25,000 mg/kg (B4-15). MHD also collected samples from borings B-1 through B-5 during the September 2004 sampling event. MHD results from the September 2004 sampling event are presented in Appendix C (in Appendix K).

Between March 21 and 24, 2005, S&W advanced nine borings (SB-1 to SB-9 and MW-2), within the courtyard using an all terrain vehicle (ATV) auger rig. Borings SB-3 and SB-5 could not be advanced at their proposed location and were moved to an alternate location. Fourteen soil samples were collected from the borings. Boring depths ranged from 5 ft below transformer grade (btg) to 25 ft btg. Monitoring wells were completed at location MW-2 and SB-9 (MW-9) to depths of approximately 17 feet and 20 feet btg. PCBs ranged from 0.11 ppm to 610 ppm (SB-4-5).

On May 11, 2005, S&W advanced four soil borings (SB-10 through SB-13) using a Sonic drill rig. Three soil samples from each boring were collected and analyzed for PCBs. Soil borings SB-10 and SB-11 were completed as overburden monitoring wells. Monitoring well MW-10 was installed downgradient from the source area. PCBs ranged from non-detect (ND) to 46 ppm (SB-12-5).

A summary of the S&W PCB soil boring analytical results from the Transformer No. 6 / Courtyard area are presented in Table 1 (in Appendix K). Since LFR's data has not been validated/QA/QC reviewed, the data is not included in Table 1, rather, it is provided in Appendix A – C (in Appendix K). Soil boring locations from the September 2004, March and May 2005 sampling programs are presented on Figure 4 (in Appendix K).
Groundwater samples were collected on April 20, 2005 from wells MW-2 & MW-9 and on May 20, 2005 from wells MW-10 and MW-11. PCBs Aroclor 1016 and 1260 were the only detectable PCBs present in the samples. PCBs ranged from ND (MW-10) to 7.1 ppb (MW-2), located within the source area.

Based on a review of the data collected by LFR and S&W, the source area has dimensions of 35 feet (north – south) and approximately 30 feet (east to west). The depth of PCBs from grade is approximately 30 feet, which correlates to approximately 20 feet below the LFR excavations (ft btg) of April 2004. Wells within the source area are MW-2 and MW-9, refer to Figure 4 (in Appendix K).

7.4.2 Modeling Effort

A Groundwater Flow Model Report (CDM 2001) and a Groundwater Solute Transport Model Report (GSTMR) (CDM 2002) was developed by CDM in order to evaluate contaminant transport and the feasibility of 1) remediating halogenated compounds in bedrock south of the raceway; 2) benzene in bedrock south of the raceway; 3) THF in the overburden north of the raceway and 4) PCBs in bedrock south of the raceway and in the southern portion of Former Building 3 in alluvium. As illustrated in the Remedial Action Plan (RAP) (CDM 2003), the focus of CDM's groundwater cleanup area is approximately 600 to 800 feet west of the former Transformer No. 6 area. The proposed groundwater alternative as described in the RAP consists of:

- The end of the raceway is sealed from the Spicket River
- The exterior raceway is filled with relatively permeable sand and gravel fill
- The water level in the raceway would be pumped to a level of 10 ft MSL
- Well bores penetrate the bottom of the raceway, the underlying till and approximately 20 feet into bedrock in order to enhance drainage between bedrock and the raceway. This enhanced drainage is provided for the eastern 175 feet of the interior raceway.

The RAP describes the results of the modeling simulations, and the reader is referenced to this report for modeling details. Figure 3-29 of the modeling report shows the simulated flow field for existing and pumping conditions. S&W has added the approximate location of the OPM Former Transformer No. 6 / Courtyard area and included the graphic as Figure 5 (in Appendix K). The flow field for the selective alternative in proximity to the OPM site is towards the Spicket River and groundwater from the site area would not be captured by the current extraction system. Under existing flow conditions, groundwater flow in proximity to the site is towards the raceway; however, as will be discussed below, groundwater flow maps developed for the Courtyard area by S&W for July 1, 2005 and July 20, 2005 for the overburden (stratified drift deposits) show groundwater flow is to the east/northeast towards the Spicket River. Based on CDM's modeling simulations, it appears that PCBs present in groundwater within the OPM area of concern are not within the simulated zone of capture of their proposed system.

7.4.3 BIOSCREEN Modeling Effort

As a result of determining that the CDM proposed alternative would not capture the PCBs present in groundwater at the OPM Former Transformer No. 6 / Courtyard Area, S&W then determined whether PCBs present in groundwater could impact aquatic receptors in the Spicket River. In order to answer that question, S&W utilized an EPA screening level model to determine the mass loading (mg/day) of PCBs to the Spicket River and then subsequently divided this loading rate by the surface water flow of the Spicket River to calculate the predicted concentration in the river. A description of the BIOSCREEN model and the parameters used in the modeling effort are described as follows:
BIOSCREEN (EPA, 1996 & 1997) is a screening level software developed by the Air Force Center for Environmental Excellence (AFCEE) and Groundwater Services, Inc. for EPA's Subsurface Protection and Remediation Division/National Risk Management Laboratory, Ada, Oklahoma and is a Natural Attenuation screening model which simulates remediation through natural attenuation (RNA) of dissolved hydrocarbons. The model is designed to simulate biodegradation by both aerobic and anaerobic reactions. The software, programmed in the Microsoft Excel spreadsheet environment and based on the Domenico analytical solute transport model (Domenico & Schwartz, 1998) but refined to include an "instantaneous reaction module" similar to RT3D's Kinetic Reaction Module allowing for degradation of the source term.

The BIOSCREEN model can be used to simulate the transport of PCBs at the Oxford Paper Mill – Former Transformer Area No. 6 site. The three modules that comprise BIOSCREEN are:

1) Solute transport without decay,

2) Solute transport with biodegradation modeled as a first-order decay process (simple, lumped-parameter approach),

3) Solute transport with biodegradation modeled as an "instantaneous" biodegradation reaction (approach used by BIOPLUME models).

For this site only module 1 will be considered. To be conservative, modules 2 and 3 were not used; rather the model only considers advection, dispersion, and sorption of PCBs in groundwater. Module 2 (biodegradation) was not considered for two reasons: 1) if biodegradation was to occur, a lower mass loading of PCBs to the Spicket River would be calculated, and the application of this screening level calculation/fate & transport model simulations are to calculate the maximum concentration of PCBs that may be detected in the river. Additionally, PCBs are typically transformed to a lower toxic contaminant via reductive dechlorination similar to other chlorinated compounds. Module 3 is applicable to BTEX constituents and not PCBs. The module was developed to simulate the "instantaneous reaction" of oxygen and BTEX. The module assumes that the stoichiometric ratio of 3.14 mg/L Oxygen is required to biodegrade 1 mg/L BTEX.

The BIOSCREEN model for first order decay is presented in Figure 6 (in Appendix K). The biodegradation constant, is identified as λ in the figure. As will be discussed later, due to the conservative nature of the model, the source mass was considered infinite. This prevents PCBs from within the source area from being degraded over time.
The BIOSCREEN model requires six principal data areas and an optional field for data comparison. These data areas are described as follows:

Data Areas	**Type of Required Data**
1	Hydrogeology
2	Dispersion
3	Adsorption
4	Biodegradation
5	General
6	Source Data
7	Field Data for Comparison (Optional)

Data for each of these areas with the exception of 4 & 7 are required in order to run the model. Each section is briefly discussed as follows:

1. Hydrogeology – Inputs required for this section of the model are the hydraulic conductivity, hydraulic gradient, and net effective porosity. Hydraulic conductivity testing was conducted on monitoring wells MW-2, MW-9, MW-10 and MW-11. Both rising head and falling head data was obtained and the data is presented in a memorandum and is contained in Appendix D (in Appendix K). Hydraulic conductivity values ranged from 0.31 feet per day (ft/d) to 8.21 ft/d with an arithmetic and geometric mean of 2.87 ft/d and 1.81 ft/d, respectively. According to Figure 6-12 presented in the CDM Phase II CSA – *Generalized Spatial Distribution Log Hydraulic Conductivity Overburden* (CDM 2003), S&W's measured values are consistent with those results presented in the report for the OPM property south of the Raceway. In order to determine the maximum loading to the Spicket River, the hydraulic conductivity value determined for well MW-2 (7.2 ft/d or 2.5E-03 cm/s), refer to Appendix D – Table 2 (in Appendix K) was used in the BIOSCREEN Model. This value is representative of a fine to medium grained sand (Stratified Drift).

Site groundwater flow maps were developed by S&W for water levels collected on July 1, 2005 and July 20, 2005. Figures 7 & 8 (in Appendix K) depict groundwater flowing towards the Spicket River. The hydraulic gradient measured on July 1, 2005 was approximately 0.10 ft/ft and was towards the east, refer to Figure 7. The hydraulic gradient measured on July 20, 2005 was approximately an order of magnitude less (0.01 ft/ft) and groundwater flow was towards the northeast, as depicted on Figure 8. The water level in the Spicket River was very low when water levels were collected on this day. As part of the sensitivity analysis, S&W evaluated the mass loading to the Spicket River based on both hydraulic gradient values.

A synoptic gauging round conducted by CDM (8/9/99) depicted a northeasterly flow towards the Spicket River in proximity to the OPM Former Transformer No. 6 / Courtyard Area and the gradient extrapolated from this figure (Phase II CSA Figure 6-13) was approximately 0.01 ft/ft. As part of CDM's groundwater flow model (GWFM)(CDM 2001), simulated versus observed water table contour maps were developed. These figures are presented in the GWFM and identified as Figures 4.5 (November 1993 Simulation), 4.7 (November 2000 Simulation), 4.11 (1993 – 1998 Simulation), and 4.13 (1999 – 2001 Simulation). Groundwater gradients extrapolated from these figures were in the range of 0.005 to 0.01 ft/ft; however, the hydraulic control is principally based on wells located within the GenCorp site. Groundwater gradients vary seasonally and are towards the east- northeast. The flow field gradient used in BIOSCREEN is based on simulations using a 0.01 ft/ft and 0.10 ft/ft gradient. These values will provide conservative estimates of mass loading to the Spicket River.

A net effective porosity (n_e) is a dimensionless ratio of the volume of interconnected voids to the bulk volume of the aquifer matrix. Note that "total porosity" is the ratio of all voids (including non-connected voids) to the bulk volume of the aquifer matrix. Difference between total and effective porosity reflect lithologic controls on pore structure. Values for sand type soils range from 15%-40% (Fetter 1994); an effective porosity of 25% was used in the S&W transport model based on site soils. Similarly, CDM used a net effective porosity of 25% in their transport model for the alluvium deposits (CDM 2002). In order to be conservative, both gradients were evaluated in order to determine which would provide the greatest mass flux of PCBs discharging to the river. The seepage velocities calculated were determined to be 105 ft/year and 1050 ft/year based on a hydraulic gradient of 0.01 ft/ft and 0.10 ft/ft gradient.

Vs = KI/ n_e (ft/yr) = (2.5E-3 cm/sec* 0.1)/(0.25) = 1050 ft/year or 2.9 ft/day
Vs = KI/ n_e (ft/yr) = (2.5E-3 cm/sec* 0.01)/(0.25) = 105 ft/year or 0.29 ft/day

2. Dispersion - Refers to the process whereby a plume will spread out in a longitudinal direction (along the direction of groundwater flow), transversely (perpendicular to groundwater flow), and vertically downwards due to mechanical mixing in the aquifer and chemical diffusion. Selection of dispersivity values is a difficult process, given the impracticability of measuring dispersion in the field. As cited in the BIOSCREEN manual, the longitudinal dispersivity (αx) may be estimated as being 10% the length of the plume. PCBs have not been detected in well MW-10, located approximately 35 feet east of Former Transformer Area, source area well MW-2, additionally, from the modeled source area to the river is approximately 40 feet. A value of 4.0 was conservatively applied to the longitudinal dispersivity. The transverse dispersivity (αy) typically ranges from 0.1 αx to 0.33αx. A value of 0.4 ft was selected for αy. Vertical

Dispersivity (αz) typically has the same ratio, 10% of αy; however, in order for BIOSCREEN to calculate the mass flux, vertical dispersion is required to be fixed at 0.0.

3. Adsorption – Refers to the rate at which dissolved contaminants moving through an aquifer can be reduced by sorption of the contaminants to the solid aquifer matrix. The degree of retardation depends on both aquifer and constituent properties. The retardation factor is the ratio of the groundwater seepage velocity to the rate that organic chemicals migrate in the groundwater. The retardation is usually estimated from soil and chemical data using variables described below (ρb = bulk density (1.6 kg/L), ne = net effective porosity (0.25), Koc = octanol-water partition coefficient for PCB Aroclor1016 (4400 L/kg), and fraction of organic carbon (foc) data)).

A saturated soil sample was obtained from well MW-10 and analyzed for foc. Organic carbon was not detected in this sample at the detection limit of 0.2%. As such, this value (0.002 – fractional percent) was used in the model. Additionally, as outlined in EPA's Soil Screening Guidance: Users Guide (July 1996), a default organic carbon value of 0.2% may be used if foc is not analyzed. The distribution coefficient (Kd) is the product of Koc * foc (8.8 L/kg). A value of 4400 L/Kg was obtained from Enviro-Base, Waterloo Hydrogeologic, Inc. (2003) for PCB Aroclor 1016. Other PCBs have higher Kow/Koc values. A higher value translates into greater retardation; as such, in order to be conservative, the lowest value in the database was used. The retardation coefficient is derived according to the following equation:

R = 1 + [(Kd* ρb)/ne] = 1 + [(8.8 L/kg * 1.6 kg/L)/0.25] = 57

4. Biodegradation – Refers to the rate coefficient (λ) describing first-order decay process for dissolved constituents. The first-order decay coefficient equals 0.693 divided by the half-life of the contaminant in groundwater. In BIOSCREEN, the first-order decay process assumes that the rate of biodegradation depends only on the concentration of the contaminant and the rate coefficient. In order to be conservative it was assumed that biodegradation of PCBs are not occurring. The method of Buscheck & Alcantar (1995) provides a method for determining the biodegradation rate of a compound based on plume centerline data. However, in order to be conservative, no biodegradation was considered.

5. General - Physical dimensions of the rectangular area to be modeled. For this model, the model length and width were chosen to be 60 feet. These dimensions need to be large enough so that the contaminant mass is within the cell boundaries of the BIOSCREEN output. The distance from the source area to the Spicket River is approximately 40 feet, so the 60 foot length is appropriate for the simulation. Simulated time is used to match contaminant concentrations along the plume centerline and traverse to it. As part of the simulations, S&W modeled times of 2 years and 12 years. These times were derived based on the contaminant transport rate needed to reach well MW-11, based on a hydraulic gradient of 0.1 and 0.01 ft/ft, as described in Item 1 above, in order to have a "calibrated" transport model. However, if the plume were allowed to expand with a constant source, then over decades the source concentration would be representative of the maximum concentration at the river. Assuming no biodegradation, the mass flux depicted in Appendix E Tables 1 through 4 (in Appendix K), are the worst case scenarios for discharge to the Spicket River.

6. Source Data - The Domenico (1987) model assumes a vertical plane source with constant concentration. At the OPM site, the thickness of the stratified drift deposit was estimated at approximately 25 feet; refer to Appendix D, slug test results (in Appendix K). The source thickness of the saturated zone was estimated at 20 feet. This value is slightly greater than the 18.4 feet measured in source area well MW-9 on July 1, 2005. Soil data previously presented, refer to Table 1 and Appendix A – C (in Appendix K), indicates that concentrations of PCBs drop off significantly below 15 feet. As such, a saturated water column thickness of 20 feet containing residual PCBs is considered conservative and will overestimate the amount of mass in the groundwater system discharging to the river.

The Domenico (1987) model assumes the source is infinite, i.e. the source concentrations are constant. In BIOSCREEN, however, an approximation for a declining source concentration has been added. The declining source term is based on the following assumptions: There is a finite mass of organics in the source zone present as a free-phase or residual Non Aqueous Phase Liquid (NAPL). The NAPL in the source zone dissolves slowly as fresh groundwater passes through. The change in source zone concentration can be approximated as a first-order decay process. For example, if the source zone concentration "half-life" is ten years and the initial source zone concentration is 1 mg/L, then the source zone concentration will be 0.5 mg/L after 10 years, and 0.25 mg/L after 20 years. However, for these simulations the source mass was considered infinite, as such there was no source decay considered.

As part of the modeling effort, S&W conservatively estimated the "plane source", (refer to Figure 6 in Appendix K) as having a width of 35 feet perpendicular to groundwater flow. This is essentially the entire Former Transformer Area # 6 / Courtyard Area normal to groundwater flow.

Groundwater samples were collected on April 20, 2005 from wells MW-2 & MW-9 and on May 20, 2005 for wells MW-10 and MW-11. Source area wells are identified as MW-2 and MW-9. Wells downgradient of the source area are MW-10 and MW-11. PCB concentrations are "totals" and were 7.1 ppb PCBs in well MW-2 (duplicate concentration was 5.8 ppb), 4.7 ppb in well MW-9, non-detect in well MW-10, and 1.9 ppb in well MW-11. Table 2 (in Appendix K) provides the groundwater data.

Model simulations consisted of utilizing the maximum concentration of PCBs present in the source area groundwater in order to calculate the maximum amount of contaminant discharging to the Spicket River. The simulation assumed that the contaminant was present at a constant concentration of 7.1 ppb over the entire 35 foot width of the model domain. Simulations also considered hydraulic gradients of 0.01 ft/ft and 0.10 ft/ft; refer to BIOSCREEN item 1 for a further discussion on groundwater gradients. Two additional simulations were performed whereby the concentration in well MW-2 represented 70% of the source area concentration (25 foot width) and MW-9 represented the remaining 30% (10 foot width). This "zoning" is a way to model source areas with varying groundwater concentrations/strengths as typically performed in numerical models such as MT3D. Appendix E (in Appendix K) identifies the source area concentrations, gradients and time durations simulated.

7.4.4 Field Data for Comparison

Data for wells MW-11 (1.9 ppb total PCBs) and non-detect levels for sample MW-10 were used for comparison as to how well the model is being calibrated. However, S&W is trying to simulate a worst case scenario(s) and not necessarily have a fully calibrated transport model. Although the source area widths and concentrations applied to the model do not allow for exceptional calibration, if MW-2 and MW-9 were the reference wells, then the model predicted results are acceptable as discussed in Section 7.4.5.

Additionally, to simply answer the question as to what concentration of PCBs will eventually reach the Spicket River does not necessarily require an analytical or numerical model. However, to predict current time concentrations at the river does require the use of a model (analytical or numerical).

7.4.5 BIOSCREEN Results

Four model runs were simulated in order to determine the predicted surface water concentration from the site to the Spicket River, located east/northeast of the site. Model calibration appears to indicate that the seepage velocity is more on the order of 105 ft/year. This correlates with a hydraulic gradient on the order of 0.01 ft/ft, which similarly correlates with an August 8, 1999 water level gradient measured by CDM within the OPM site and their model simulated heads (refer to BIOSCREEN Item 1). Predicted surface water concentrations were determined using the mass flux of PCBs determined from the BIOSCREEN simulations, and dilution of these values by surface water dilution.

7.4.6 Mass Flux

The contaminant mass flux in units of mg/day is determined by BIOSCREEN using a simple calculation technique. The concentration in each cell of the array (refer to Appendix E, 3rd page of each model run or Appendix E Tables 1 through 4 in Appendix K) is obtained by multiplying: 1) the Darcy velocity, 2) the width associated with each cell in the array and the concentration predicted in each cell, and 3) the thickness of the source zone. The plume mass flux for a particular cross section is then determined by summing the five values in the array for that cross section. The model assumes symmetry and that the concentrations traverse (normal to) groundwater flow is the same and that the maximum concentration is present along the plume centerline (Domenico & Schwartz, 1998). The calculation technique is disabled when vertical dispersion is used, as the vertical concentration profile is no longer uniform. In addition, the mass flux calculation should only be used for gaining streams (streams where groundwater discharges into surface water) and should not be used for losing streams (streams that recharge groundwater).

The calculation approach is approximate, and other averaging techniques (use of geometric means, etc.) might provide different results. Because the model defines the plume cross section with only 5 points, the computed plume mass flux may appear to be slightly higher for a downgradient point than an upgradient point in some instances. The mass flux estimates are sensitive to the model width, and for best results the model should be adjusted so that the model width covers most of the calculated array. The mass flux estimates are probably accurate to ± 50% (EPA 1997).

7.4.7 Predicted Surface Water Results

The predicted surface water concentrations were determined by dividing the Mass Flux provided by BIOSCREEN by the Spicket River low flow (30.1 cubic feet per second (cfs)). Additionally, S&W evaluated the average flow of the Spicket River 132 cfs (CDM Phase II CSA, 2003) and calculated a concentration in the river based on this flow. This method of calculation is conservative since it does not include groundwater flow in the dilution calculation. This method of calculation does assume that the river fully dissects the aquifer and that the entire contaminant mass discharges through the river's western bank. S&W also determined that predicted surface water concentration, assuming that the contaminated groundwater discharges through the bottom of the riverbed and used the Streeter Phelps dilution equation to determine surface water concentrations (EPA 1996). This calculation was typically lower by 20%, as such the results presented are considered conservative.

The BIOSCREEN model (refer to Appendix E in Appendix K) provides the groundwater concentration along the plume centerline and traverse to the centerline. The source area width was estimated to be 35 feet based on PCB data collected. The contamination in the source at and beneath the water tables as described previously was 20 feet (refer to BIOSCREEN parameters above). Groundwater PCBs were simulated using the maximum concentration within the source area. Additionally, the source area was "zoned" with constant concentration cells similar to a numerical analysis (e.g., MT3D/RT3D). The model scenarios considered a groundwater gradient of 0.01 ft/ft and 0.1 ft/ft for each scenario and: 1) a maximum concentration of 7.1 ppb PCBs; 2) zoning of contamination 70% of the source width having a concentration of 7.1 ppb and 30% of the source area having a concentration of 4.7 ppb (MW-9).

The distance from the source area boundary to the Spicket River's western bank is approximately 40 feet, refer to Figures 7 & 8 (in Appendix K). However, the model does not allow concentrations to be determined at a specified distance, time and traverse and along the plume centerline. Model results indicate that steady-state conditions are reached after 50+ years; at this juncture, assuming a constant source concentration, the maximum concentration is reached at that river. The results of present day flux and predicted concentration at the Spicket River and future concentrations (50+ years from now) being discharged to the Spicket River are summarized below and presented in detail in Appendix E Tables 1 – 4 (in Appendix K).

PCB Source Concentration (ppb)/Hydraulic Gradient (ft/ft)	Mass Flux Present Day Scenario (mg/d)	Predicted Surface Water Concentration – Present Day Scenario - Low Flow (30.1 cfs) & Average Flow (132 cfs) (ng/L)	Mass Flux Future Scenario (50+ years) (mg/d)	Predicted Surface Water Concentration – Future Scenario - Low Flow (30.1 cfs) & Average Flow (132 cfs) (ng/L)

7.1/0.01	1.9	0.026/0.0012	10	0.136/.0024
7.1/0.10	53	0.72/0.0012	100	1.36/0.0024
7.1 & 4.7/0.01	1.3	0.0177/.0012	9.1	0.124/0.0024
7.1 & 4.7/0.01	48	0.6531/0.0012	91	1.24/0.0024

As identified in the table above, the maximum predicted surface water concentration based on the above worst case scenarios yields a concentration of less than 1.5 parts per trillion (ng/L). This value is considered conservative, since it does not consider further dilution by groundwater discharge or recharge; additionally, the highest mass flux is based on a constant source area having a concentration of 7.1 ppb with a conservative hydraulic gradient of 0.10 ft/ft. As indicated previously, a duplicate sample obtained from well MW-2 contained 5.8 ppb total PCBs. Given the conservative nature of the modeling scenario, the predicted PCB concentration of 1.36 ng/L is a maximum predicted concentration. Current day discharge is considerably less if the hydraulic gradient is closer to 0.01 ft/ft.

As indicated, conservative values were used and the maximum predicted PCB concentration determined was 1.36 ng/L. This value is below the Ambient Water Quality Criteria for Freshwater receptors of 14 parts per trillion (ng/L) (EPA 2002). As such, impacts to Spicket River receptors are not expected.

7.4.8 Regrading Impacts

S&W qualitatively evaluated the impacts of PCBs in groundwater as a result of MHD regrading the site in proximity to the Former Transformer No. 6 / Courtyard Area. Based on information received regarding regrading operations, the final site grade in proximity to the site will range from 37 to 47 ft mean sea level (MSL). This grade would require approximately 15 to 20+ feet of clean fill being placed at the site.

A review of the soil analytical data and work conducted by LFR for MHD indicates that approximately the first 10+ feet of soil has already been excavated from the courtyard area. Groundwater has been measured to be within approximately 5 feet of the existing transformer grade. Soil borings have detected PCB contamination in soil to a depth of 20 feet below the transformer grade. Although PCB concentrations spatially vary and attenuate with depth, a large proportion of PCBs exists within the saturated zone. If clean fill is placed at the site (15 – 20+ feet), with an impervious/semi-impervious surface, in the form of concrete/asphalt, the amount of recharge in the form of precipitation reaching the water table will be reduced. This reduction in recharge will lessen the amount of PCBs leaching from unsaturated zone soils; therefore, loading (mass flux) of PCBs reaching the water table will be reduced.

Additionally, the placement of an impervious surface at the site will likely lower the water table, placing the groundwater in contact with a thinner source zone. This also translates into a lower amount of PCBs being discharged to the Spicket River, since the Mass Flux calculation takes into consideration the contaminated aquifer thickness. As such, concentrations would be lower than the maximum concentration of 1.36 ng/L previously described.

7.5 Fate and Transport Conclusions

In summary, residual concentrations of the COPCs are expected to degrade or remain in the general area of the releases. The Fate and Transport evaluation has revealed that COPCs are not expected to significantly migrate from site soils into groundwater or migrate any substantial distance in groundwater, and/or volatilize from site soils.

An assessment was conducted by S&W to determine whether PCBs present in groundwater located within the Former Transformer # 6 / Courtyard Area could be captured by the recovery system identified by CDM Inc. in their Phase III RAP (CDM 2003). A review of the Phase III report and their Phase II CSA indicates that PCBs present in groundwater within the Transformer # 6 Area would not be captured by CDM's proposed system. As such, S&W evaluated whether PCBs present in groundwater could pose an impact to the Spicket River aquatic receptors at concentrations above EPA Ambient Water Quality Criteria. A screening level model, BIOSCREEN, was used assuming a constant concentration source zone and without considering biodegradation. The BIOSCREEN model based on the Domenico model (EPA 1996/1997) predicted a maximum long-term steady state concentration of 1.36 ng/L PCBs being discharged to the Spicket River based on a flow of 30.1 cfs. A significantly lower surface water concentration was predicted based on the river's average flow of 132 cfs. Using this flow, the predicted concentration in the river considering steady-state conditions would be 0.0024 ng/L. In all situations evaluated, the concentrations in the Spicket River would be considerably less than the 14 ng/L Ambient Water Quality Criteria.

8.0 METHOD 3 RISK CHARACTERIZATION

8.1 Introduction

A Method 3 Risk Characterization has been prepared for the Site in order to establish whether a condition of No Significant Risk, as defined in the MCP (310 CMR 40.0990) and the EPA's Toxic Substance Control Act (TSCA), exists for current and foreseeable future site uses. In accordance with the MCP and TSCA, characterization of the risk of harm to health, public safety, and public welfare associated with concentrations of OHM in environmental media were evaluated in the risk characterization.

The complete Method 3 Risk Characterization that was prepared by O'Reilly, Talbot & Okun Associates, Inc. (OTO) in January 2006, is provided in Appendix L.

8.2 Human Health Risk Characterization

The objective of the Method 3 Risk Characterization is to demonstrate the adequacy of the proposed Site remedy for the future intended use of the Site as a passive park with a bridge built over the Site as part of the Spicket River Bridge Project. The Site falls under the purview of the MCP with the MADEP being the lead agency. However, due to the elevated concentrations of PCBs detected at the Site, the EPA's TSCA regulations also apply for this COPC. Therefore, the risk characterization for the Site blends the risk assessment guidance of the two agencies in order to produce one risk assessment that meets the requirements of both agencies.

This Method 3 Risk Characterization is considered applicable for this Site because Site-specific exposure assumptions concerning Site use have been used. This risk characterization has been completed in accordance with the MCP, 310 CMR 40.0900 and applicable MADEP guidance (MADEP, 1992 through 2004), as well as EPA Federal and Region I guidance. The primary federal risk assessment guidance used in the risk characterization were those issued under the EPA's Superfund Program. A Method 3 Human Health Risk Characterization has been conducted for areas south of the raceway of the Oxford Paper Mill using applicable soil and groundwater analytical sampling data from site investigations from May 2001 to July 2005. The raceway and the area north of the raceway are being characterized and remediated separately.

8.2.1 Uses, Receptors, and Exposure Pathways

The risk evaluation assumes that an AUL will be placed on the property to prevent future residential and/or commercial land use including the construction of occupied buildings. Therefore, the risk characterization has not included these receptors or the pathways by which these receptors may be exposed to site-related contaminants. It is assumed that contact with these soils will need to be prevented as part of the AUL at the Site. In addition, the groundwater at the Site does not currently, and will not in the future, meet the criteria of GW-2. The potential future vapor intrusion from the groundwater pathway is, therefore, considered to be an incomplete exposure pathway for the Site.

The entire Site has been backfilled with 15 feet or greater of clean fill prior to the proposed bridge construction. These soils located at depths of 15 feet or greater are defined under the MCP as being "isolated" from exposure. All soils located beneath the basement and sub-basement of the former site buildings as well as the soils located within the Transformer No. 6 / Courtyard Area are considered "isolated" (see Figure 3). It is noted that these soils are located adjacent to the planned paved roadway and bridge.

The impacted Site soils are covered with 15 feet or greater of clean fill and are considered to be "isolated" from exposure and, therefore, do not serve as a potential exposure point for construction workers, utility workers, and trespassers/passive park users.

8.2.2 Current and Reasonably Foreseeable Future Site Use

The Site is currently a vacant parcel of land with no structures other than the sub-basement and basement portions of the buildings that once occupied the Site and have been backfilled with clean fill prior to the proposed bridge construction and re-development for some passive park use. The AUL that will be implemented for the Site will prohibit the construction of buildings on the Site.

Future passive park users and trespassers, including children, may access the Site at a low to high frequency and low intensity. However, there would not be expected to be any exposure to the residual impacted soils located at depth (a minimum of 15 feet bgs), since surficial activities by passive park users and trespassers would likely be limited to 0 to 0.5 feet bgs.

8.3 Method 3 Risk Characterization Conclusions

In accordance with the Massachusetts Contingency Plan, 310 CMR 40.0990 and EPA guidance, OTO conducted a Method 3 risk characterization for OHM reported at the Former Oxford Paper Mill - South Side (the "Site") located at 21 Canal Street in Lawrence, Massachusetts. To assess whether reported concentrations of OHM pose a significant risk, this Method 3 risk characterization was completed.
In accordance with the MCP and EPA guidance, the risk characterization included the following components:

1. Assessment of risks to human health,
2. Assessment of risks to public welfare, and
3. Assessment of risk of harm to safety.

Based on the results of the ENSR GenCorp Inc. Human Health and Ecological Risk Assessment Report (HHERAR) and Shaw's evaluation of the migration of PCBs in groundwater, no additional ecological risk characterization was conducted.

The Method 3 Risk Characterization assumed limitations to future Site use for anything other than use as a bridge crossing and some passive park. As part of the final grading for the Site, all residual soils containing COPCs were covered with at least 15 feet of clean fill in each of the building areas of the Site (Figure 2). As defined in the MCP, these soils are considered to be "isolated" from exposure.

The MCP (310 CMR 40.0924(2)(b)(3)) defines the following depths as exposure points for the following receptors and activities.

a. Surficial Activity (0-3 feet)
b. Utility/maintenance worker (0-6 feet); and
c. Construction worker (0-15 feet)

In the Risk Characterization Work Plan for the South Side, a soil interval of 0-0.5 feet was determined to be appropriate for the Site trespasser and passive park user. Therefore, as defined in the MCP, all impacted soils are considered to be "isolated" from exposure and there are no complete exposure pathways for impacted soils. The risk characterization showed that there is no complete exposure pathway to groundwater for human receptors. The risk characterization also concluded that a condition of No Significant Risk to public welfare and safety exists at the Site.

Overall, a condition of No Significant Risk has been achieved based on the final Site grade and the proposed future intended use of the Site as a passive park with a bridge built over the Site as part of the Spicket River Bridge Project. An AUL will be implemented at the Site to maintain a condition of No Significant Risk restricting construction and other development at the Site.

9.0 POTENTIAL SOURCES OF CONTAMINATION

Based on a review of the site history, site visits, field observations and analytical data, it appears that the possible sources of COPCs for areas south of the raceway are due mostly to the former paper mill operations. Contaminants include PAHs from coal, coal ash, and other combustion operations; chlorinated organic compounds that may have formed during pulp bleaching operations; and sulfides from chemical pulp residues. The chlorinated organic compounds and sulfides would most likely have been released to surface water and air, as opposed to soil, because they are associated with mill operations that involved water discharges (to the raceway most likely) and air emissions (sulfur compounds and other VOCs from stacks and process tanks). In addition, transformers containing PCBs have historically been present on-site.

10.0 SUMMARY/CONCLUSIONS

A Phase II CSA has been performed by Stone & Webster for areas south of the raceway at the Oxford Paper Mill. The Oxford Paper Mill is located off of Canal Street in Lawrence, Massachusetts (refer to Figure 1).

Basement and sub-basement soil samples have been collected over a four-year span (May 2001 to July 2005) and in March and May of 2005 for the Transformer No. 6 / Courtyard area by Stone & Webster. The majority of contamination found in areas south of the raceway at the Oxford Paper Mill are PAHs, PCBs, asbestos and metals in soil. PAHs are considered background in areas south of the raceway due to the detection of all PAHs in soil samples at concentrations less than the corresponding MADEP background levels for fill material (refer to Section 5.5). Areas of known elevated concentrations of metals and asbestos have been excavated and disposed of off-site. Elevated PCB soil concentrations are present throughout the Transformer No. 6 / Courtyard area. The sample results were used to perform a Method 3 Risk Characterization, which concluded that a condition of No Significant Risk has been achieved based on the final Site grade and the proposed future intended use of the Site as a passive park with a bridge built over the Site as part of the Spicket River Bridge Project. An AUL will be implemented at the Site to maintain a condition of No Significant Risk, restricting the use to the Site to a bridge and passive park.

11.0 LIMITATIONS

This report was prepared for the use of the COL. The observations made and results presented in this report are believed to be representative of current conditions at the time of Stone & Webster's assessment. Any additional information regarding Site conditions or past/current Site use should be brought to Stone & Webster's attention so it may be addressed and incorporated in the Site study. This information could potentially result in modification of Stone & Webster's conclusions and recommendations.

Stone & Webster is not responsible for the accuracy and veracity of information provided to us by outside parties with respect to areas south of the raceway at the OPM and adjacent properties. This report presents the opinions of Stone & Webster Massachusetts, Inc., with the respect to the

environmental conditions of areas south of the raceway at the OPM. The actual determination of compliance of present or former operators of areas south of the raceway at the OPM with federal or state regulations can only be made by the appropriate regulatory agencies. The opinions rendered herein are not intended to imply a warranty or a guarantee and are based solely upon areas south of the raceway at the OPM conditions at the time of our investigation.
Chemical analyses were performed for certain parameters during this assessment. The parameters selected were based upon site knowledge and potential sources. However, additional chemical constituents not searched for during the studies may be present in soil and/or groundwater at areas south of the raceway at the OPM. Chemical conditions reported reflect conditions only at the locations tested at the time of testing and within the limitations of the methods used. Such conditions can vary rapidly from area to area and from time to time. No warranty is expressed or implied that chemical conditions other than those reported do not exist within areas south of the raceway at the OPM.

Negative findings at a test location do not guarantee that the soil or groundwater at a greater depth is free of contaminants because geologic and/or hydrologic conditions may be present that prevents upward diffusion of contaminants from deeper horizons. Additionally, positive findings at a sample location can arise from soil contamination only and do not confirm that the underlying groundwater has been impacted.

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FIGURES

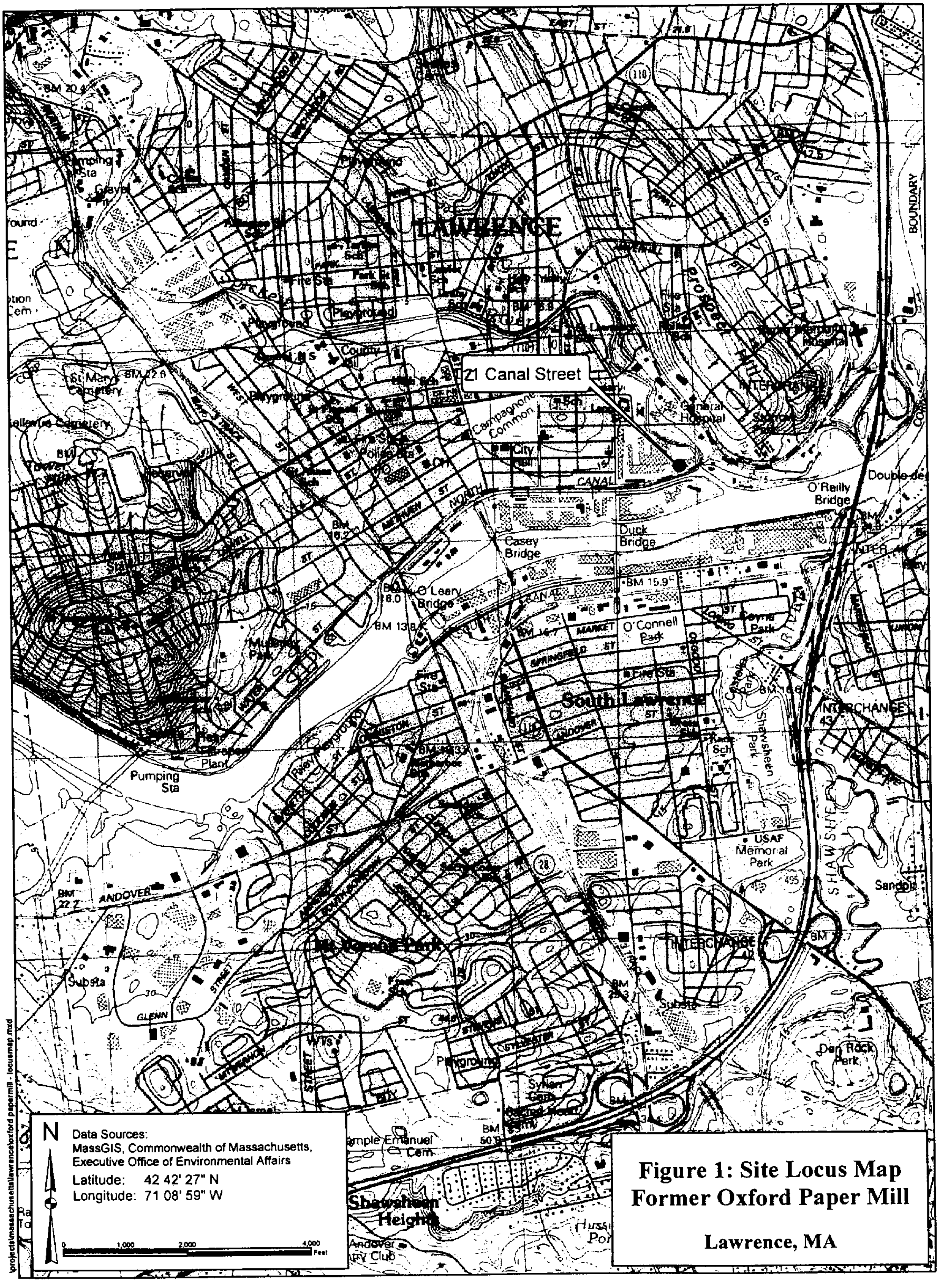
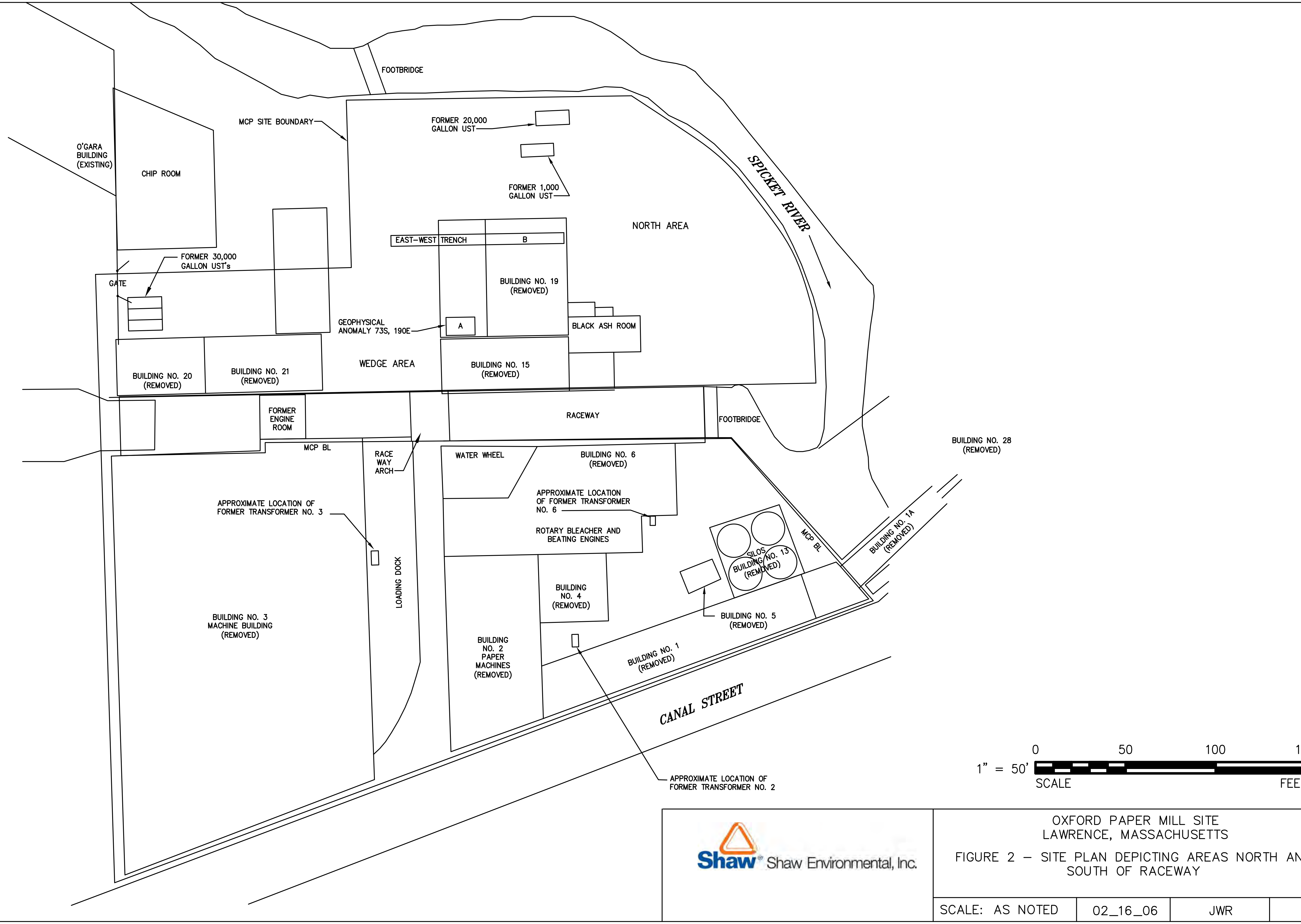


Figure 1: Site Locus Map
Former Oxford Paper Mill

Lawrence, MA

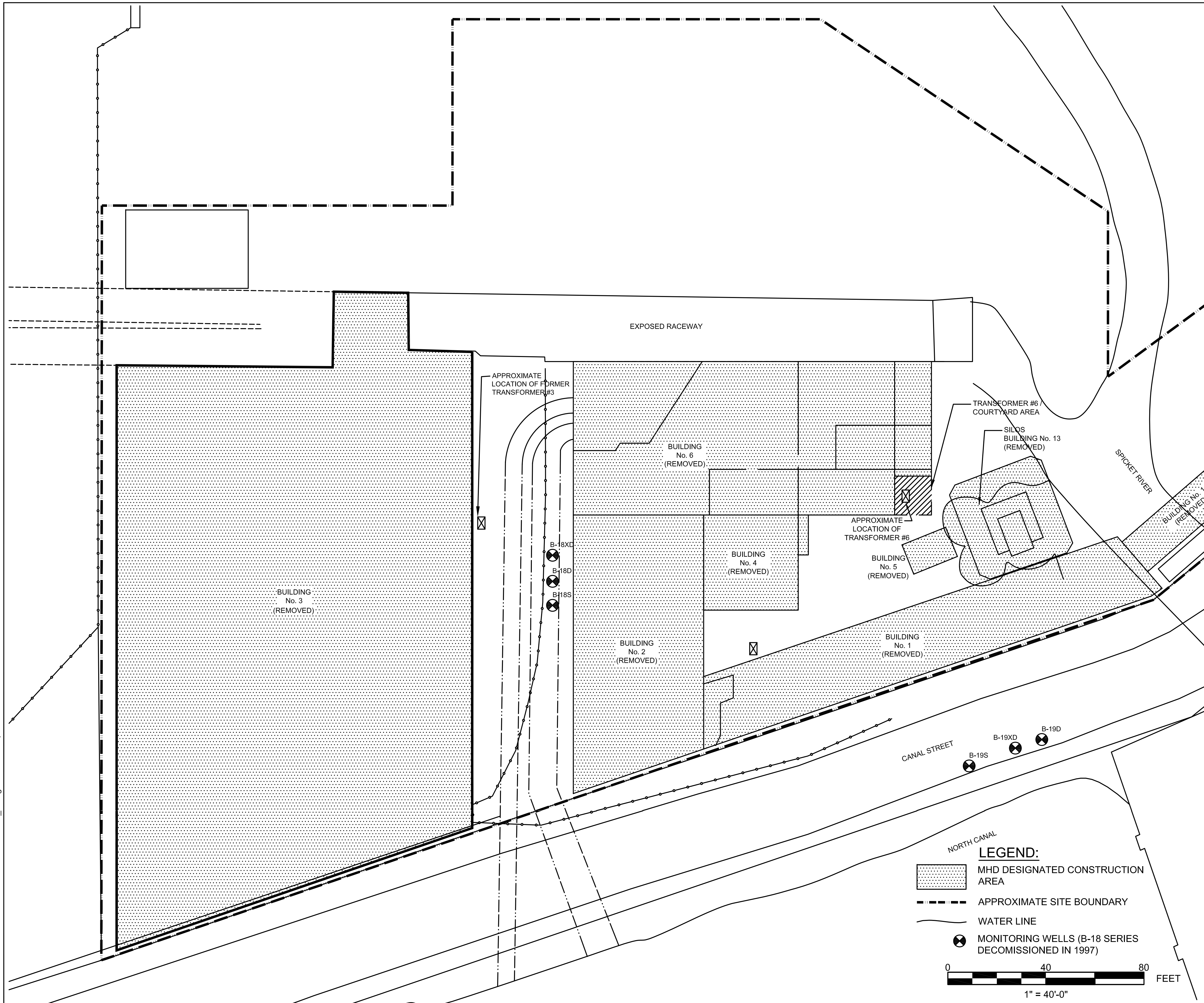


Shaw® Shaw Environmental, Inc.

OXFORD PAPER MILL SITE
LAWRENCE, MASSACHUSETTS

FIGURE 2 – SITE PLAN DEPICTING AREAS NORTH AND SOUTH OF RACEWAY

SCALE: AS NOTED	02_16_06	JWR



LEGEND:

MHD DESIGNATED CONSTRUCTION AREA

APPROXIMATE SITE BOUNDARY

WATER LINE

MONITORING WELLS (B-18 SERIES DECOMMISSIONED IN 1997)

0 40 80 FEET

1" = 40'-0"

OXFORD PAPER

CANAL STREET
LAWRENCE, MASSACHUSETTS

PROJECT NUMBER: 608134

FIGURE 3

SOUTH AREA SITE PLAN

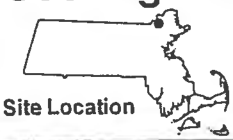
Shaw Environmental, Inc.

//SWIBOSFS01\ENVIR\Oxford-Mills\esk\B(09)\FIGURE_3.dwg MARCH 20, 2006

MA DEP - Bureau of Waste Site Cleanup

Site Scoring Map: 500 feet & 0.5 Mile Radii

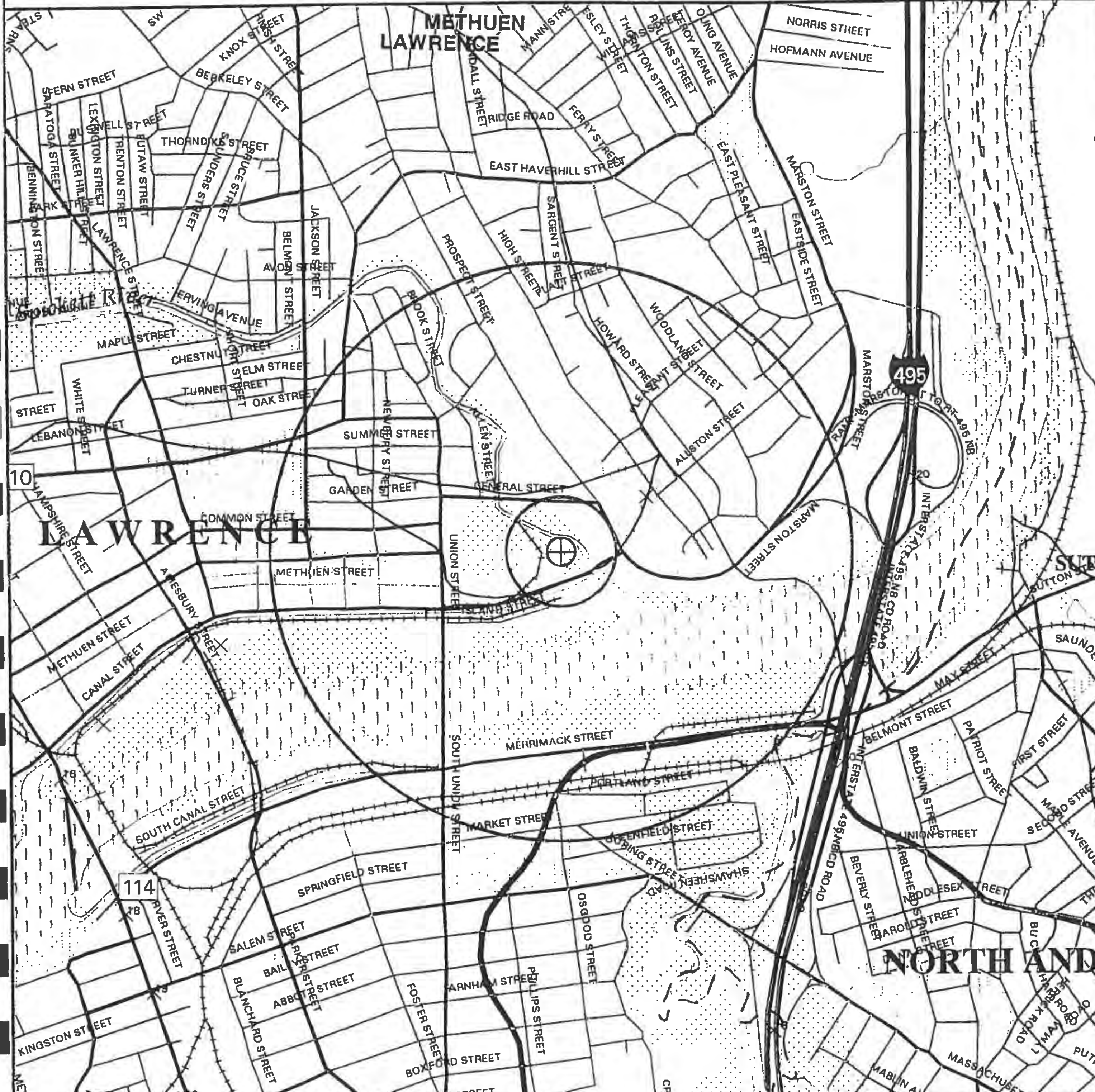
SITE NAME:
Oxford Paper Mill
Canal Street
LAWRENCE, MA
939758n 228732ew



Site Location

The information shown on this map is the best available at the date of printing. Please refer to the data source descriptions document.

MASS GIS — Massachusetts Geographic Information System
Massachusetts Executive Office of Environmental Affairs - 2003



Roads: Limited Access, Divided, Major Road, Connector, Street, Track, Trail

Boundaries: Town, County, DEP Region; Train; Powerline; Pipeline; Aqueduct

Basins: Major, Sub; Streams: Perennial, Intermittent, Man Made Shore, Dams

Potentially Productive Aquifers: Medium, High Yield

Non-Potential Drinking Water Source Area: Medium, High Yield

EPA Sole Source Aquifer; FEMA 100-year floodplain

Public Water Supplies: Ground, Surface, Non Community

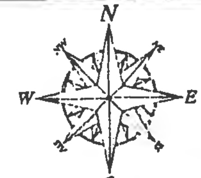
Approved Zone2; IWPA; Surface Water Supply Zone A

Hydrography: Water Features, Public Surface Water Supply

Wetlands: Fresh, Salt, NHESP Wetlands Habitat

Protected Open Space; ACEC

DEP Permitted Solid Waste Facilities; Certified Vernal Pools



SCALE 1:15000

0 — 1/2 — 1 MILES
0 — 1/2 — 1 KILOMETERS

May 30, 200

NRS SCORING MAP DATA SOURCES

AQUIFERS: USGS-WRD/MassGIS, 1:48,000. Automated by MassGIS from the USGS Water Resources Div. Hydrologic Atlas series manuscripts. The definitions of high and medium yield vary among basins. Source dates 1977-1988.

SOLE SOURCE AQUIFERS: US EPA/MA DEP/MassGIS, various scales. They are defined by EPA as aquifers that are the 'sole or principal source' of drinking water for a given aquifer service area. Last updated May 1996.

NON POTENTIAL DRINKING WATER SOURCE AREAS: DEP-BWSC (Bureau of Waste Site Cleanup). Those portions of high and medium yield aquifers, which may not be considered as areas of groundwater conducive to the locations of public water supplies. Please refer to the MCP guidelines for the definitions of these areas.

DEP APPROVED ZONE II's: MA DEP, 1:25,000. As stated in 310 CMR 22.02 'that area of an aquifer which contributes water to a well under the most severe pumping and recharge conditions that can be realistically anticipated.' Digitized from data provided to DEP in approved hydrologic engineering reports. Data is updated continuously.

INTERIM WELLHEAD PROTECTION AREAS: DEP-DWS (Division of Water Supply), 1:25,000. These polygons represent an interim Zone II for a groundwater source until an actual one is approved by the DEP Division of Water Supply. The radius of an IWPA varies according to the approved pumping rate. Updated in parallel with the Public Water Supplies data.

PUBLIC WATER SUPPLIES: DEP-DWS, 1:25,000. Community and non-community surface and withdrawal points were field collected using Global Positioning System receivers. The attributes were added from the DEP Division of Water Supply database. Continuously updated.

HYDROGRAPHY: USGS/MassGIS. 1:25,000 USGS Digital Line Graph (DLG) data modified by MassGIS. Approximately 40% of the data was provided by USGS and MassGIS created the remainder to USGS specifications. Source dates 1977-1997.

DRAINAGE BASINS: USGS-WRD/MassGIS, 1:24,000. Automated by MassGIS from USGS Water Resources Division manuscripts with approximately 2400 sub-basins as interpreted from 1:24,000 USGS quadrangle contour lines. 1987-1993.

WETLANDS: Umass Amherst RMP/MassGIS, 1:25,000. Includes nonforested wetlands extracted from the 1971-1991 Land Use datalayer, which was photointerpreted from summer CIR photography. Interpretation was not done in stereo. Also includes, in most areas, forested wetlands from USGS Digital Line Graph (DLG) data.

PROTECTED OPEN SPACE: EOEA (Executive Office of Environmental Affairs) MassGIS, 1:25,000. Includes federal, state, county, municipal, non-profit and protected private conservation and outdoor recreation lands. Ongoing updates.

ACECs: DEM, 1:25,000. Areas of Critical Environmental Concern are areas designated by the Secretary of EOEA as having a number of valuable environmental features coexisting. Projects in ACECs are subject to the highest standards of review and performance. Last updated October 1996.

ROADS: USGS/MassGIS/MHD, 1:100,000. MassGIS extracted roads from the USGS Transportation DLG files. MA Highway Dept. updated roads through 1999. MassGIS and MA DEP GIS group further edited this layer. Numbered routes are part of the state, U.S. or Interstate highway systems.

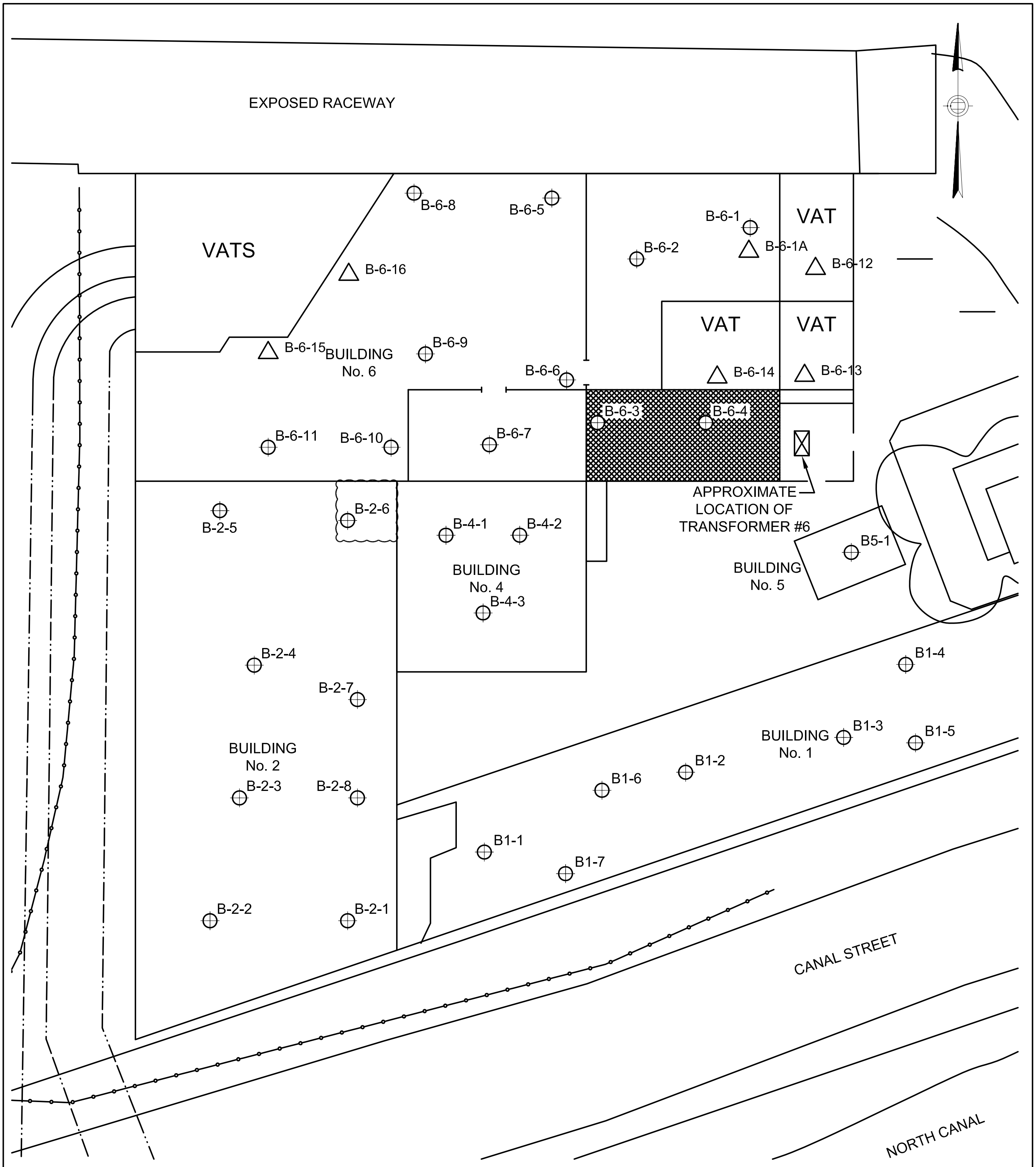
POLITICAL BOUNDARIES: MassGIS/USGS, 1:25,000. This datalayer was digitized by MassGIS from mylar USGS quads. Source date is approximately 1985.

DEP PERMITTED SOLID WASTE FACILITIES: DEP-DSW (Division of Solid Waste), 1:25,000. Includes only facilities regulated since 1971. Data includes sanitary landfills, transfer stations and recycling or composting facilities. Facility boundaries were compiled or approximate facility point locations drafted onto USGS quadrangles and automated by the DEP Division of Solid Waste. Last updated 1997.

NHESP ESTIMATED HABITATS OF RARE WETLANDS WILDLIFE: Polygons show estimated habitats for all processed occurrences of rare wetlands wildlife. Data collected by Natural Heritage & Endangered Species Program and compiled at 1:24,000 or 1:25,000 scale. For use with Wetlands Protection Act Only. Effective 1999 - 2001.

NHESP CERTIFIED VERNAL POOLS: Points show all vernal pools certified by NHESP/MADFW (Fisheries and Wildlife) as of June 30, 1999. Data compiled at 1:24,000 or 1:25,000 scale. Effective 1999 - 2001.

Last revised: 2000



LEGEND:

- BORING LOCATION
- ELEVATED LEAD LEVELS
- ELEVATED PCB LEVELS
- ADDITIONAL BORINGS (JULY 2003)

0 30 60 FEET

1" = 30'-0"

OXFORD PAPER

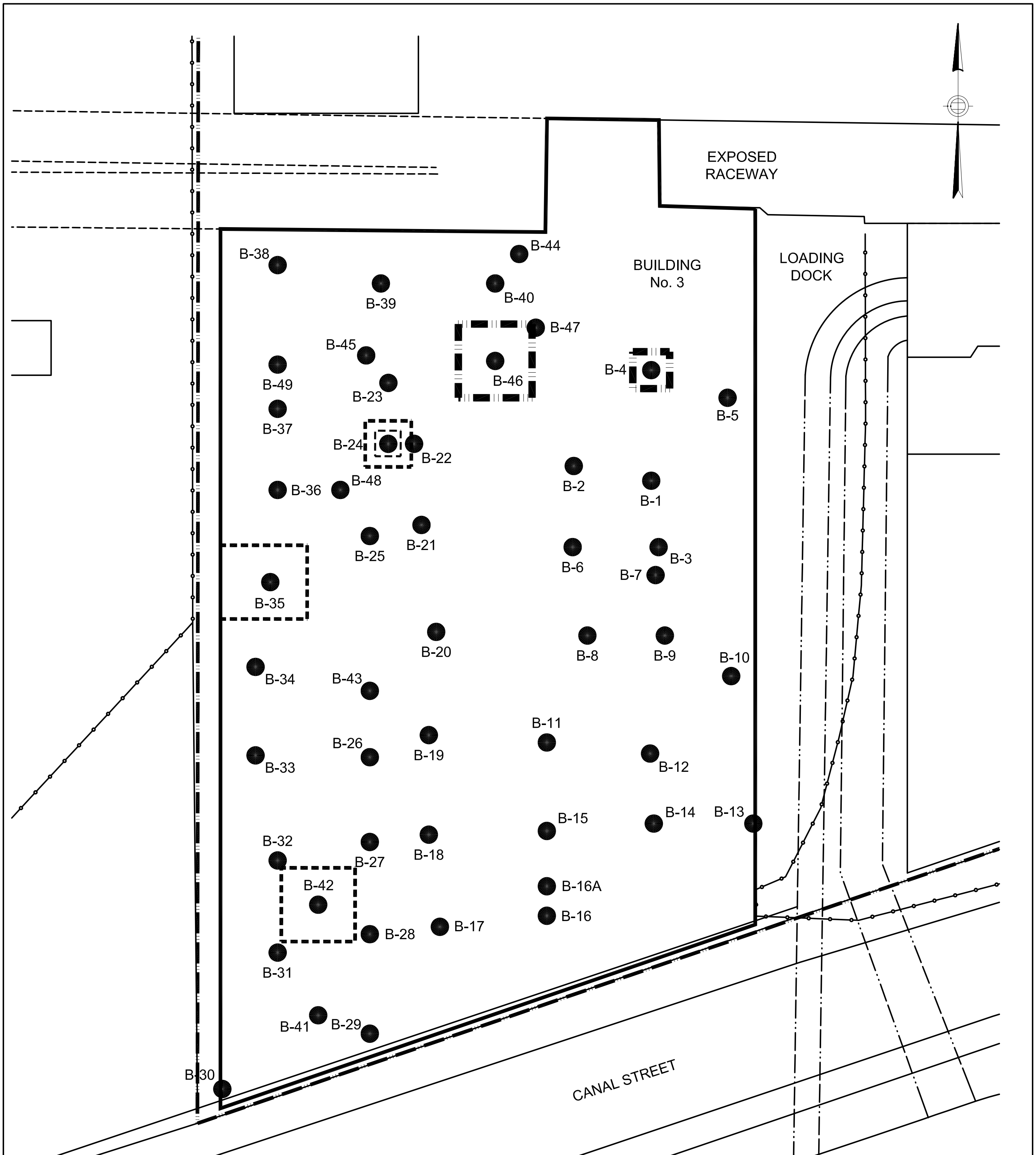
CANAL STREET
LAWRENCE, MASSACHUSETTS

PROJECT NUMBER: 608134

FIGURE 5
BUILDING Nos 1, 2, 4, 5 & 6
SAMPLE LOCATIONS

Shaw® Shaw Environmental, Inc.

\\SWIBOSFS01\Oxford-Mills\esk\A14\Figure5.dwg FEBRUARY 17, 2005



LEGEND:

- ● BORING LOCATION
- EPH CONTAMINATION EXCAVATION
- PCB CONTAMINATION EXCAVATION

0 40 80 FEET

1" = 40'-0"

OXFORD PAPER

CANAL STREET
LAWRENCE, MASSACHUSETTS

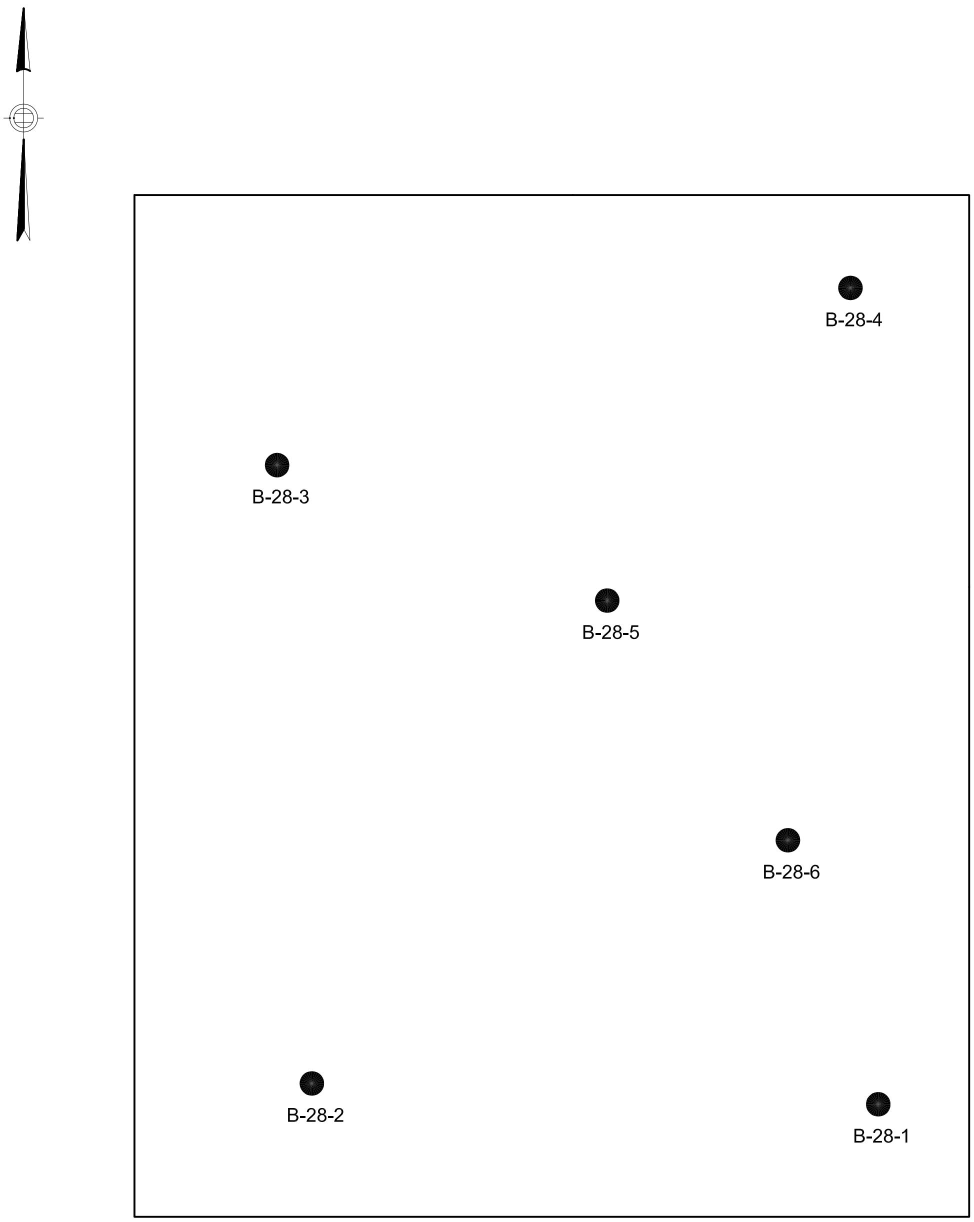
PROJECT NUMBER: 608134

FIGURE 6

BUILDING No. 3
SAMPLE LOCATIONS

Shaw® Shaw Environmental, Inc.

\\SWIBOSFS01\Oxford-Mills\esk\A14\Figure6.dwg MARCH 20, 2006



PLAN MAP

N.T.S.

NOTE:

B-28-2 SOIL BORING

OXFORD PAPER

CANAL STREET
LAWRENCE, MASSACHUSETTS

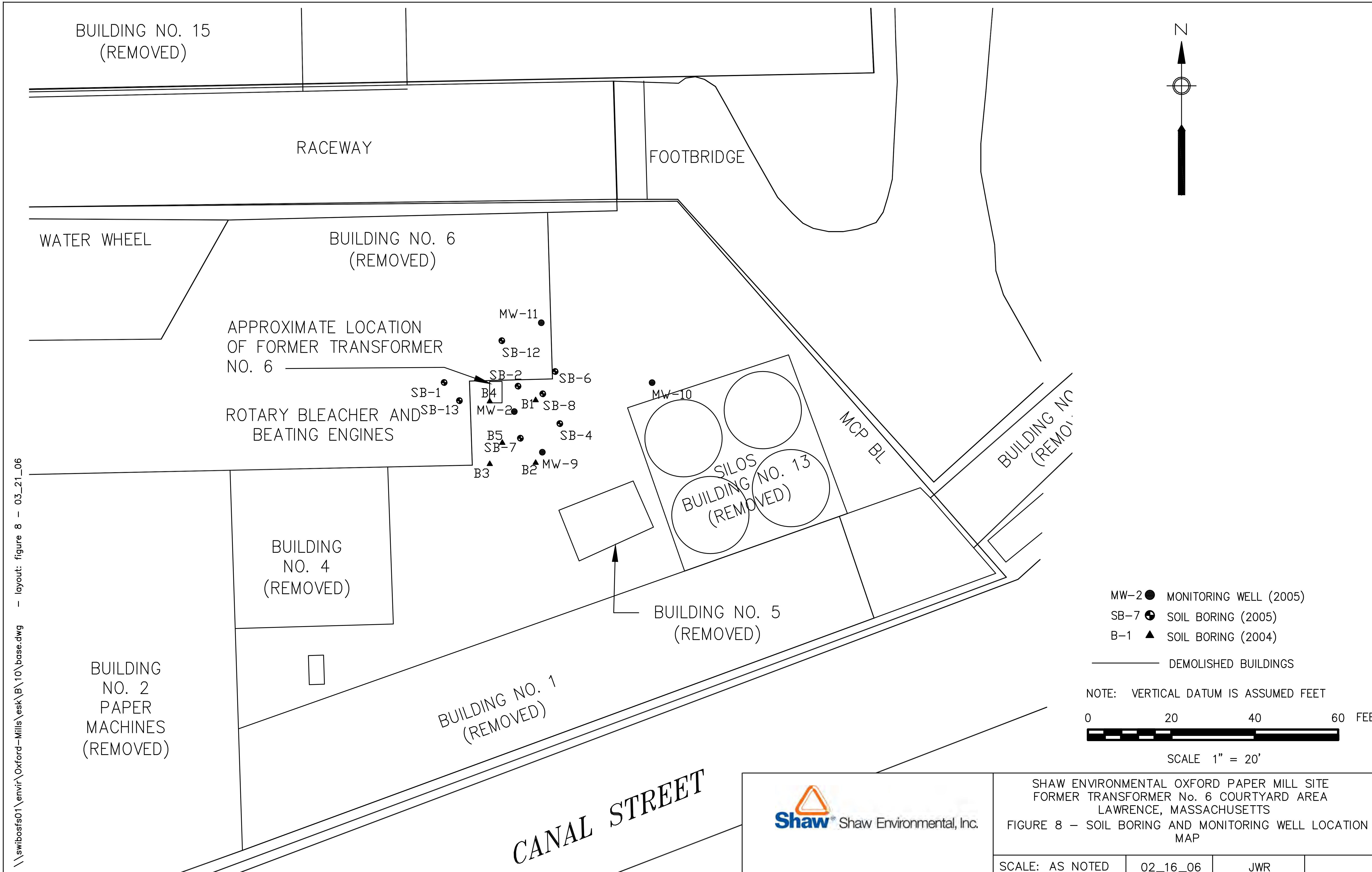
PROJECT NUMBER: 608134

FIGURE 7

BUILDING NO. 28
SAMPLE LOCATIONS

Shaw Shaw Environmental, Inc.

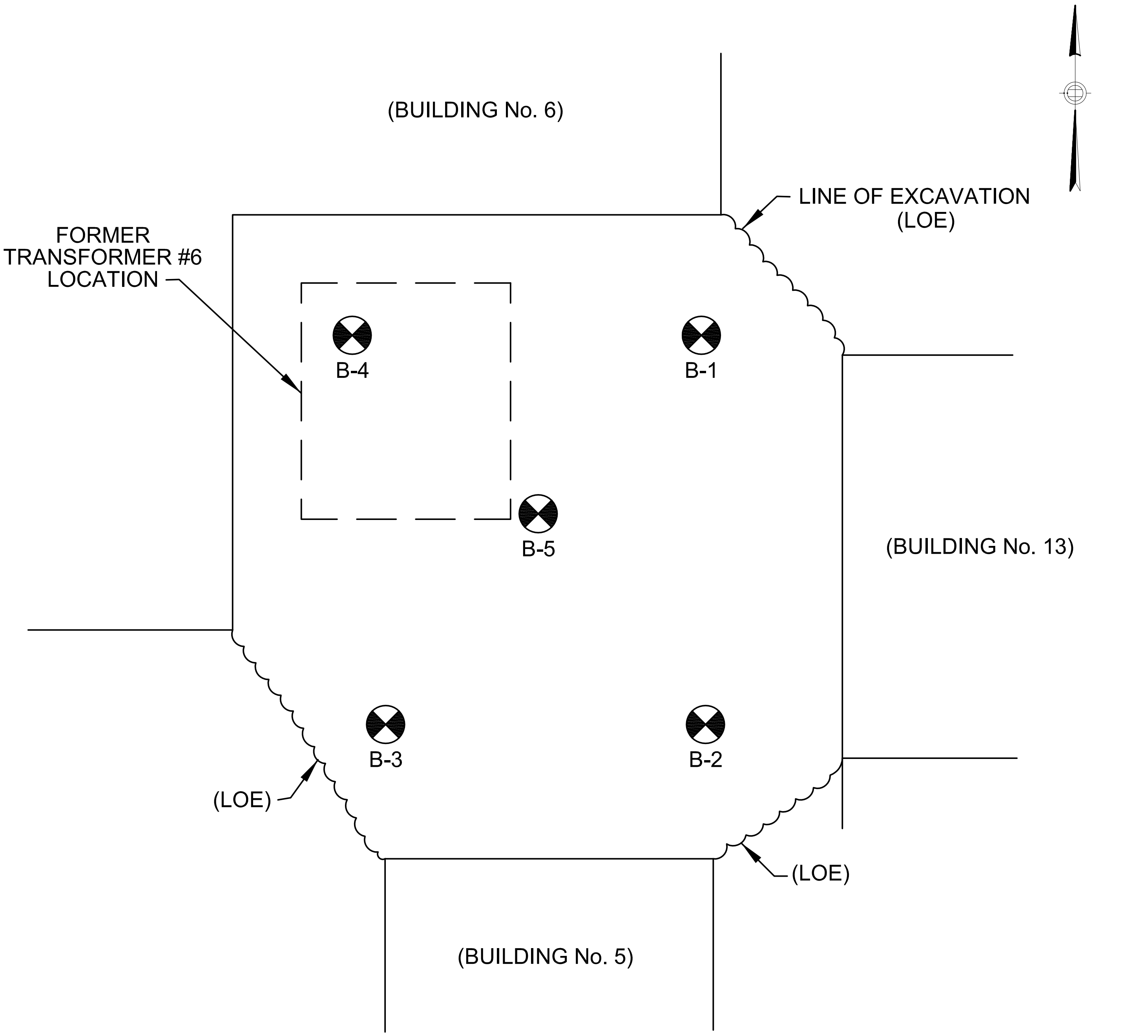
\\SWBOSFS01\ENVIR\Oxford-Mills\esk\A\14\FIGURE7.dwg FEBRUARY 16, 2006



Shaw Environmental, Inc.

SHAW ENVIRONMENTAL OXFORD PAPER MILL SITE
FORMER TRANSFORMER No. 6 COURTYARD AREA
LAWRENCE, MASSACHUSETTS
FIGURE 8 – SOIL BORING AND MONITORING WELL LOCATION MAP

SCALE: AS NOTED	02_16_06	JWR



LEGEND:

SOIL BORING LOCATION (2004)

OXFORD PAPER

CANAL STREET
LAWRENCE, MASSACHUSETTS

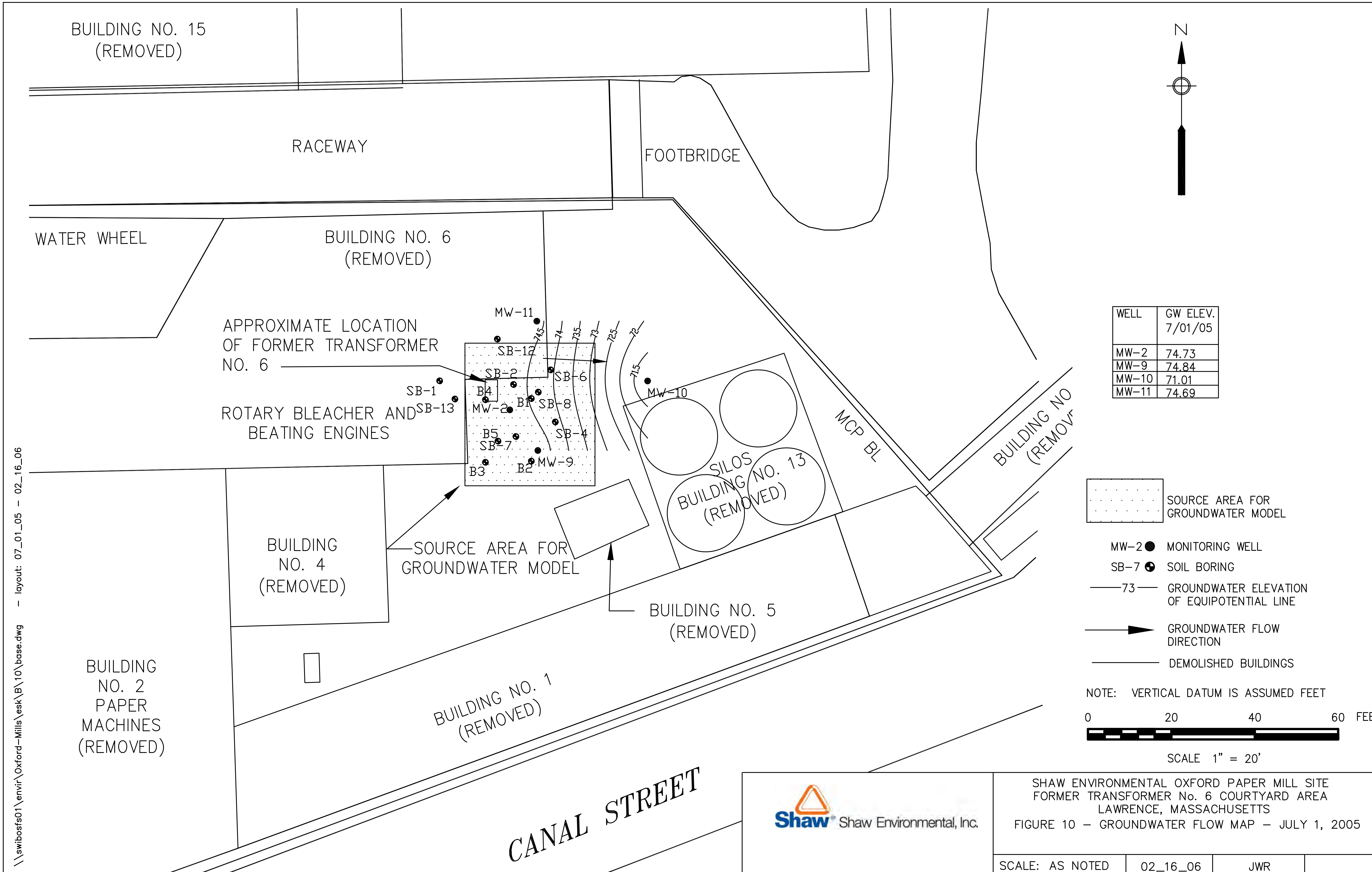
PROJECT NUMBER: 608134

FIGURE 9

TRANSFORMER #6 / COURTYARD AREA SOIL BORING LOCATIONS

Shaw® Shaw Environmental, Inc.

\\SWIBOSFS01\ENVIR\Oxford-Mills\esk\B\09\FIGURE_2.DWG, LAYOUT: FIGURE 9 01-FEB-2005

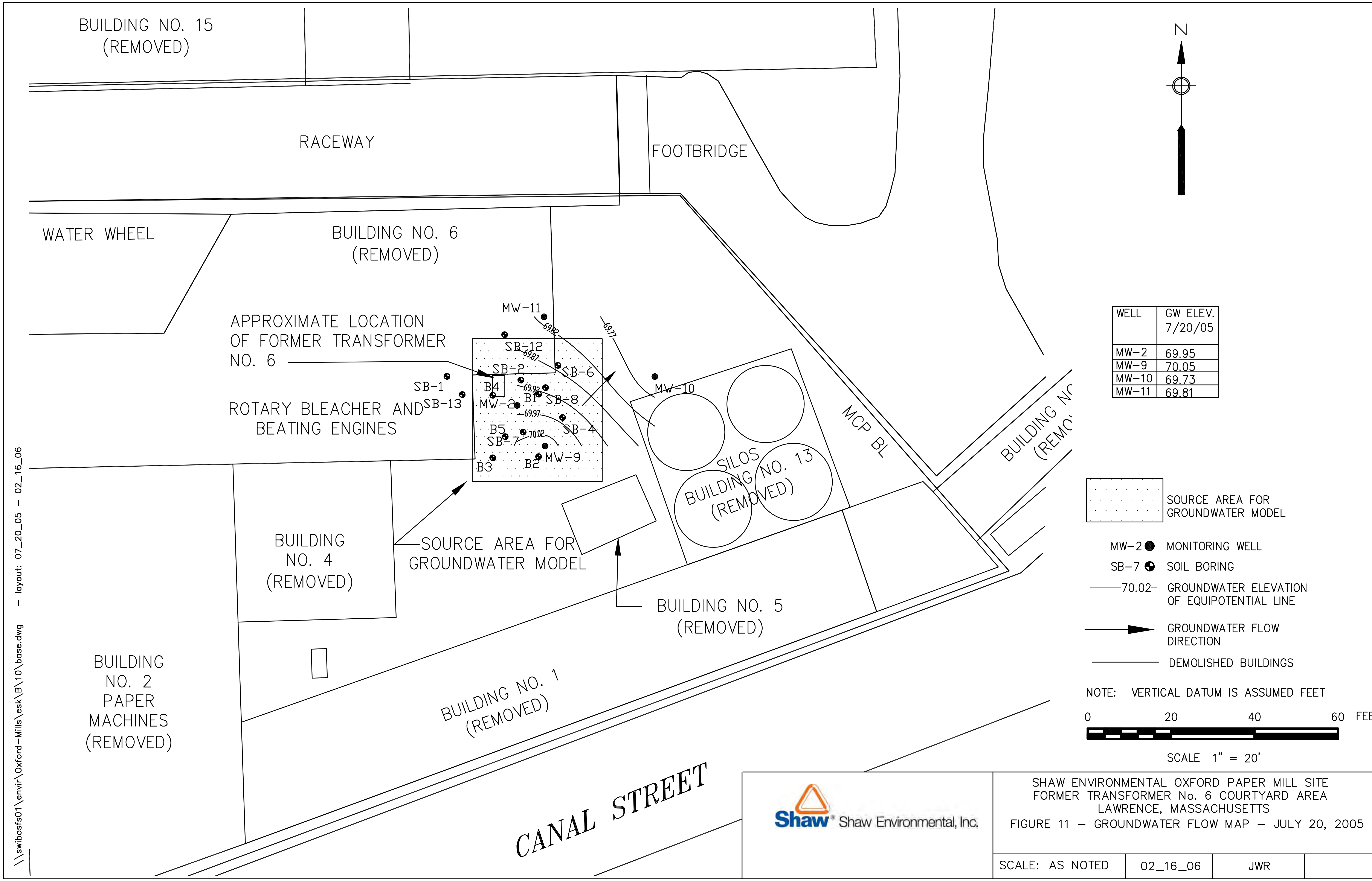


WELL	GW ELEV. 7/01/05
MW-2	74.73
MW-9	74.84
MW-10	71.01
MW-11	74.69

Shaw Environmental, Inc.

SHAW ENVIRONMENTAL OXFORD PAPER MILL SITE
FORMER TRANSFORMER No. 6 COURTYARD AREA
LAWRENCE, MASSACHUSETTS
FIGURE 10 – GROUNDWATER FLOW MAP – JULY 1, 2005

SCALE: AS NOTED	02_16_06	JWR	

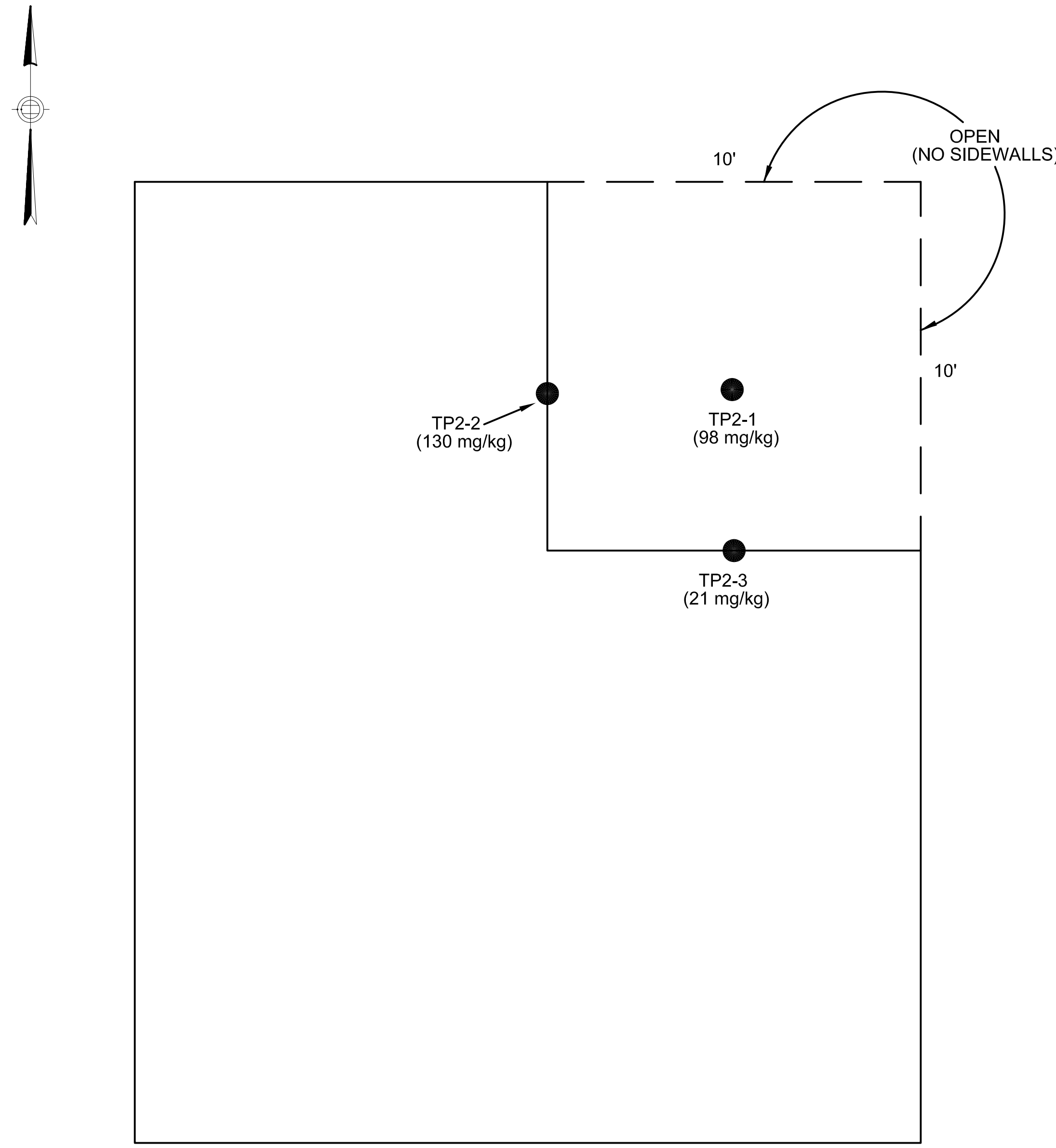


WELL	GW ELEV. 7/20/05
MW-2	69.95
MW-9	70.05
MW-10	69.73
MW-11	69.81

Shaw Environmental, Inc.

SHAW ENVIRONMENTAL OXFORD PAPER MILL SITE
FORMER TRANSFORMER No. 6 COURTYARD AREA
LAWRENCE, MASSACHUSETTS
FIGURE 11 – GROUNDWATER FLOW MAP – JULY 20, 2005

SCALE: AS NOTED	02_16_06	JWR	



PLAN MAP

N.T.S.

NOTE:

ALL BELOW MCP METHOD 1 CLEAN-UP STANDARDS

TP2-1 = BOTTOM OF EXCAVATION ~ 5' BGS

TP2-2 = WEST SIDE WALL ~ 4' BGS

TP2-3 = SOUTH SIDE WALL ~ 4' BGS

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CANAL STREET
LAWRENCE, MASSACHUSETTS

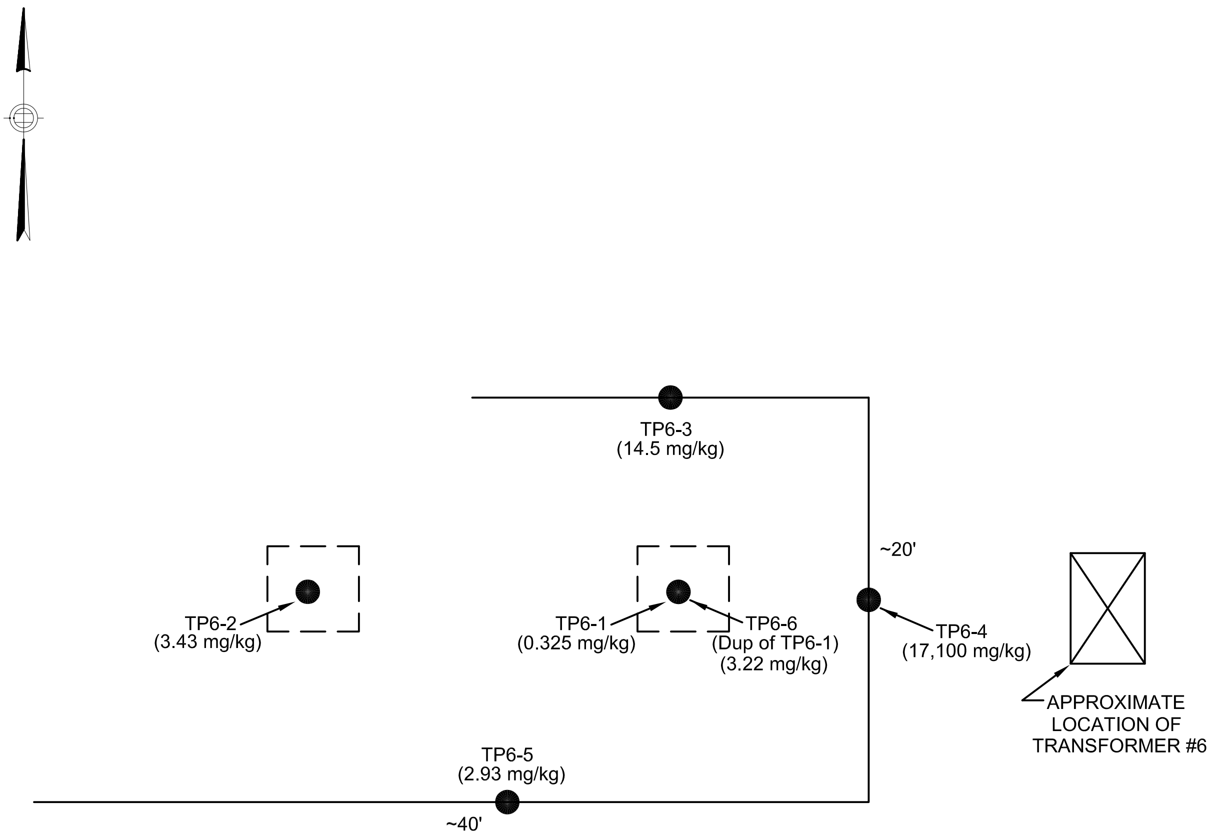
PROJECT NUMBER: 608134

FIGURE 12

BUILDING NO. 2 EXCAVATION AND CONFIRMATORY SAMPLING RESULTS - LEAD

Shaw Environmental, Inc.

\\SWIBOSFS01\ENVIR\Oxford-Mills\esk\A14\FIGURE7.dwg FEBRUARY 16, 2006



PLAN MAP

N.T.S.

NOTE:

5 OF 6 CONFIRMATORY SAMPLES COLLECTED EXCEEDED MCP METHOD 1 CLEAN-UP STANDARDS AND EPA ACTION LEVEL

TP6-1 = BOTTOM OF EXCAVATION (EAST TEST PIT) ~ 5' BGS

TP6-2 = BOTTOM OF EXCAVATION (WEST TEST PIT) ~ 5' BGS

TP6-3 = NORTH SIDE WALL ~ 4' BGS

TP6-4 = EAST SIDE WALL ~ 3.5' BGS

TP6-5 = SOUTH SIDE WALL ~ 3.5' BGS

TP6-6 = BOTTOM OF EXCAVATION (EAST TEST PIT) ~ 5' BGS
(DUPLICATE OF TP6-1)

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CANAL STREET
LAWRENCE, MASSACHUSETTS

PROJECT NUMBER: 608134

FIGURE 13

BUILDING NO. 6 EXCAVATION AND CONFIRMATORY SAMPLING RESULTS - PCBs

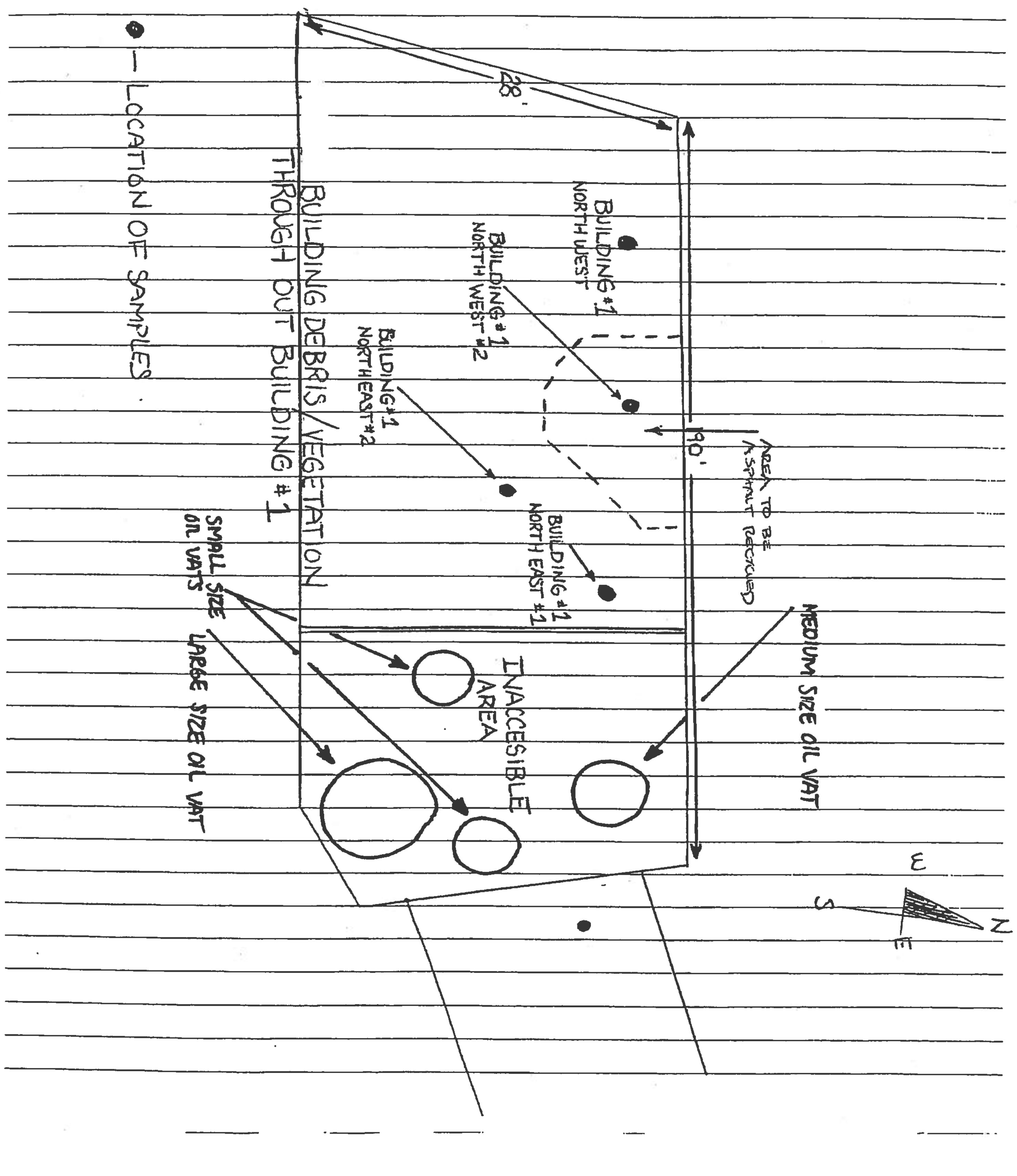
Shaw Environmental, Inc.

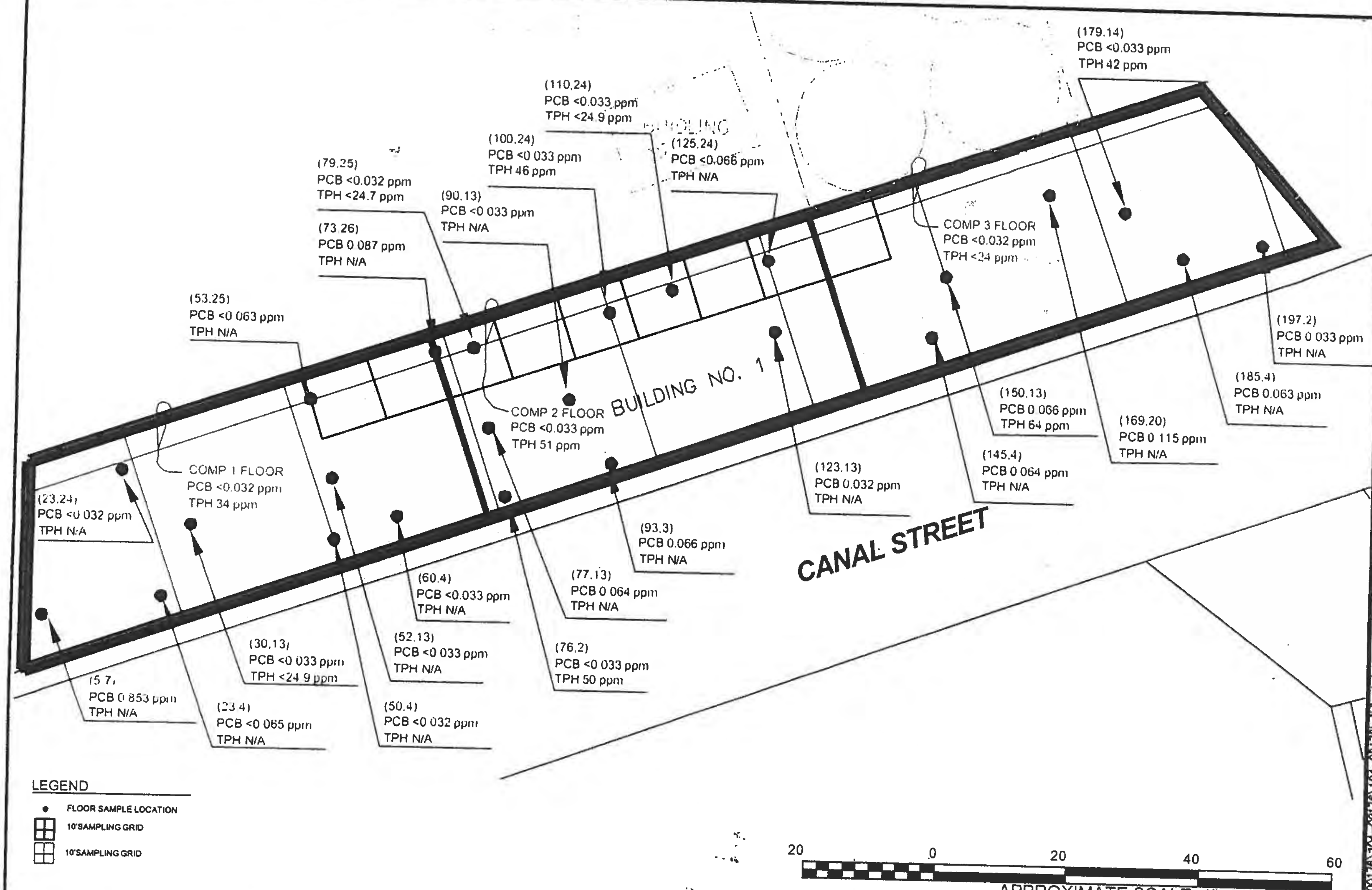
\\SWIBOSFS01\ENVIR\Oxford-Mills\esk\A14\FIGURE8.dwg FEBRUARY 16, 2006

LFR
LEVINE • FRICKE

Figure 14 A

SUBJECT:	PAGE:	BY:	DATE:	JOB NUMBER
BUILDING # 1 CHARACTERIZATION	1	D.E.L	5/7/01	103-00126





LFR
164 FORBES ROAD
BRAINTREE, MA 02184
(781)848-7500/FAX (781)848-2811

DATE: 8/13/01	SCALE: As Noted
JOB NO.: 104-00176	

DRAWN BY:	pph
CHECKED BY:	gs
APPROVED BY:	rs

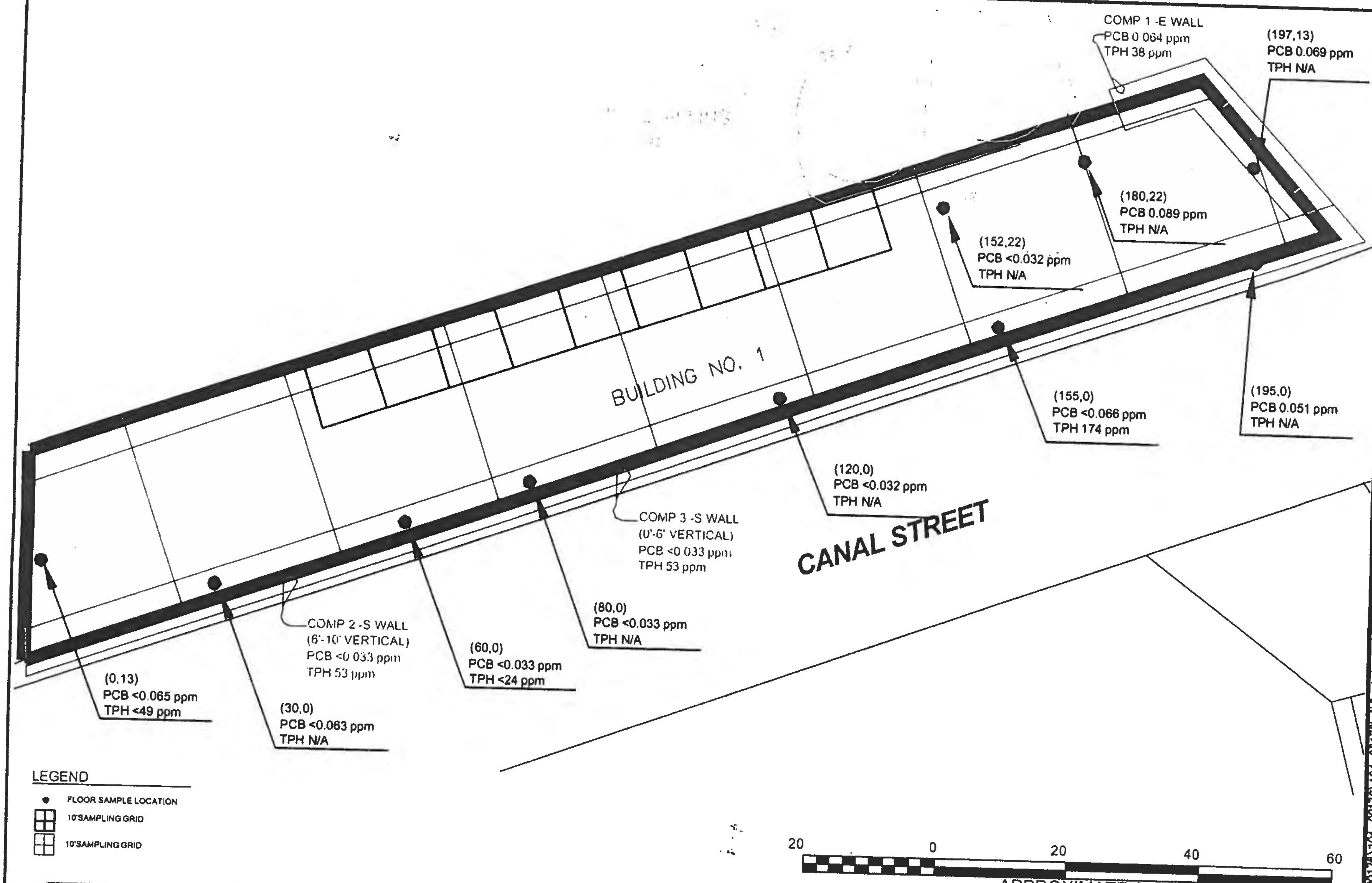
CLIENT:

SITE: Oxford Paper Mills
Canal Street
Lawrence, Massachusetts

TITLE: PCB Verification Plan
Building 1
Basement Floor Sampling

FILE NO.: 104-00176building'

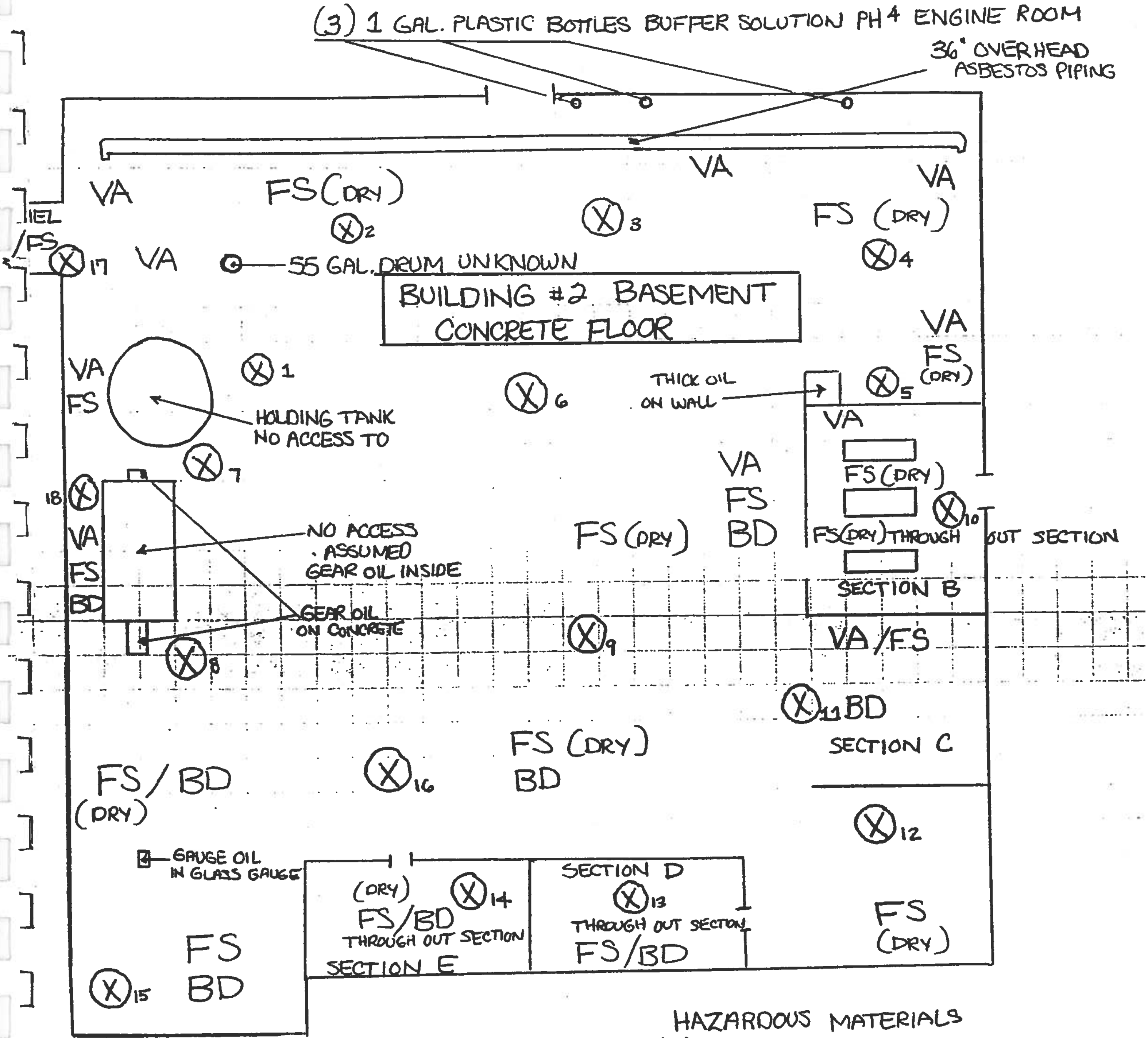
FIGURE: 14 B



LFR 184 FORBES ROAD BRAINTREE, MA 02184 (781)856-7800/FAX (781)856-2811

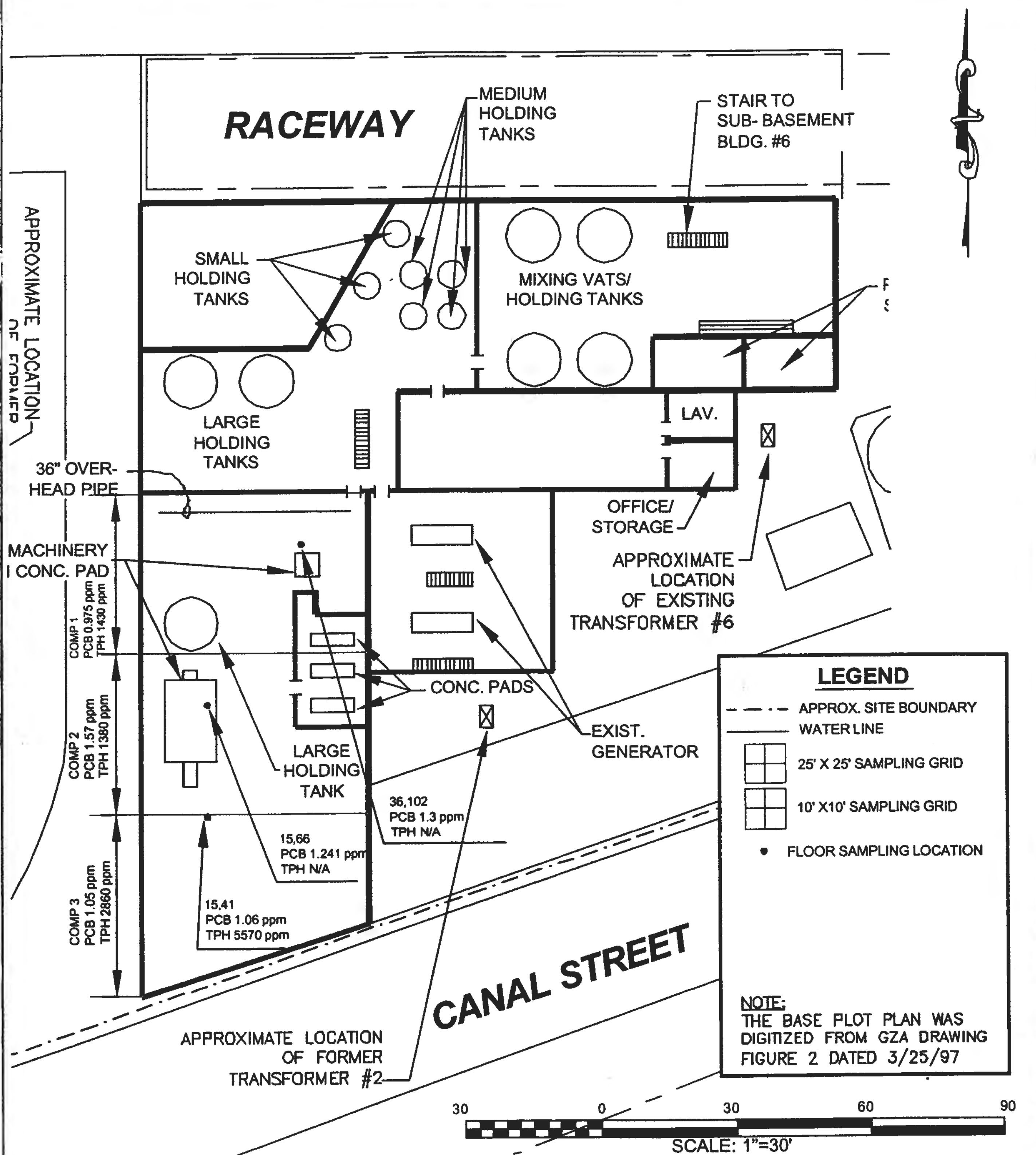
DATE: 8/13/01	SCALE: As Noted	DRAWN BY: pph	CLIENT:	TITLE: PCB Verification Plan Building 1 Basement Wall Sampling
JOB NO.: 104-00176		CHECKED BY: gs	SITE: Oxford Paper Mills Canal Street Lawrence, Massachusetts	FILE NO.: 104-00176building1
		APPROVED BY: rs		FIGURE: 14C

Figure 15A



HAZARDOUS MATERIALS
(3) 5 GAL. FULL C-I MASTIC 60-26 SEC. I
(1) 1 GAL. MORRIS 767 MORR-AZZO UNDERLAY
UNUSED ASB. PIPE INSULATION 100 L.F.
(5) FOSTER ADHESIVE (4) DRY (1) ½ FULL
(10) BAGS 50 LBS INSULATION
(1) GAL. YUKON ANTI-FREEZE (EMPTY)
(2) GLASS JAR ¼ FULL UNKNOWN SECTION I
(1) PINT ¼ FULL AMMONIA . PLASTIC
(1) PLASTIC JAR ¼ FULL UNKNOWN

BD - BUILDING DEBRIS
FS - FLOOR SLUDGE
VA - VISIABLE ASBESTOS
Ⓧ # - SLUDGE SAMPLE & SAMPLE #



LFR 124 FORBES ROAD BRAINTREE, MA 02184 PH:(781)356-7300 FAX:(781)356-2211

FILE No.: 104-00176-00_SITEPLAN.dwg	SCALE: 1"=30'	SIZE A	
DRAWN BY: PPH	CHECKED BY: RS	APPROVED BY: RS	

CLIENT: North Amer. Site Developers

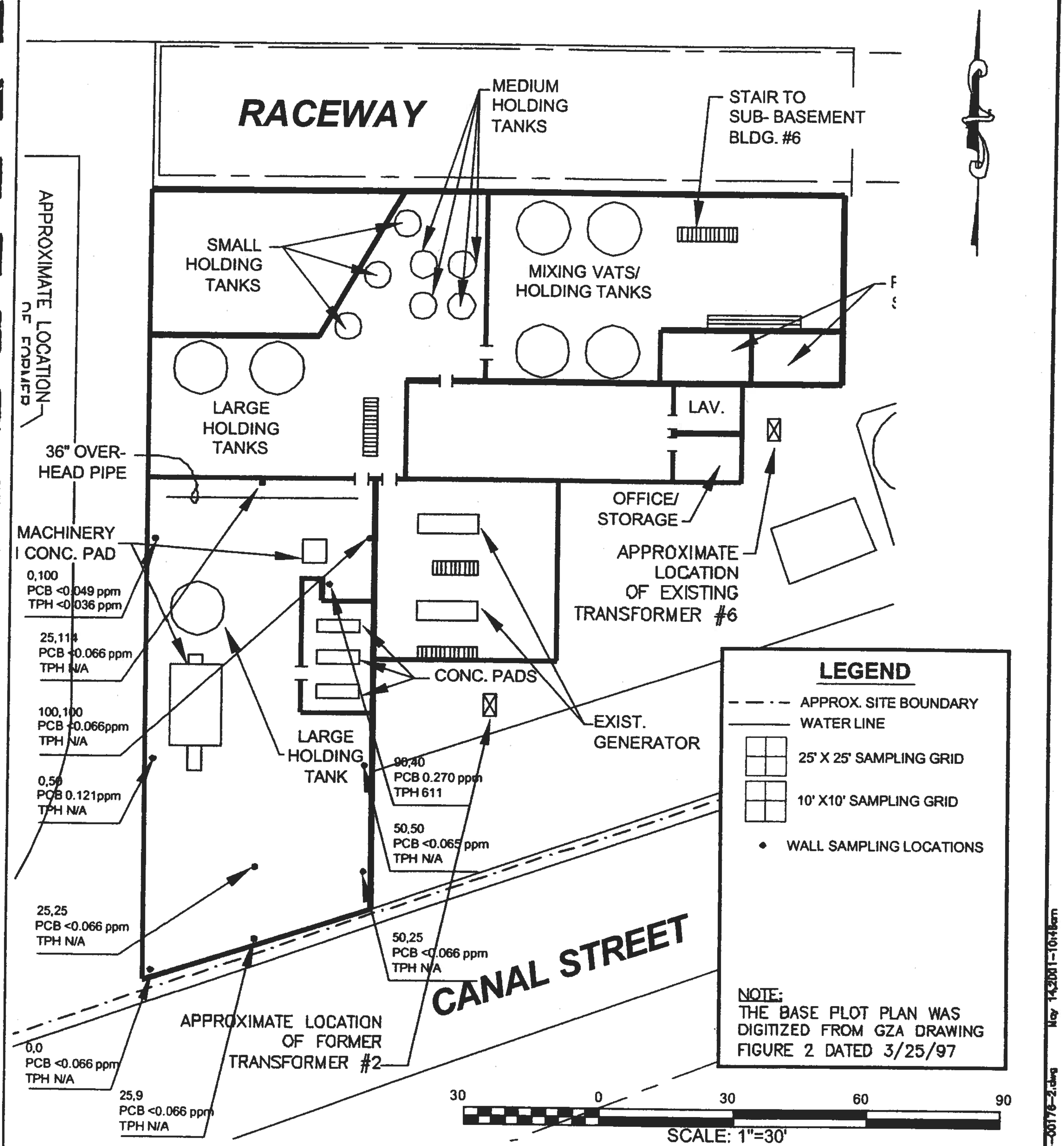
LOCATION: Former Oxford Paper Mill Canal Street Lawrence, MA

DATE: 4/4/01

JOB NO.: 104-00176-00-000

TITLE: SAMPLING LOCATIONS BUILDING #2 FIRST FLOOR - FLOORS

FIGURE: 15B



LFR
134 FORBES ROAD
BRAINTREE, MA 02184
PH:(781)380-7300 FAX:(781)380-2211

FILE No.: 104-00176-00_SITEPLAN.dwg	SCALE: 1"=30'	SIZE A	
DRAWN BY: PPH	CHECKED BY: RS	APPROVED BY: RS	

CLIENT: North Amer. Site Developers

LOCATION: Former Oxford Paper Mill, Canal Street, Lawrence, MA

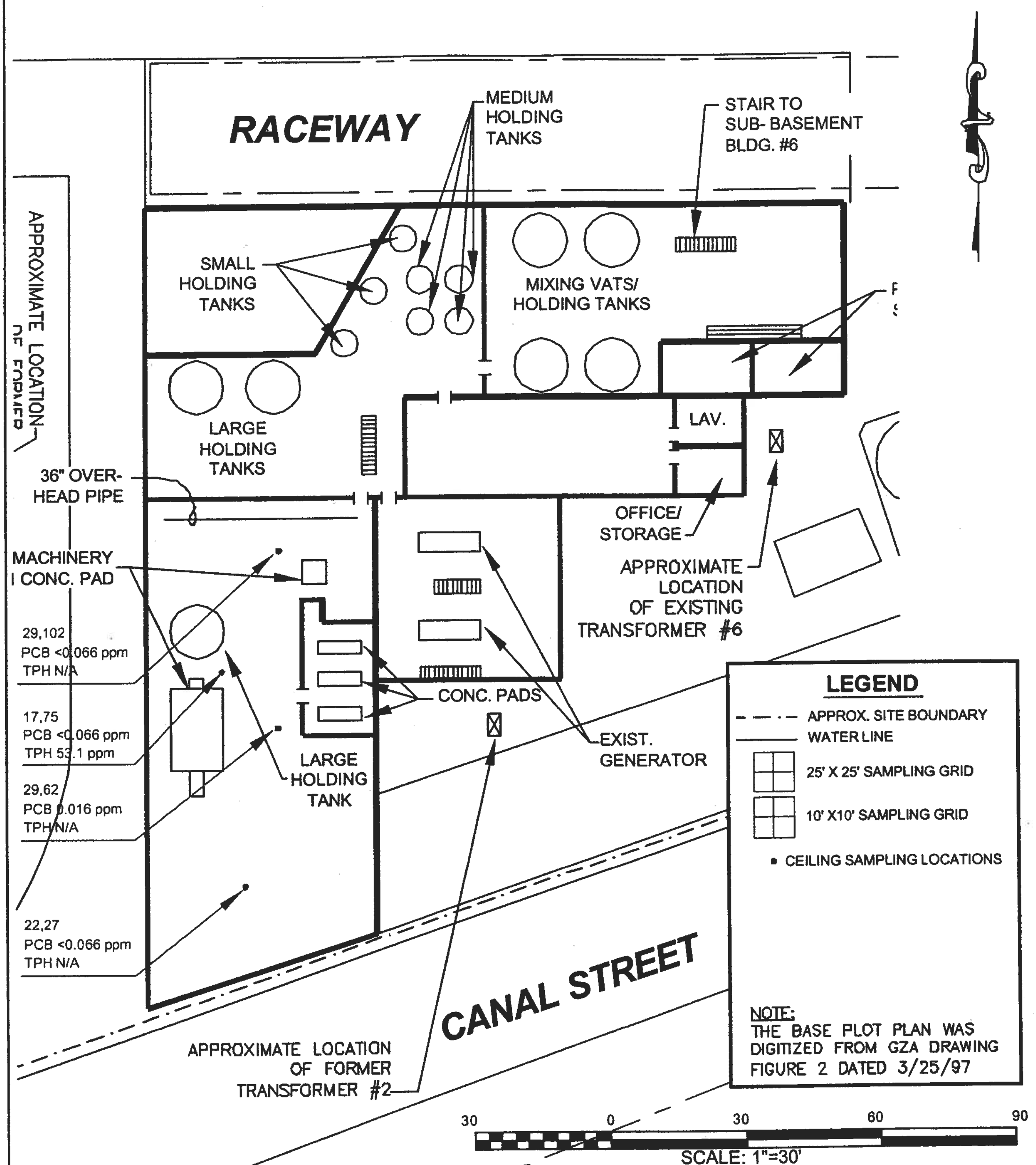
DATE: 4/4/01

JOB NO.: 104-00176-00-000

TITLE: SAMPLING LOCATIONS BLDG #2 BASEMENT WALLS

FIGURE: 15C

H:\CAD Files\104 Files\104-00176\104-00176-2.dwg May 14,2001-10:48am



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104 FORBES ROAD
BRAINTREE, MA 02184
PH:(781)356-7300 FAX:(781)356-2211

FILE No.: 104-00176-00_SITEPLAN.dwg	SCALE: 1"=30'	SIZE A
DRAWN BY: PPH	CHECKED BY: RS	APPROVED BY: RS

CLIENT: North Amer. Site Developers

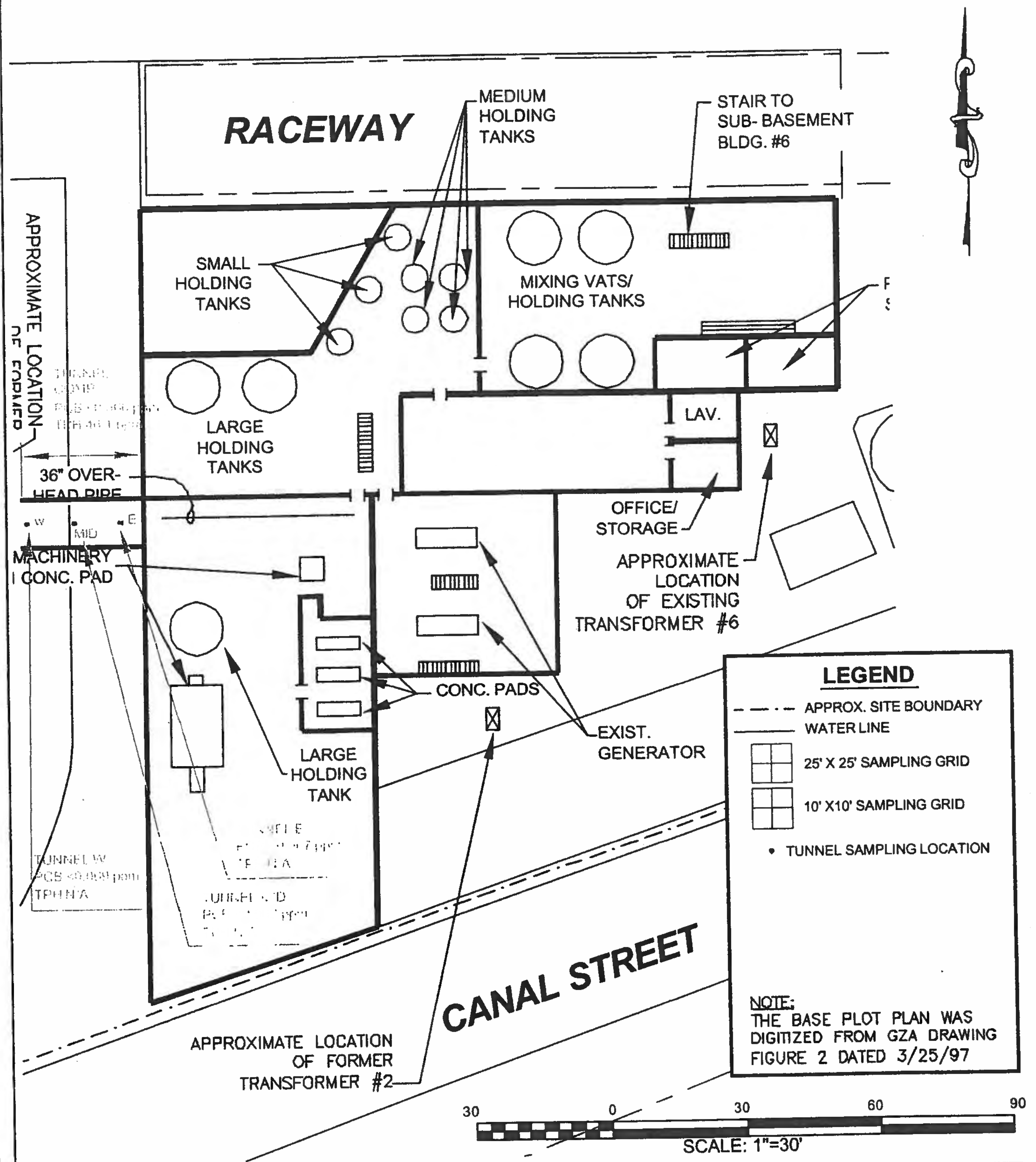
LOCATION: Former Oxford Paper Mill, Canal Street, Lawrence, MA

DATE: 4/4/01

JOB NO.: 104-00176-00-000

TITLE: SAMPLING LOCATIONS BLDG. #2 BASEMENT CEILINGS

FIGURE: 15D



LFR

124 FORBES ROAD
BRAINTREE, MA 02184
PH:(781)356-7300 FAX:(781)356-2211

FILE No.: 104-00176-00_SITEPLAN.dwg	SCALE: 1"=30'	SIZE A
DRAWN BY: PPH	CHECKED BY: RS	APPROVED BY: RS

CLIENT: North Amer. Site Developers

LOCATION: Former Oxford Paper Mill
Canal Street
Lawrence, MA

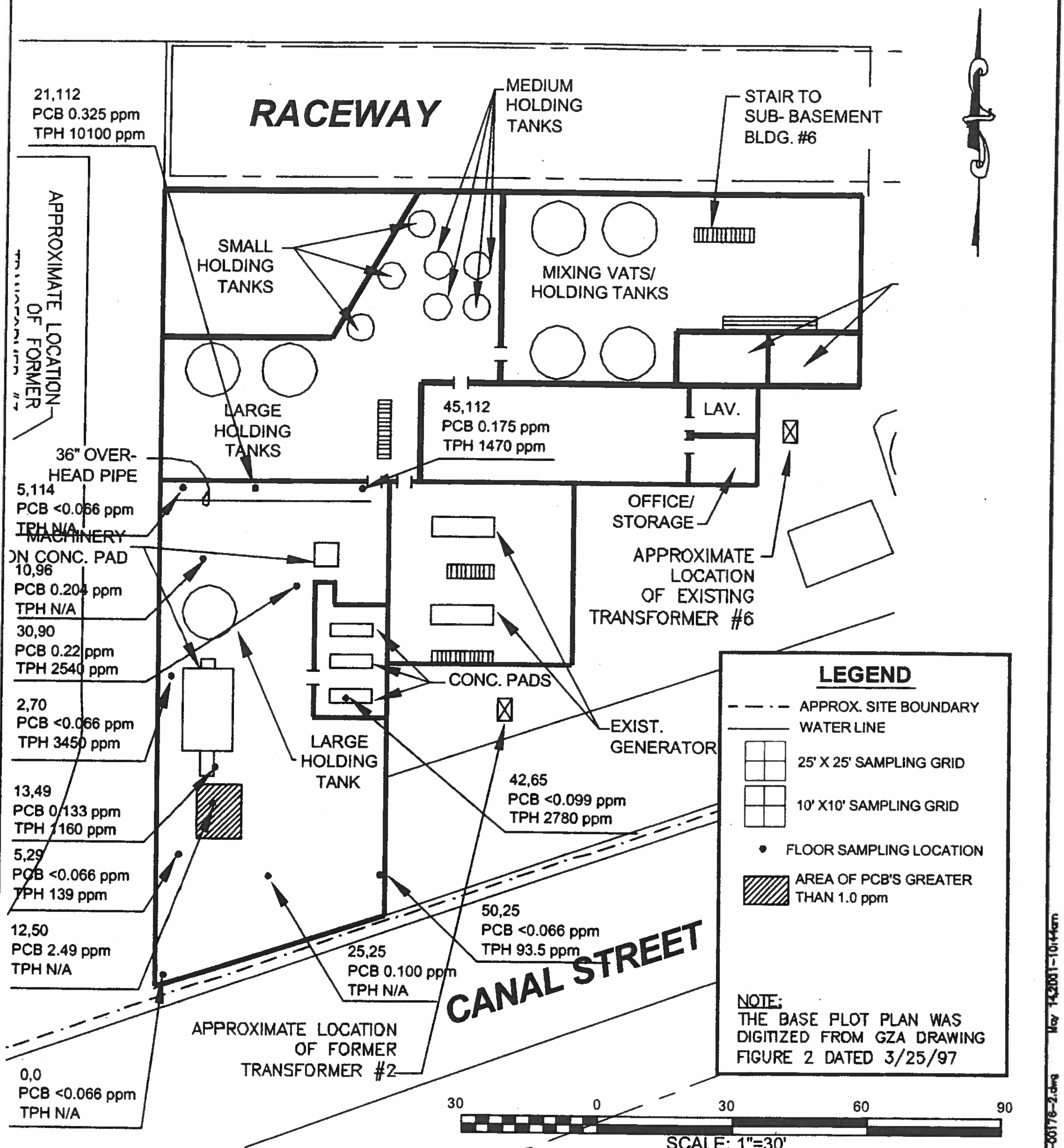
DATE: 4/4/01

JOB NO.: 104-00176-00-000

TITLE: SAMPLING LOCATIONS BUILDING #2 BASEMENT- TUNNEL

FIGURE: 15E

H:\CAD Files\104 Files\104-00176\104-00176-2.dwg May 11,2001-11:53am



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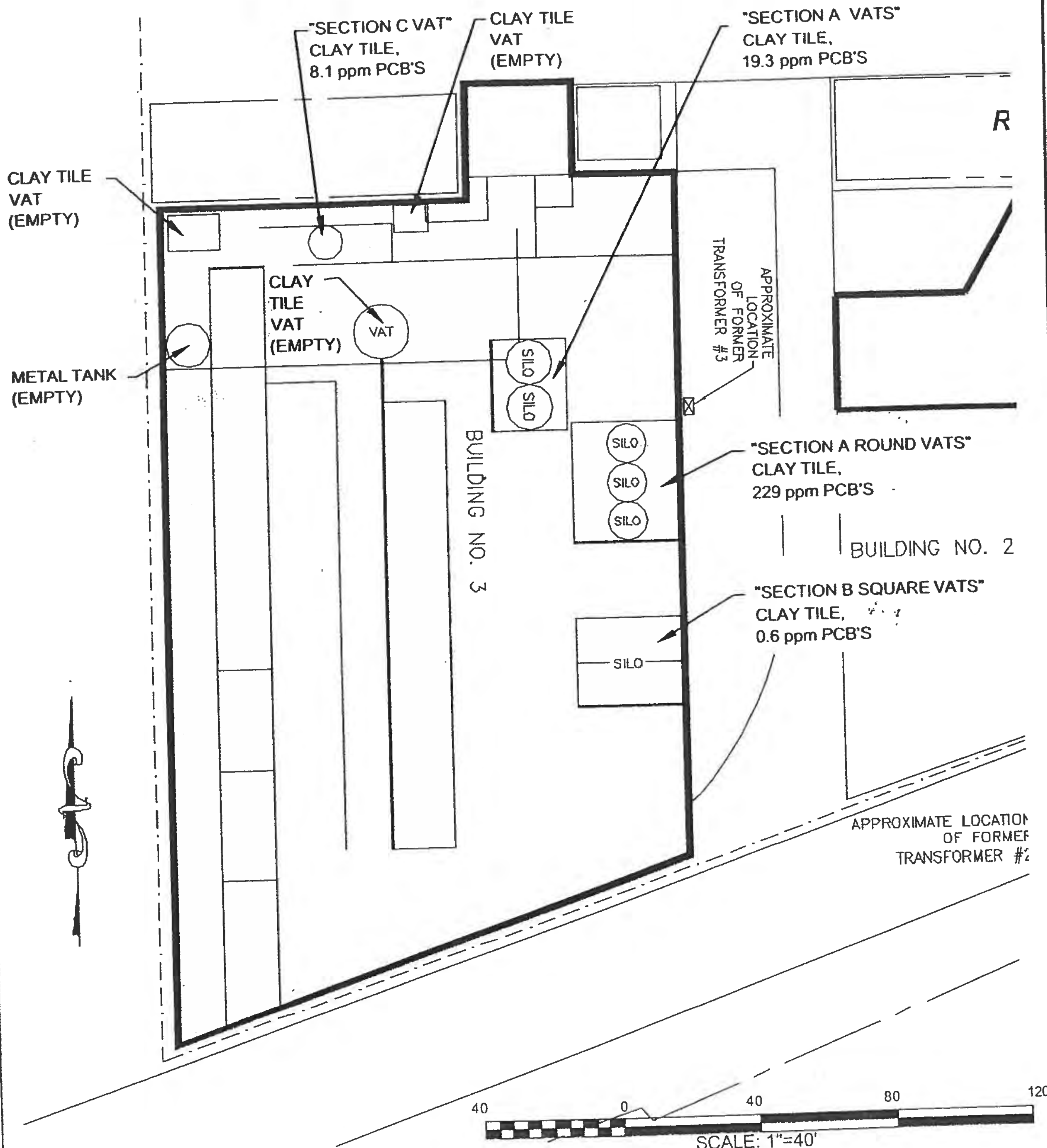
124 FORBES ROAD
BRAINTREE, MA 02184
PH:(781)356-7300 FAX:(781)356-2211

CLIENT: North Amer. Site Developers		TITLE: SAMPLING LOCATIONS BLDG #2 BASEMENT FLOORS
LOCATION: Former Oxford Paper Mill Canal Street Lawrence, MA		FIGURE: 15F
DATE: 4/4/01	JOB NO.: 104-00176-00-000	

FILE No.: 104-00176-00_SITEPLAN.dwg	SCALE: 1"=30'	SIZE A
DRAWN BY: PPH	CHECKED BY: RS	APPROVED BY: RS

H:\CAD Files\104 Files\104-00176\104-00176-2.dwg May 14,2001-10:14am



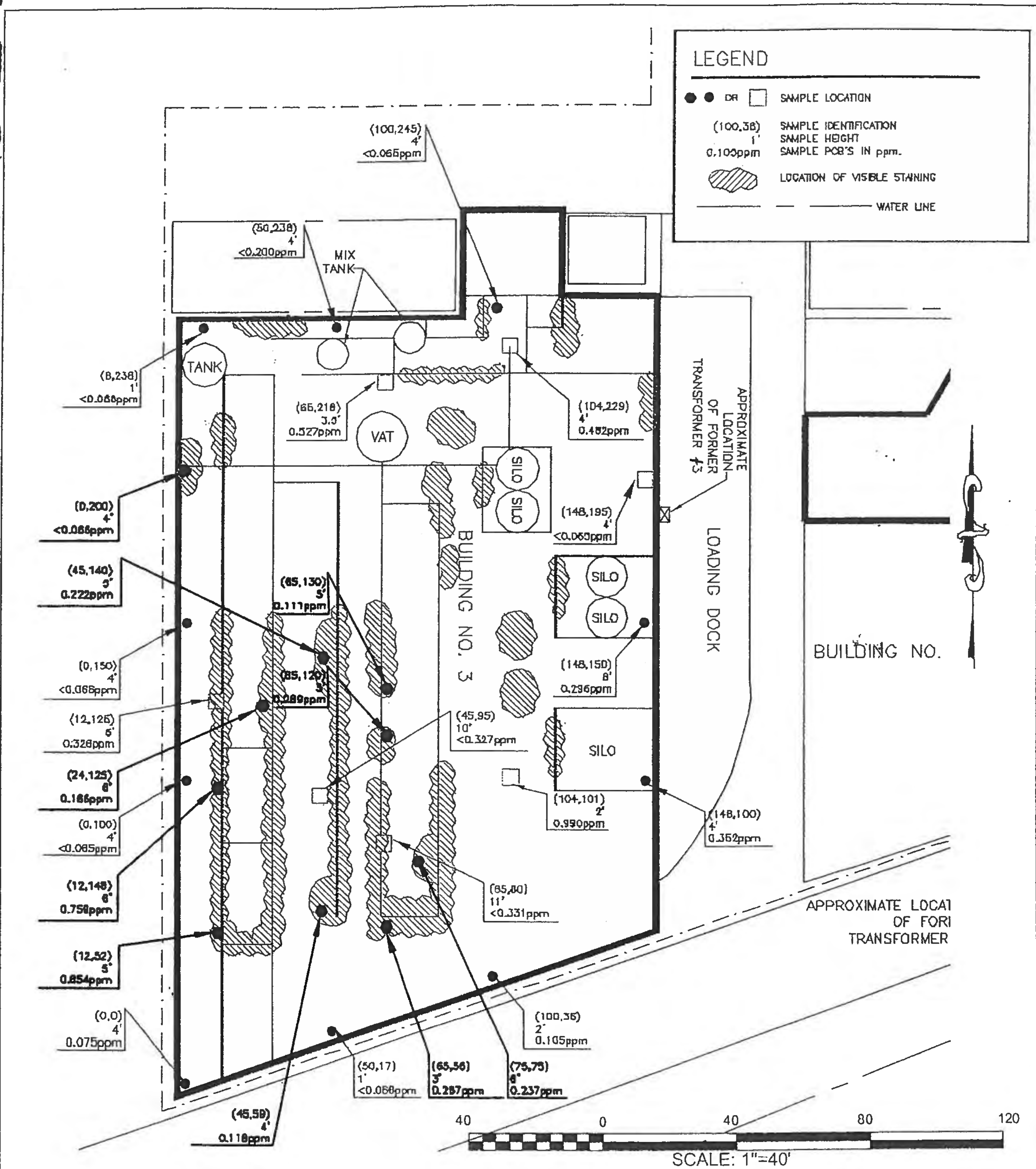
LFR

194 FORBES ROAD
BRAINTREE, MA 02184
PH:(781)356-7300 FAX:(781)356-2211

CLIENT:	North Amer. Site Developers
LOCATION:	Former Oxford Paper Mill Canal Street Lawrence, MA
DATE:	7/2/01
JOB NO.:	104-00176-00-000
TITLE:	BASEMENT LAYOUT BUILDING NO. 3 with metal / clay tanks and VAT's
FIGURE:	16A

FILE No.:	SCALE:	SIZE
104-00176-00-3.dwg	1"=40'	A
DRAWN BY: CJW/DEW	CHECKED BY: RS	APPROVED BY: RS

H:\CAD Files\104- Files\104-00176\Building 3\104-00176-3.dwg Aug 01,2001-12:30pm



LFR

134 FORBES ROAD
BRAINTREE, MA 02184
PH:(781)356-7300 FAX:(781)356-2211

FILE No.: 104-00176-00_SITEPLAN.dwg	SCALE: 1"=40'	SIZE A	
DRAWN BY: PPH	CHECKED BY: RS	APPROVED BY: RS	

CLIENT: North Amer. Site Developers

LOCATION: Former Oxford Paper Mill, Canal Street, Lawrence, MA

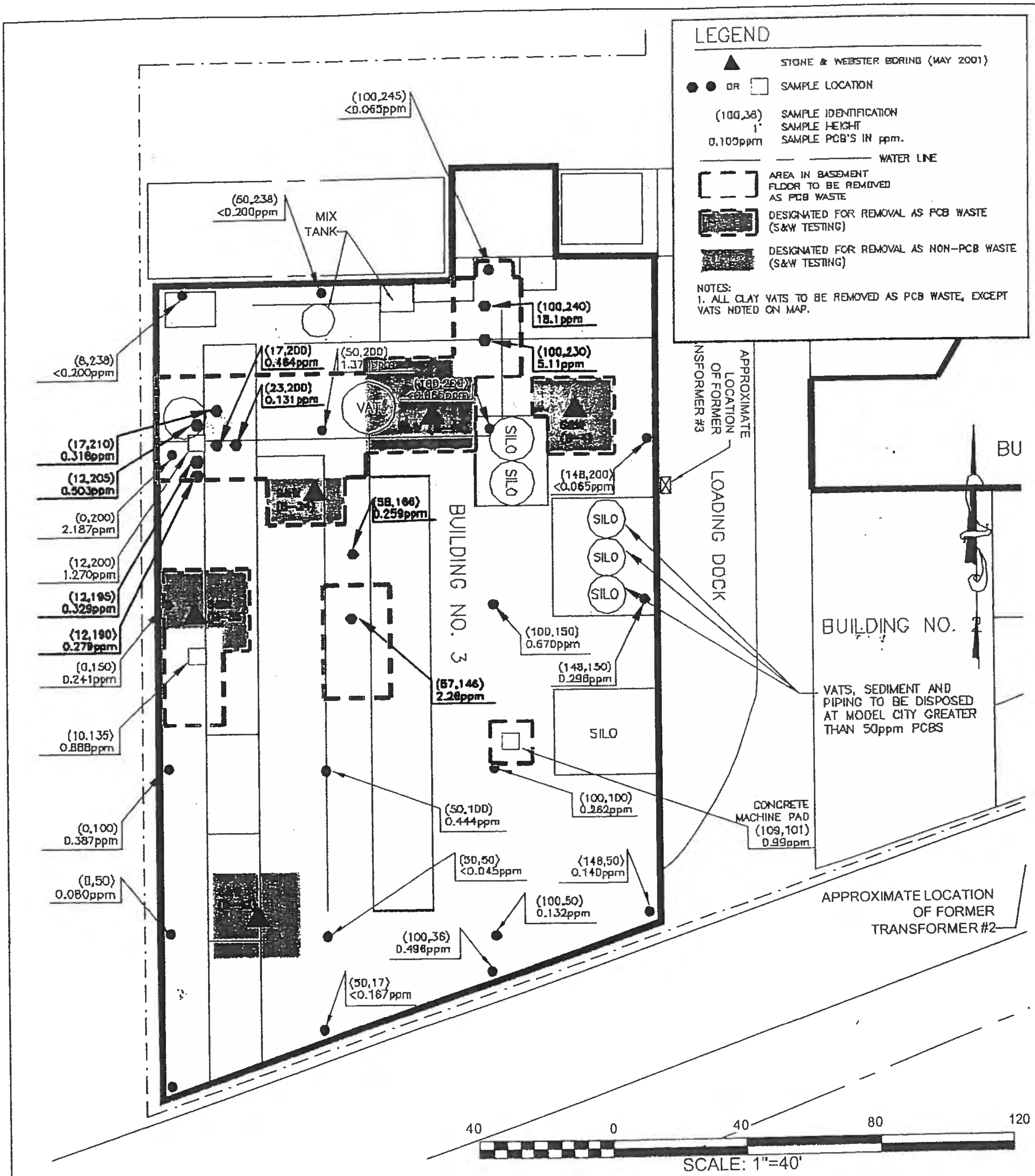
DATE: 4/16/01

JOB NO.: 104-00176-00-000

TITLE: BASEMENT LAYOUT BUILDING NO. 3 WALL SAMPLING

FIGURE: 16B

H:\CAD Files\104 Files\104-00176\Building 3\104-00176sb.dwg Aug 01,2001-2:15pm



LFR
194 FORBES ROAD
BRAINTREE, MA 02184
PH:(781)380-7300 FAX:(781)380-2211

CLIENT: North Amer. Site Developers

LOCATION: Former Oxford Paper Mill
Canal Street
Lawrence, MA

TITLE: BUILDING NO. 3
AREAS IN BASEMENT FLOOR TO BE REMOVED AS PCB WASTE

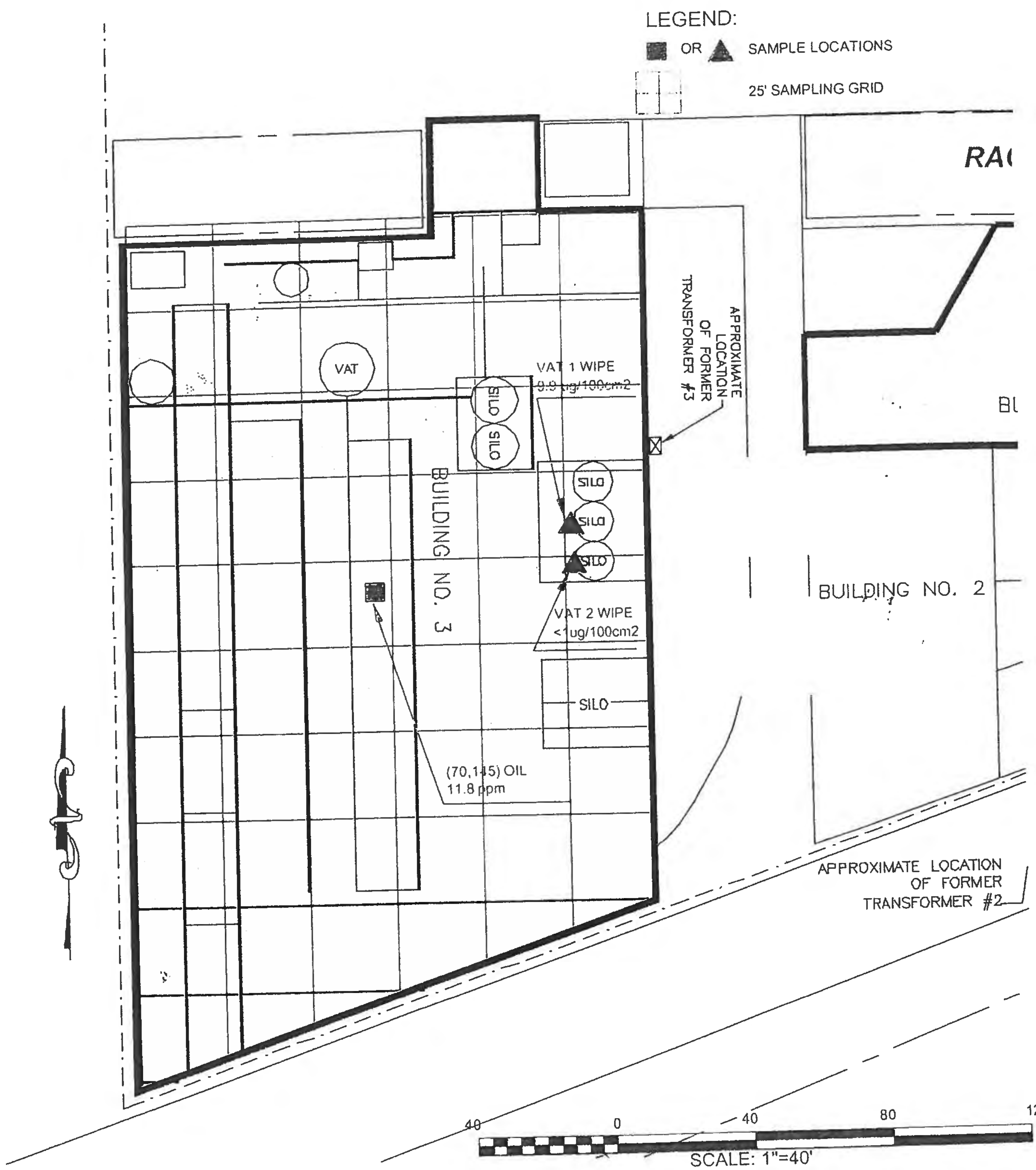
FIGURE: 16C

FILE No.:	SCALE:	SIZE
104-00176-00_SITEPLAN.dwg	1"=40'	A

DRAWN BY: PPH | CHECKED BY: RS | APPROVED BY: RS

DATE: 4/16/01
JOB NO.: 104-00176-00-000

H:\CAD Files 1104 Files 1104-00176 \Building 3 104-00176-731.dwg Aug 02,2001-4:00pm



LFR

194 FORBES ROAD
BRAINTREE, MA 02184
PH:(781)356-7300 FAX:(781)356-2211

FILE No.: 104-00176-00-3.dwg	SCALE: 1"=40'	SIZE A	
DRAWN BY: PPH	CHECKED BY: RS	APPROVED BY: RS	

CLIENT: North Amer. Site Developers

LOCATION: Former Oxford Paper Mill
Canal Street
Lawrence, MA

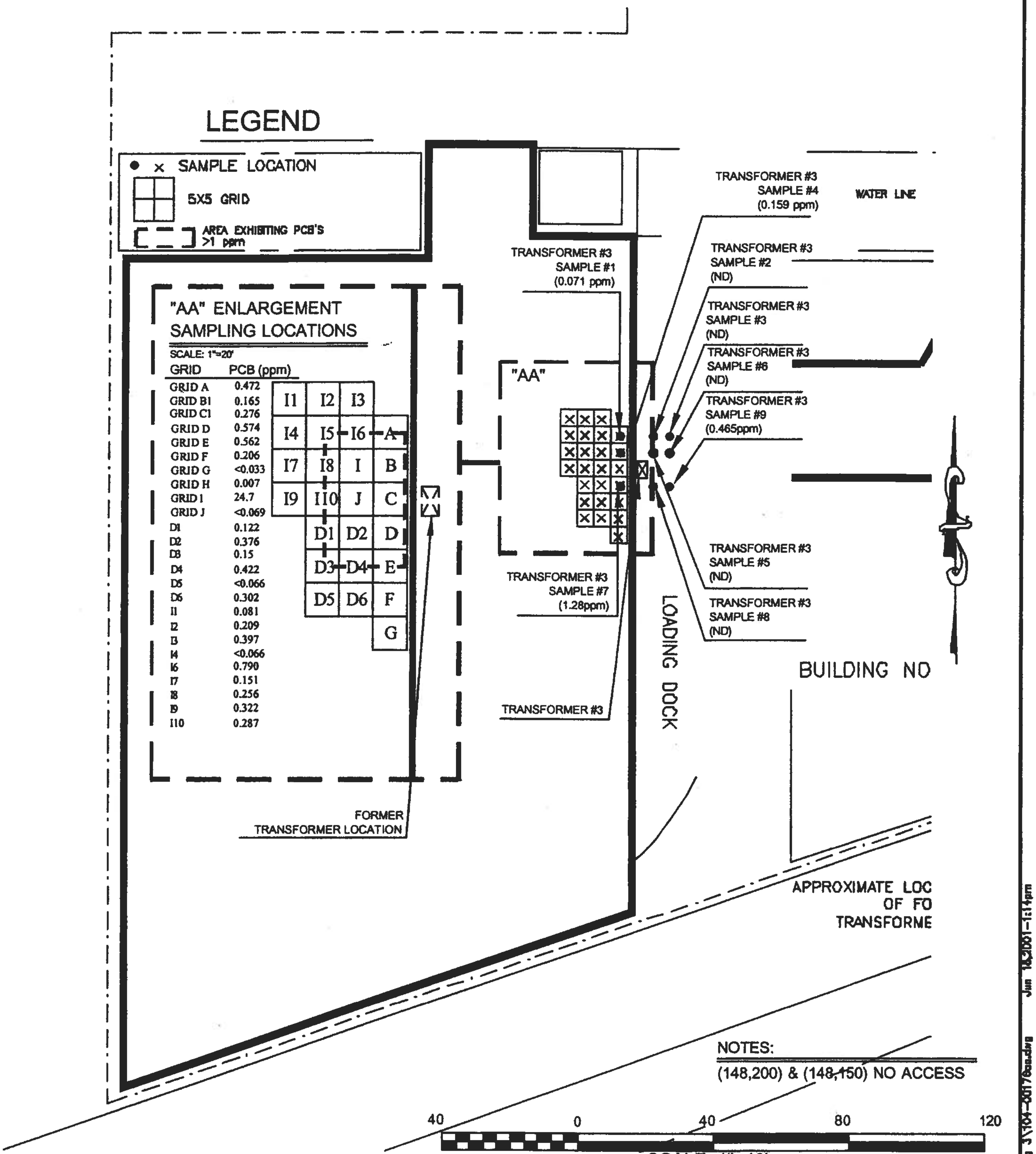
DATE: 8/6/01

JOB NO.: 104-00176-00-000

TITLE: SELF-IMPLEMENTING PLAN
BUILDING NO. 3

FIGURE: 16D

H:\CAD Files\104 Files\104-00176\Building 3\104-00176-3.dwg Aug 06,2001-1:28pm



GRID	PCB (ppm)
GRID A	0.472
GRID B1	0.165
GRID C1	0.276
GRID D	0.574
GRID E	0.562
GRID F	0.206
GRID G	<0.033
GRID H	0.007
GRID I	24.7
GRID J	<0.069
D1	0.122
D2	0.376
D3	0.15
D4	0.422
D5	<0.066
D6	0.302
I1	0.081
I2	0.209
I3	0.397
I4	<0.066
I6	0.790
I7	0.151
I8	0.256
I9	0.322
I10	0.287

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PH:(781)356-7500 FAX:(781)356-2211

FILE No.: 104-00176-00aa.dwg | SCALE: 1"=40' | SIZE: A

DRAWN BY: PPH | CHECKED BY: RS | APPROVED BY: RS

CLIENT: North Amer. Site Developers

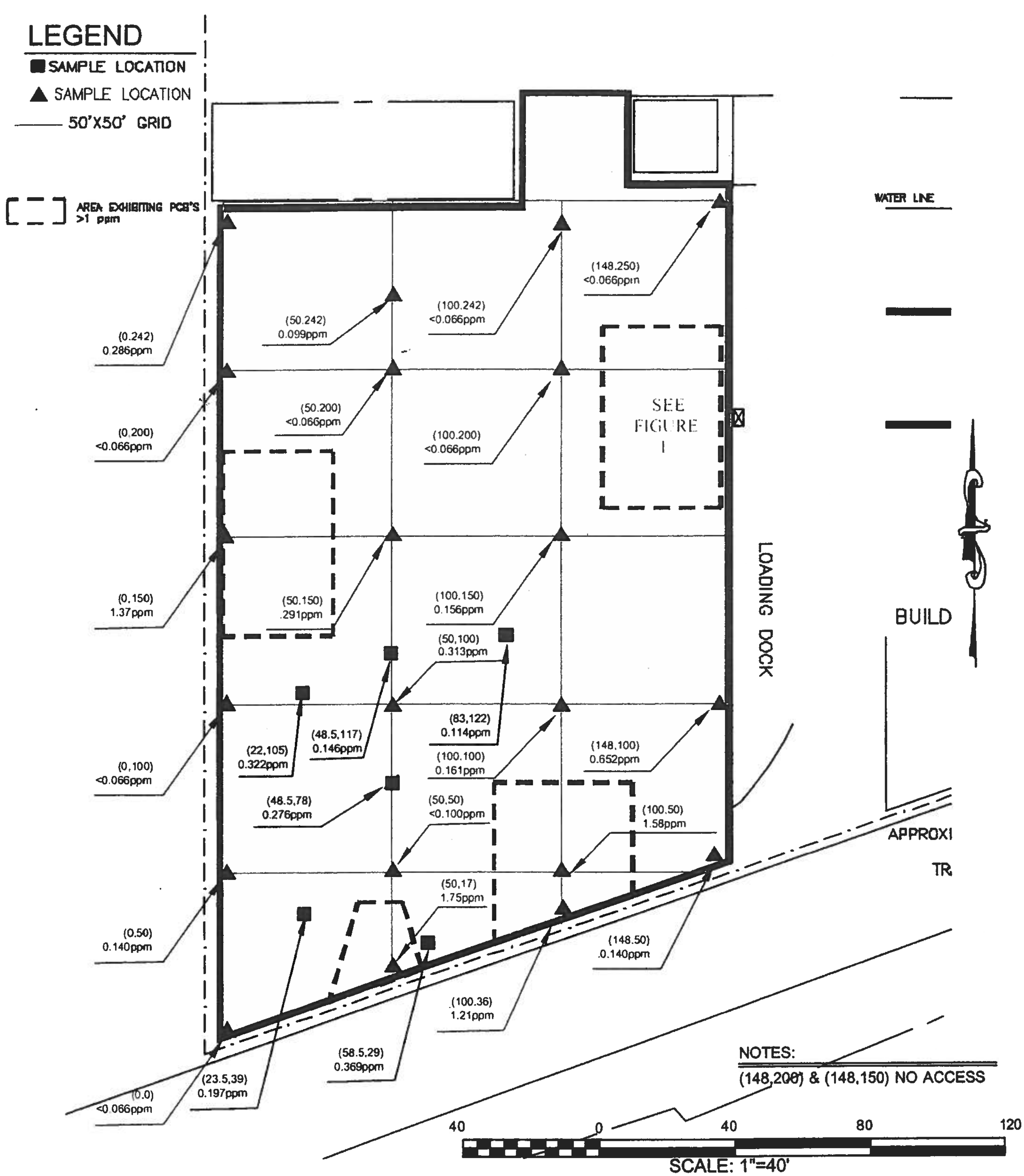
LOCATION: Former Oxford Paper Mill, Canal Street, Lawrence, MA

DATE: 4/16/01

JOB NO.: 104-00176-00-000

TITLE: FIRST FLOOR BUILDING NO. 3

FIGURE: 17A



LFR

194 FORBES ROAD
BRAINTREE, MA 02184
PH:(781)380-7500 FAX:(781)380-2211

FILE No.: 104-00176-00aa.dwg	SCALE: 1"=40'	SIZE A
DRAWN BY: PPH	CHECKED BY: RS	APPROVED BY: RS

CLIENT: North Amer. Site Developers

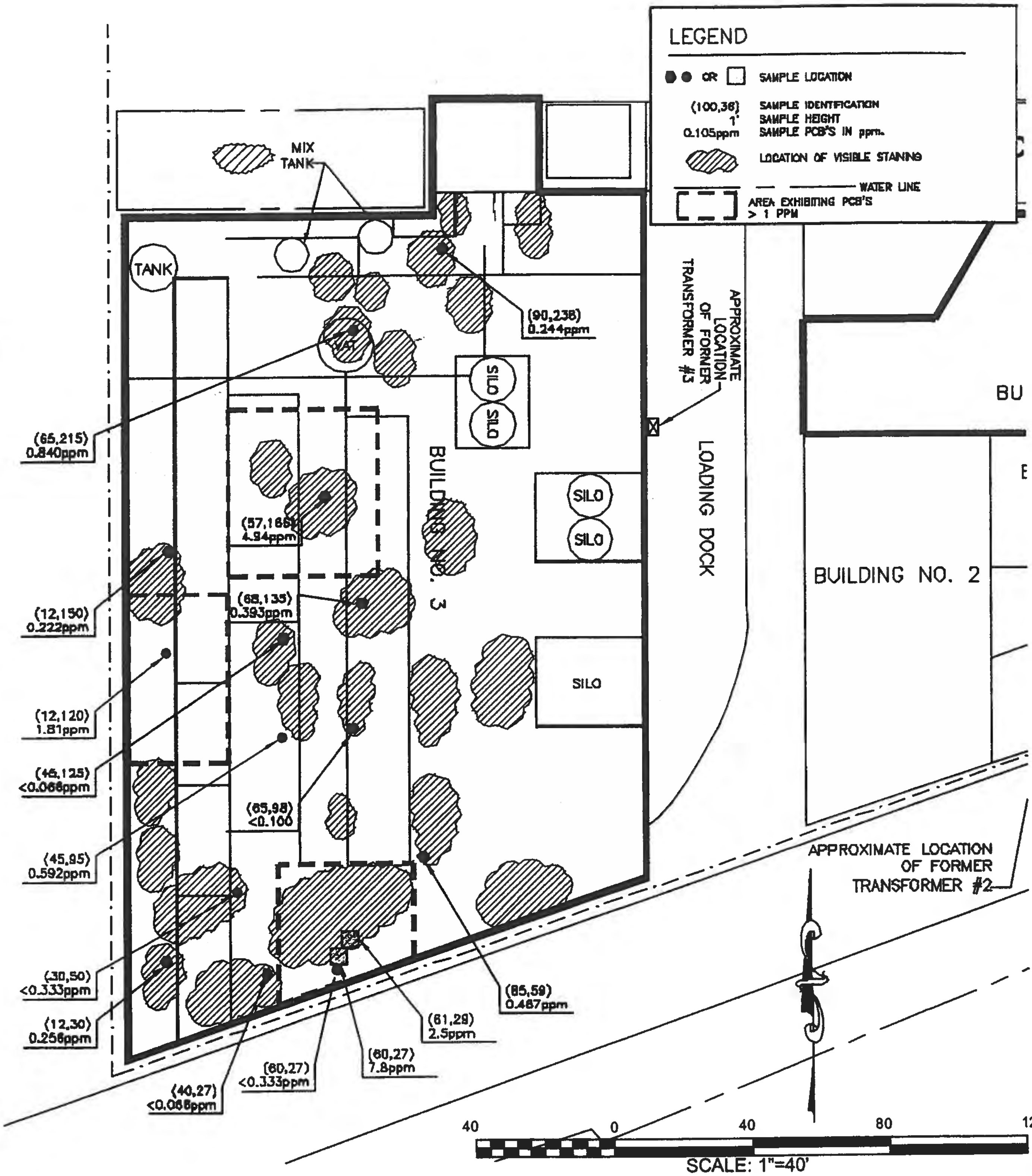
LOCATION: Former Oxford Paper Mill
Canal Street
Lawrence, MA

DATE: 4/16/01

JOB NO.: 104-00176-00-000

TITLE: FIRST FLOOR BUILDING NO. 3

FIGURE: 17B



LFR

194 FORBES ROAD
BRAINTREE, MA 02184
PH:(781)356-7300 FAX:(781)356-2211

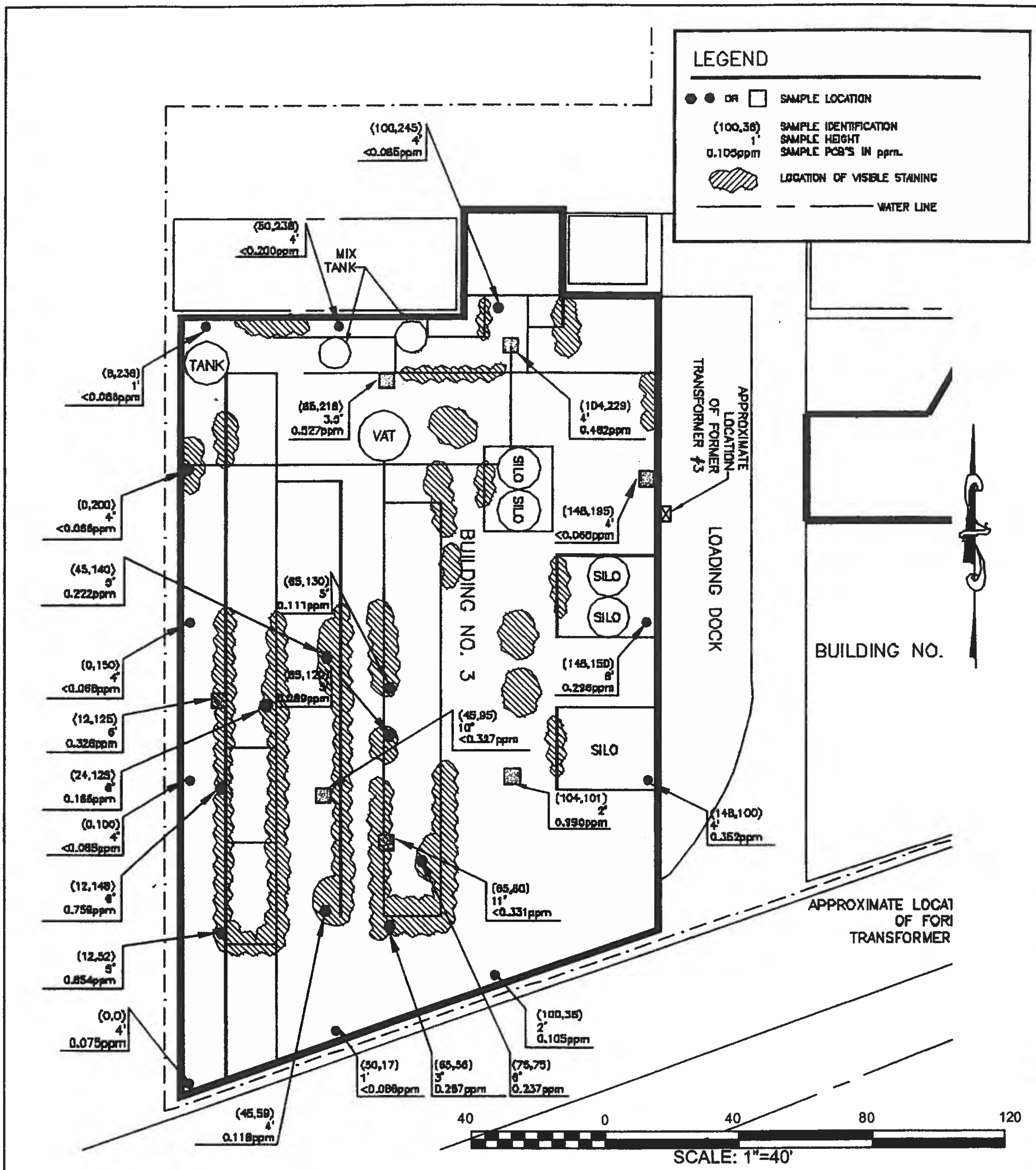
CLIENT:	North Amer. Site Developers
LOCATION:	Former Oxford Paper Mill Canal Street Lawrence, MA
DATE:	4/18/01
JOB NO.:	104-00176-00-000

TITLE:
BASEMENT LAYOUT
BUILDING NO. 3
CEILING SAMPLING

FIGURE: 17C

FILE No.:	SCALE:	SIZE
104-00176-00_SITEPLAN.dwg	1"=40'	A
DRAWN BY: PPH	CHECKED BY: RS	APPROVED BY: RS

H:\CAD Files\104 Files\104-00176\Building 3\104-00176Bldg3.dwg Jun 18,2001-1:36pm



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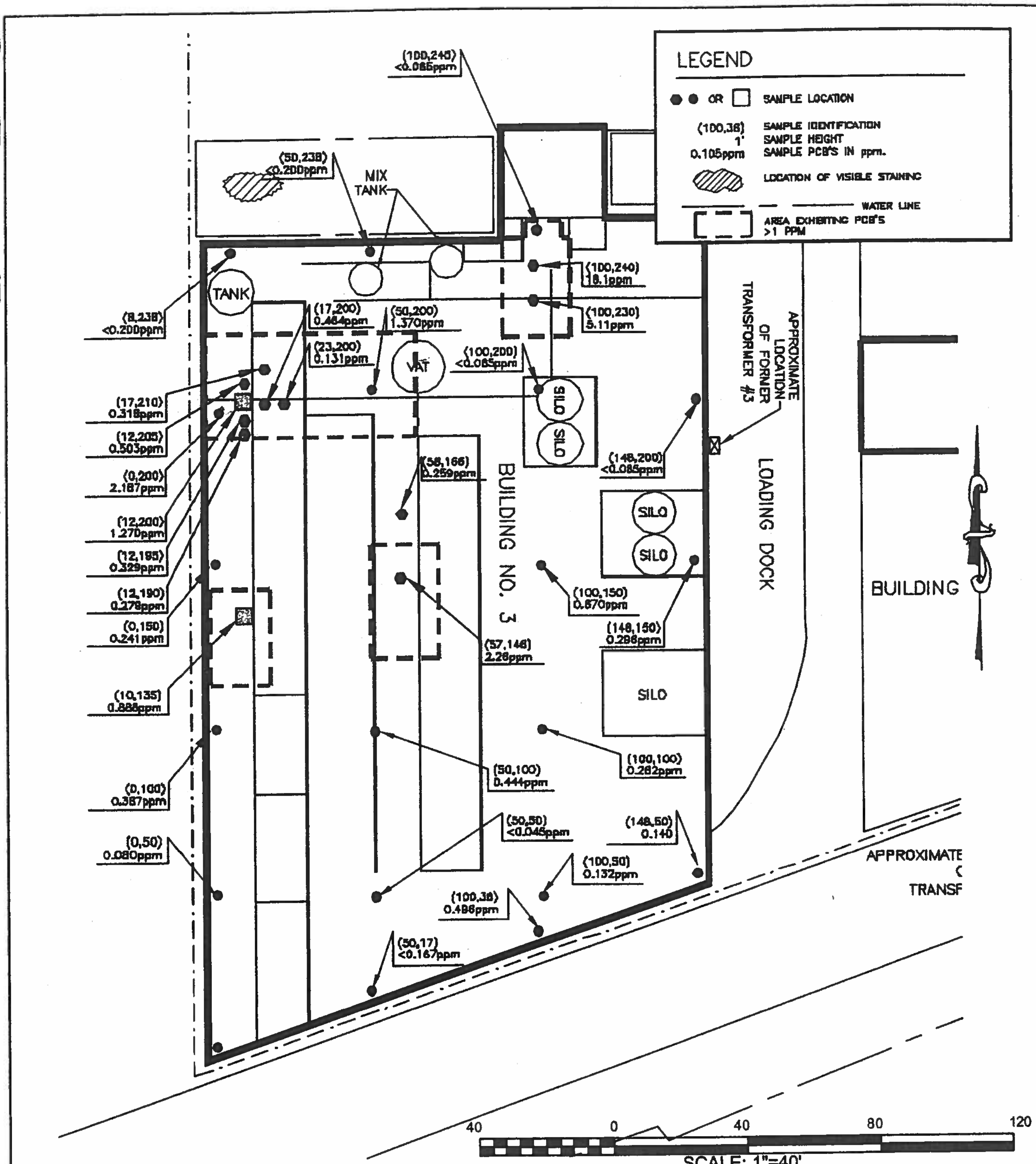
124 FORBES ROAD
BRAINTREE, MA 02184
PH:(781)856-7300 FAX:(781)856-2211

CLIENT:	North Amer. Site Developers
LOCATION:	Former Oxford Paper Mill Canal Street Lawrence, MA
DATE:	4/16/01
JOB NO.:	104-00176-00-000

TITLE:
BASEMENT LAYOUT
BUILDING NO. 3
WALL SAMPLING

FIGURE: 17D

FILE No.:	SCALE:	SIZE
104-00176-00_SITEPLAN.dwg	1"=40'	A
DRAWN BY: PPH	CHECKED BY: RS	APPROVED BY: RS



LFR

104 FORBES ROAD
BRAINTREE, MA 02184
PH:(781)356-7500 FAX:(781)356-2211

CLIENT: North Amer. Site Developers

LOCATION: Former Oxford Paper Mill
Canal Street
Lawrence, MA

TITLE: BASEMENT LAYOUT
BUILDING NO. 3
FLOOR SAMPLING

FIGURE: 17E

FILE No.:	SCALE:	SIZE
104-00176-00_SITEPLAN.dwg	1"=40'	A
DRAWN BY: PPH	CHECKED BY: RS	APPROVED BY: RS

DATE: 4/16/01

JOB NO.: 104-00176-00-000

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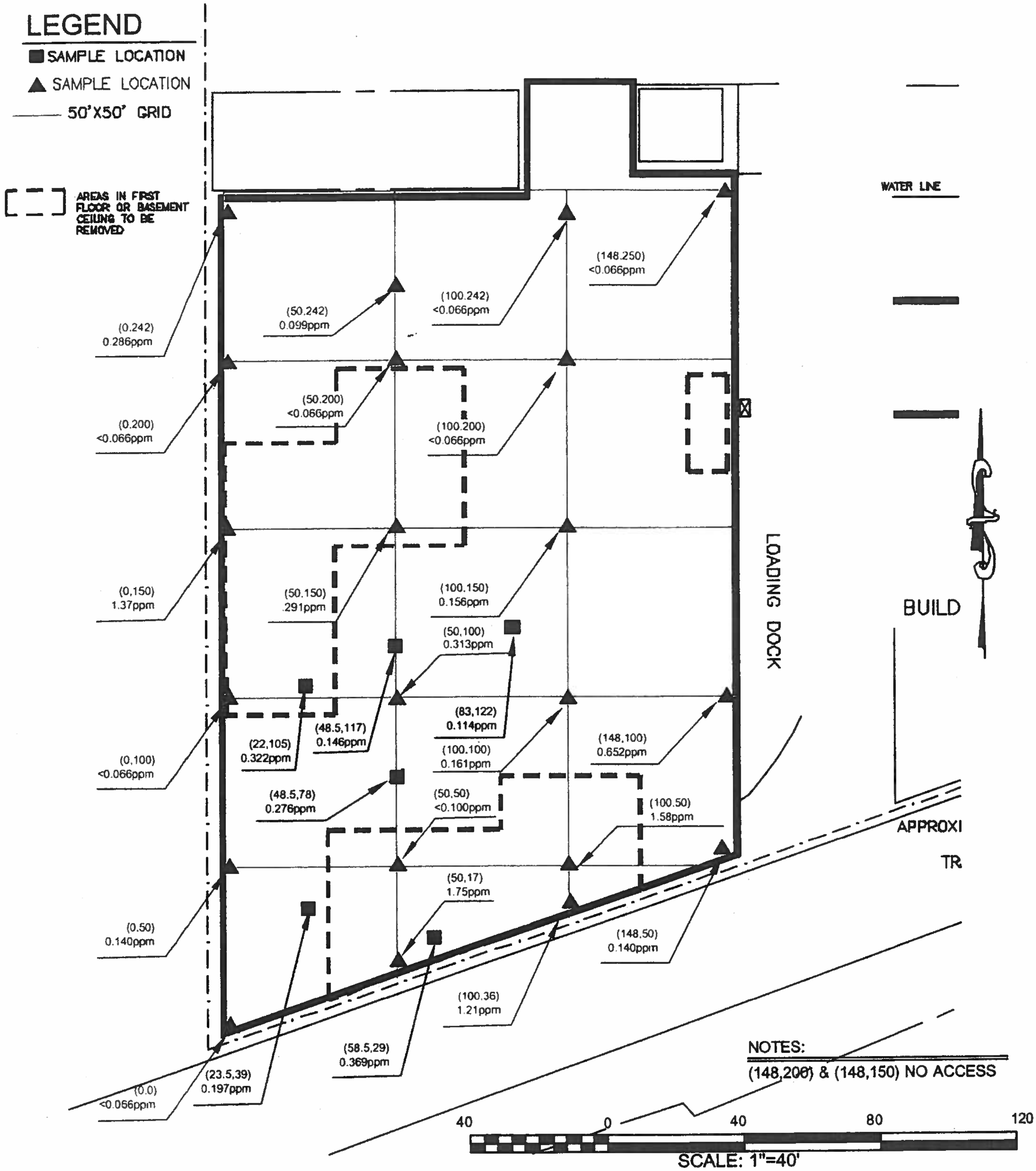


LFR
194 FORBES ROAD
BRAINTREE, MA 02184
PH:(781)356-7300 FAX:(781)356-2211

FILE No.: 104-00176-00aa.dwg	SCALE: 1"=40'	SIZE A
DRAWN BY: PPH	CHECKED BY: RS	APPROVED BY: RS

CLIENT: North Amer. Site Developers

LOCATION: Former Oxford Paper Mill
Canal Street
Lawrence, MA

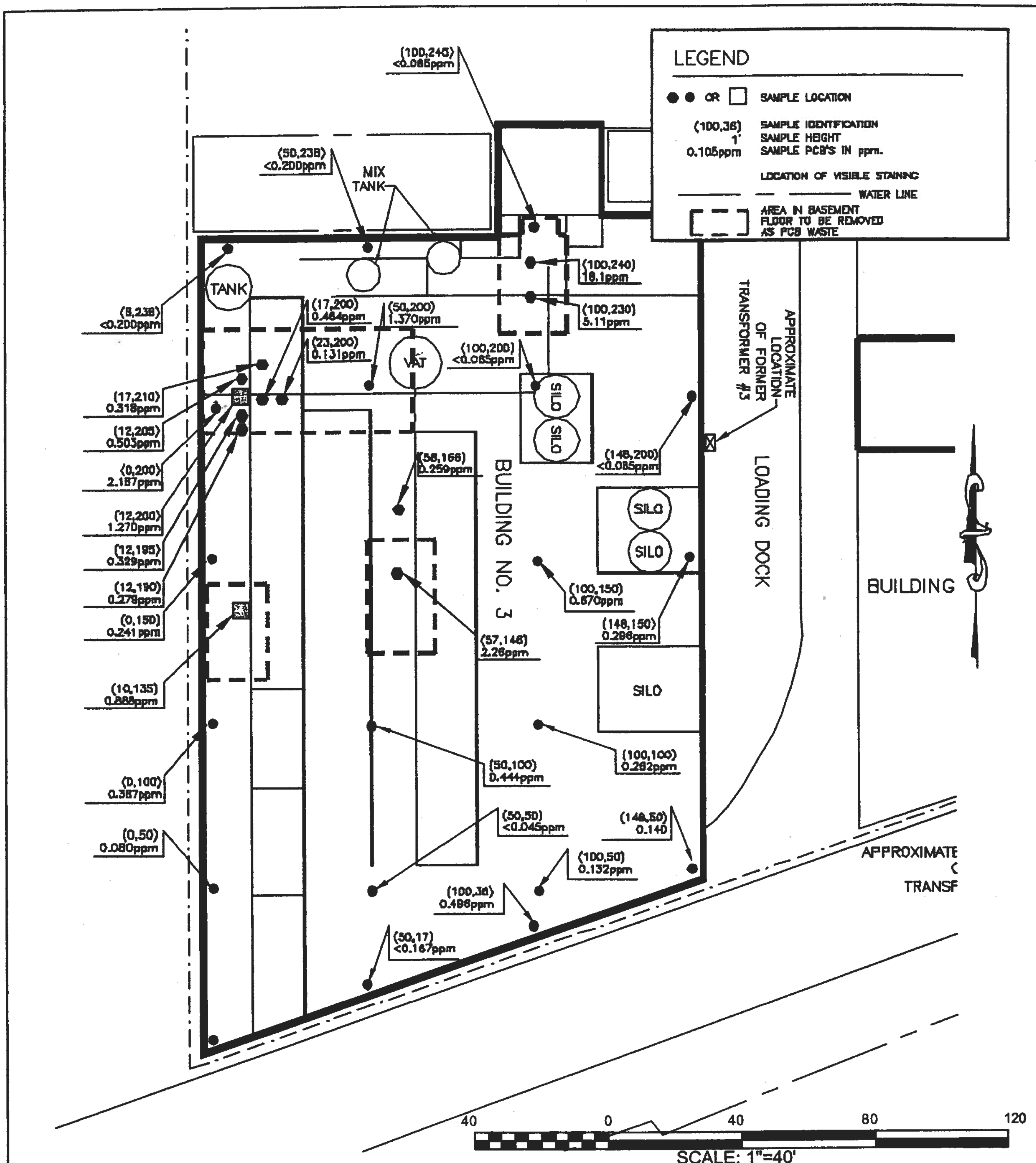
DATE: 4/16/01

JOB NO.: 104-00176-00-DXO

TITLE: BUILDING NO. 3
AREAS IN FIRST FLOOR & BASEMENT CEILING TO BE DISPOSED OF AS PCB WASTE

FIGURE: 17F

H:\CAD Files\104 Files\104-00176\Building 3\104-00176aa.dwg Jun 18,2001-1:17pm



LFR
104 FORBES ROAD
BRAINTREE, MA 02184
PH:(781)356-7500 FAX:(781)356-2211

FILE No.: 104-00176-00_SITEPLAN.dwg		SCALE: 1"=40'	SIZE A
DRAWN BY: PPH	CHECKED BY: RS	APPROVED BY: RS	

CLIENT: North Amer. Site Developers

LOCATION: Former Oxford Paper Mill
Canal Street
Lawrence, MA

DATE: 4/16/01

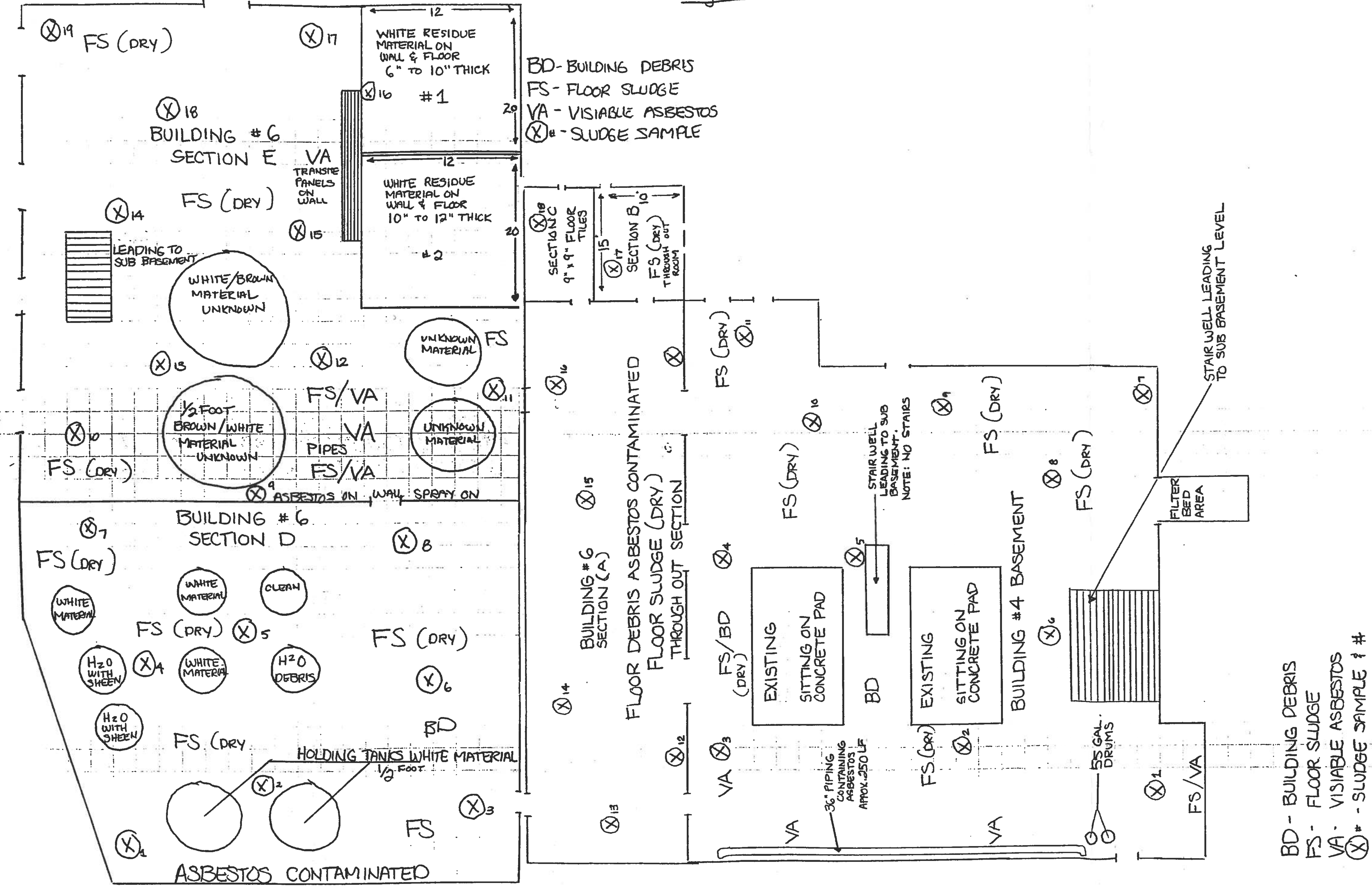
JOB NO.: 104-00176-00-DOO

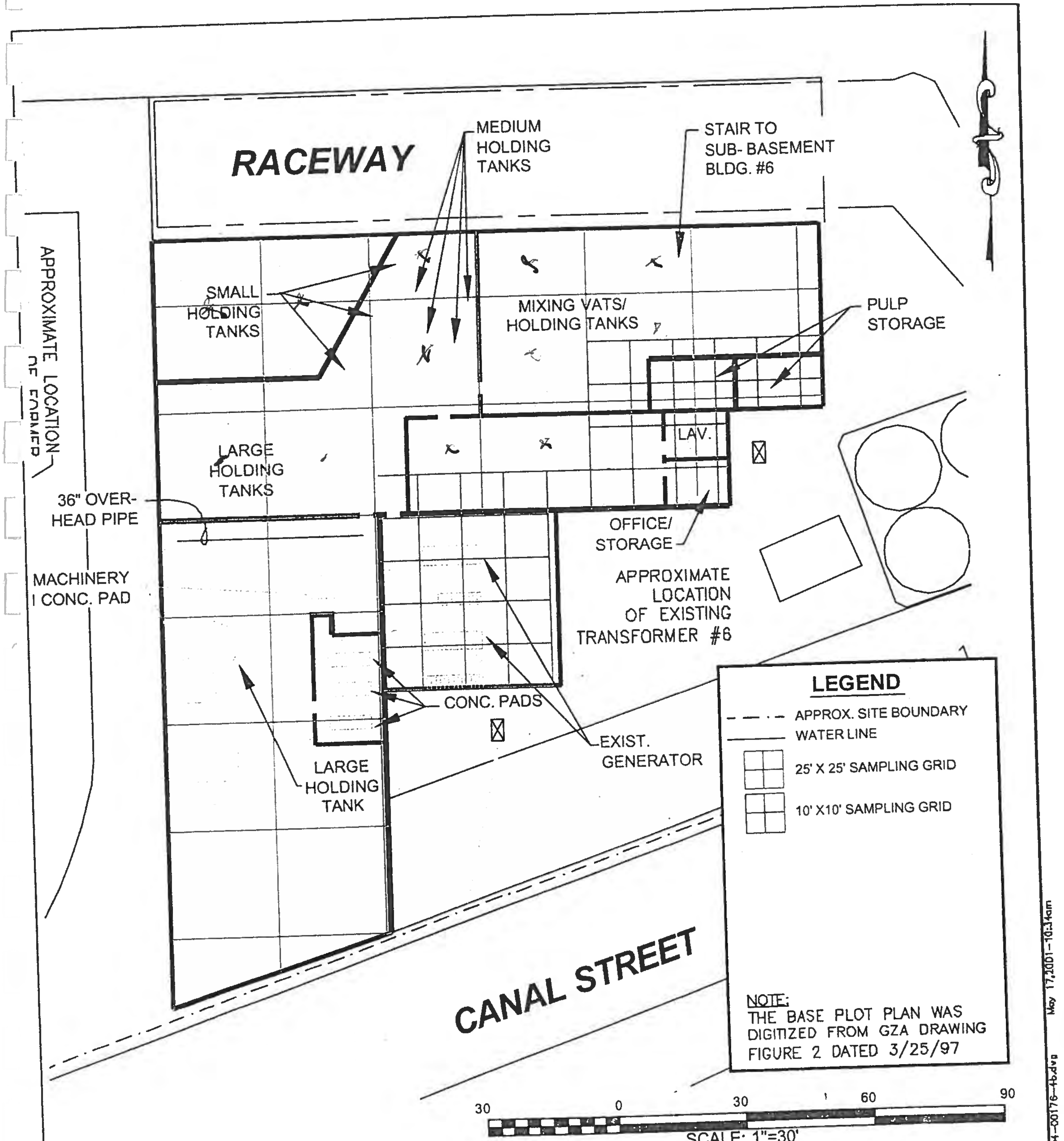
TITLE: BUILDING NO. 3
AREAS IN BASEMENT
FLOOR TO BE REMOVED
AS PCB WASTE

FIGURE: 17 G

H:\CAD Files\104 Files\104-00176\Building 3\104-00176Gb.dwg Jun 18,2001-1:33pm

Figure 18A


BD - BUILDING DEBRIS
FS - FLOOR SLUDGE
VA - VISIABLE ASBESTOS
Ⓧ# - SLUDGE SAMPLE
BUILDING #6
SECTION E
FS (DRY)
VA
TRANSITE PANELS ON WALL
WHITE RESIDUE MATERIAL ON WALL & FLOOR 6" TO 10" THICK
#1
WHITE RESIDUE MATERIAL ON WALL & FLOOR 10" TO 12" THICK
#2
LEADING TO SUB BASEMENT
WHITE/BROWN MATERIAL UNKNOWN
UNKNOWN MATERIAL
FS
1/2 FOOT BROWN/WHITE MATERIAL UNKNOWN
FS/VA
PIPES
ASBESTOS ON WALL SPRAY ON
BUILDING #6
SECTION D
WHITE MATERIAL
CLEAN
H2O WITH SHEEN
H2O DEBRIS
BD
HOLDING TANKS WHITE MATERIAL 1/2 FOOT
ASBESTOS CONTAMINATED
SECTION C 9" x 9" FLOOR TILES
SECTION B
FS (DRY) THROUGH OUT ROOM
BUILDING #6 SECTION (A)
FLOOR DEBRIS ASBESTOS CONTAMINATED FLOOR SLUDGE (DRY) THROUGH OUT SECTION
FS/BD (DRY)
EXISTING
SITTING ON CONCRETE PAD
STAIR WELL LEADING TO SUB BASEMENT. NOTE: NO STAIRS
BUILDING #4 BASEMENT
STAIR WELL LEADING TO SUB BASEMENT LEVEL
FILTER BED AREA
55 GAL. DRUMS
36" PIPING CONTAINING ASBESTOS APPOX. 250 LF
FS (DRY)
FS/VA
BD - BUILDING DEBRIS
FS - FLOOR SLUDGE
VA - VISIABLE ASBESTOS
Ⓧ# - SLUDGE SAMPLE #

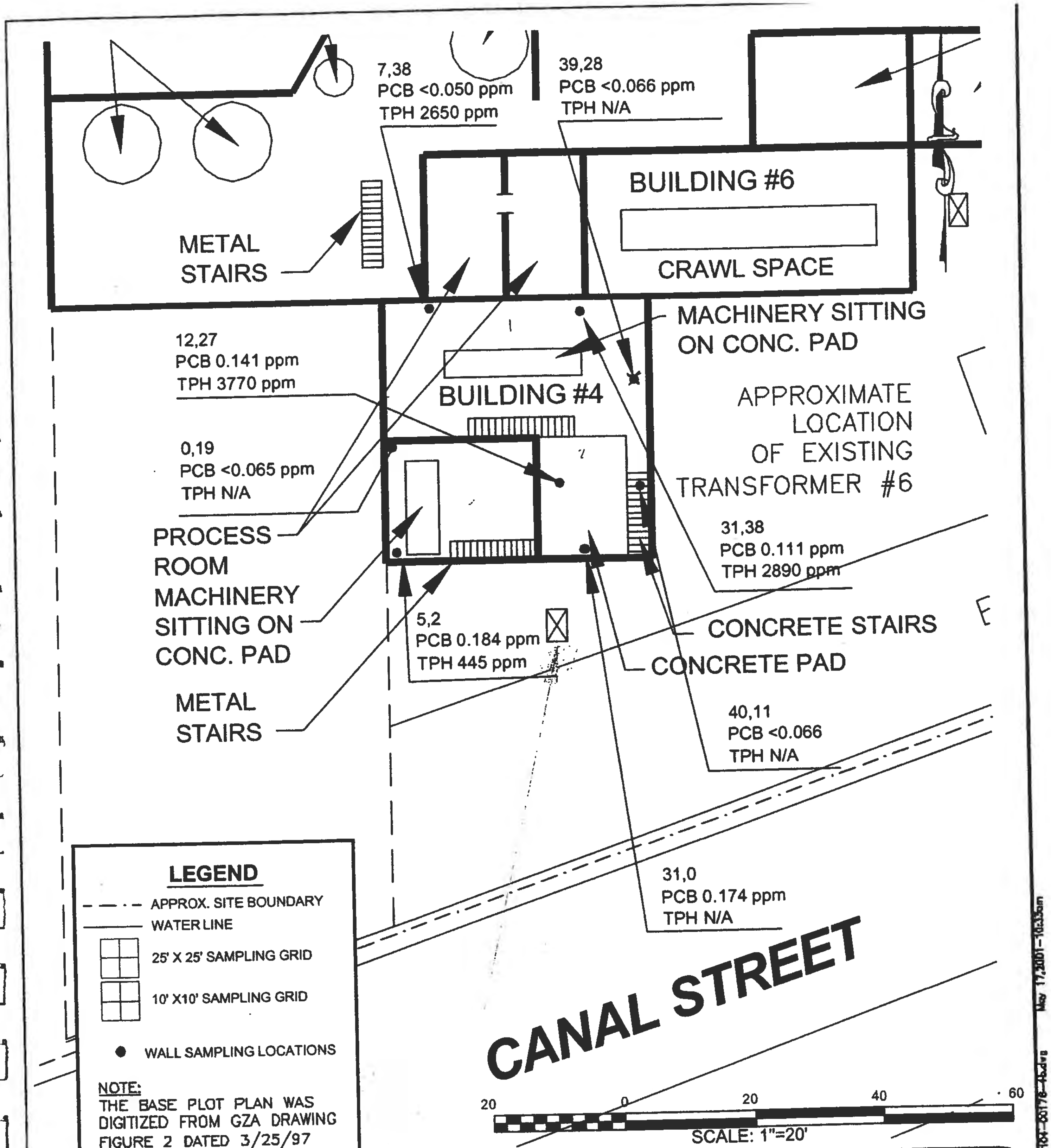


LFR
124 FORBES ROAD
BRAINTREE, MA 02184
PH:(781)356-7300 FAX:(781)356-2211

FILE No.: 104-00176-00-4b.dwg
SCALE: 1"=30'
SIZE A
DRAWN BY:PPH
CHECKED BY: RS
APPROVED BY: RS

CLIENT: North Amer. Site Developers
LOCATION: Former Oxford Paper Mill, Canal Street, Lawrence, MA
DATE: 5/17/01
JOB NO.: 104-00176-00-000

TITLE: SAMPLING GRID BUILDINGS #2, #4 & #6 BASEMENT
FIGURE: 18B

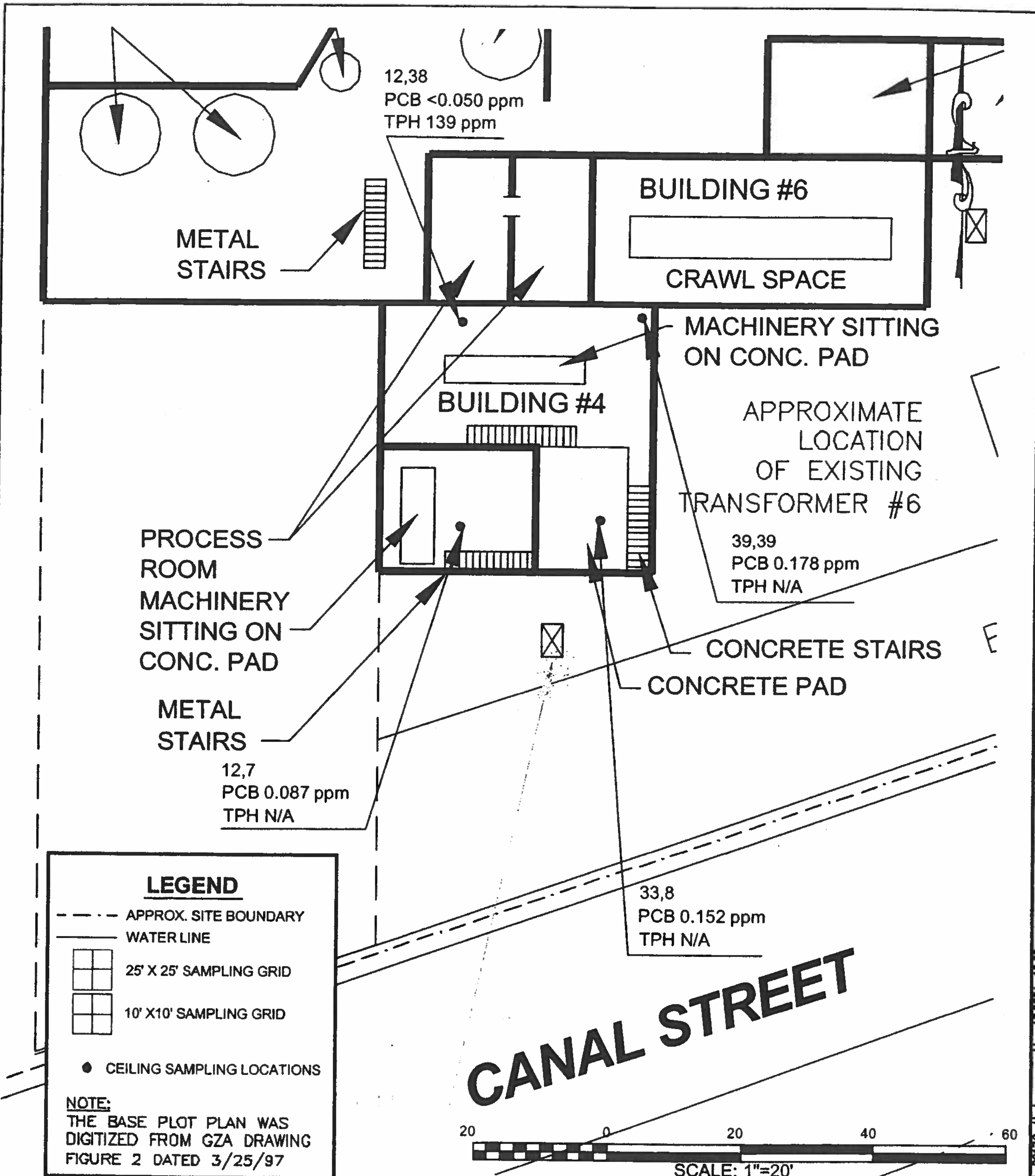


LFR

124 FORBES ROAD
BRAINTREE, MA 02184
PH:(781)356-7300 FAX:(781)356-2211

CLIENT: North Amer. Site Developers		TITLE: SAMPLING LOCATIONS BUILDING #4 SUB-BASEMENT - walls
LOCATION: Former Oxford Paper Mill Canal Street Lawrence, MA		FIGURE: 18C
DATE:	5/17/01	
JOB NO.:	104-00176-00-000	

FILE No.: 104-00176-00-4b.dwg	SCALE: 1"=20'	SIZE A
DRAWN BY: PPH	CHECKED BY: RS	APPROVED BY: RS



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194 FORBES ROAD
BRAINTREE, MA 02184
PH:(781)356-7300 FAX:(781)356-2211

FILE No.:	SCALE:	SIZE
104-00176-00-4b.dwg	1"=20'	A
DRAWN BY: PPH	CHECKED BY: RS	APPROVED BY: RS

CLIENT: North Amer. Site Developers

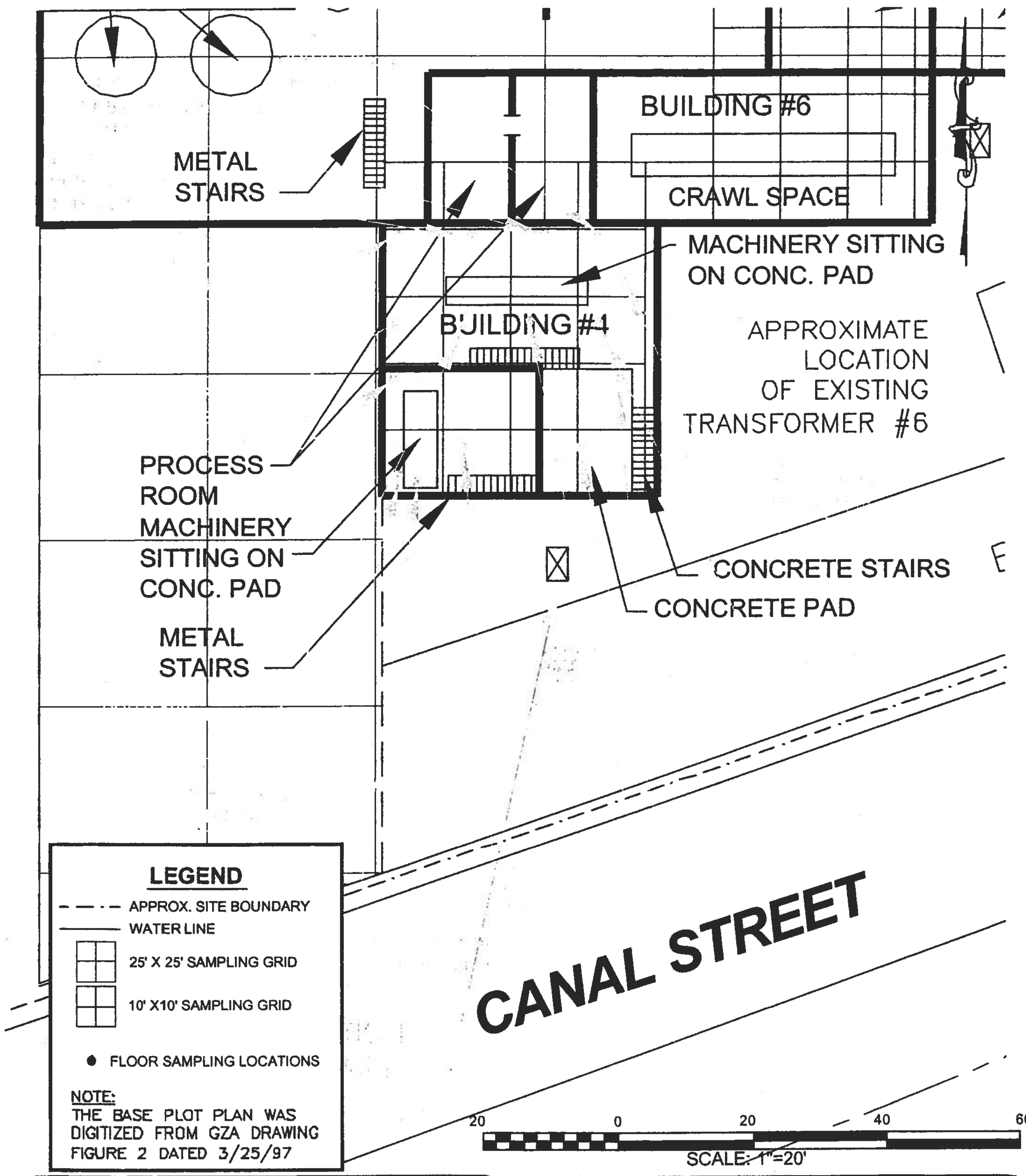
LOCATION: Former Oxford Paper Mill, Canal Street, Lawrence, MA

DATE: 5/17/01

JOB NO.: 104-00176-00-000

TITLE: SAMPLING LOCATIONS BUILDING #4 SUB-BASEMENT - ceilings

FIGURE: 18 D



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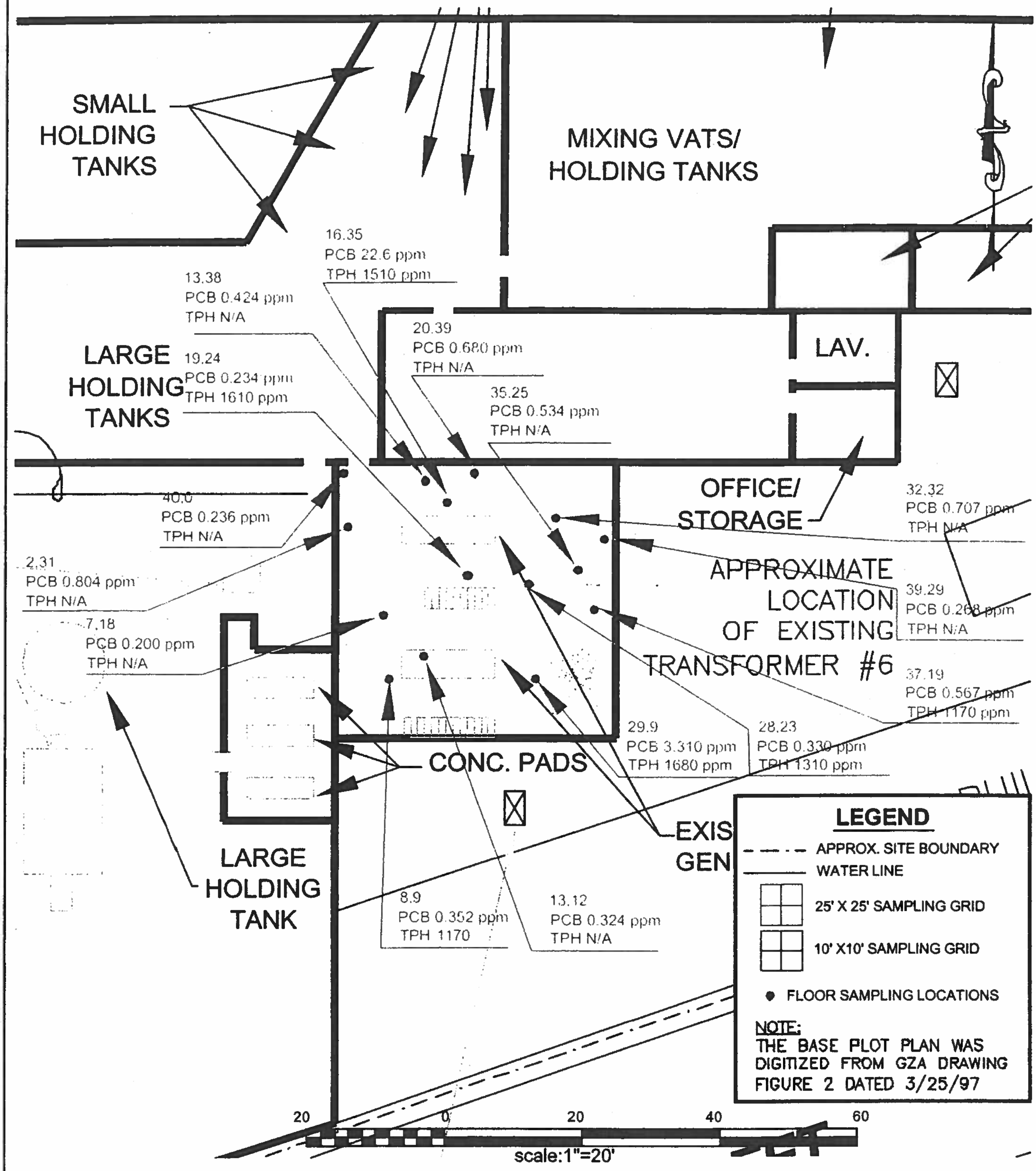
194 FORBES ROAD
BRAINTREE, MA 02184
PH:(781)356-7300 FAX:(781)356-2211

FILE No.: 104-00176-00-4b.dwg	SCALE: 1"=20'	SIZE A
DRAWN BY: PPH	CHECKED BY: RS	APPROVED BY: RS

CLIENT: North Amer. Site Developers	TITLE: SAMPLING LOCATIONS BUILDING #4 SUB-BASEMENT- floors
LOCATION: Former Oxford Paper Mill, Canal Street, Lawrence, MA	FIGURE: 18E
DATE: 5/17/01	
JOB NO.: 104-00176-00-000	

H:\CAD Files\104 Files\104-00176\104-00176-4b.dwg May 17,2001-10:31am



LFR

194 FORBES ROAD
BRAINTREE, MA 02184
PH:(781)356-7300 FAX:(781)356-2211

FILE No.: 104-00176-00-4b.dwg	SCALE: 1"=20'	SIZE A
DRAWN BY: PPH	CHECKED BY: RS	APPROVED BY: RS

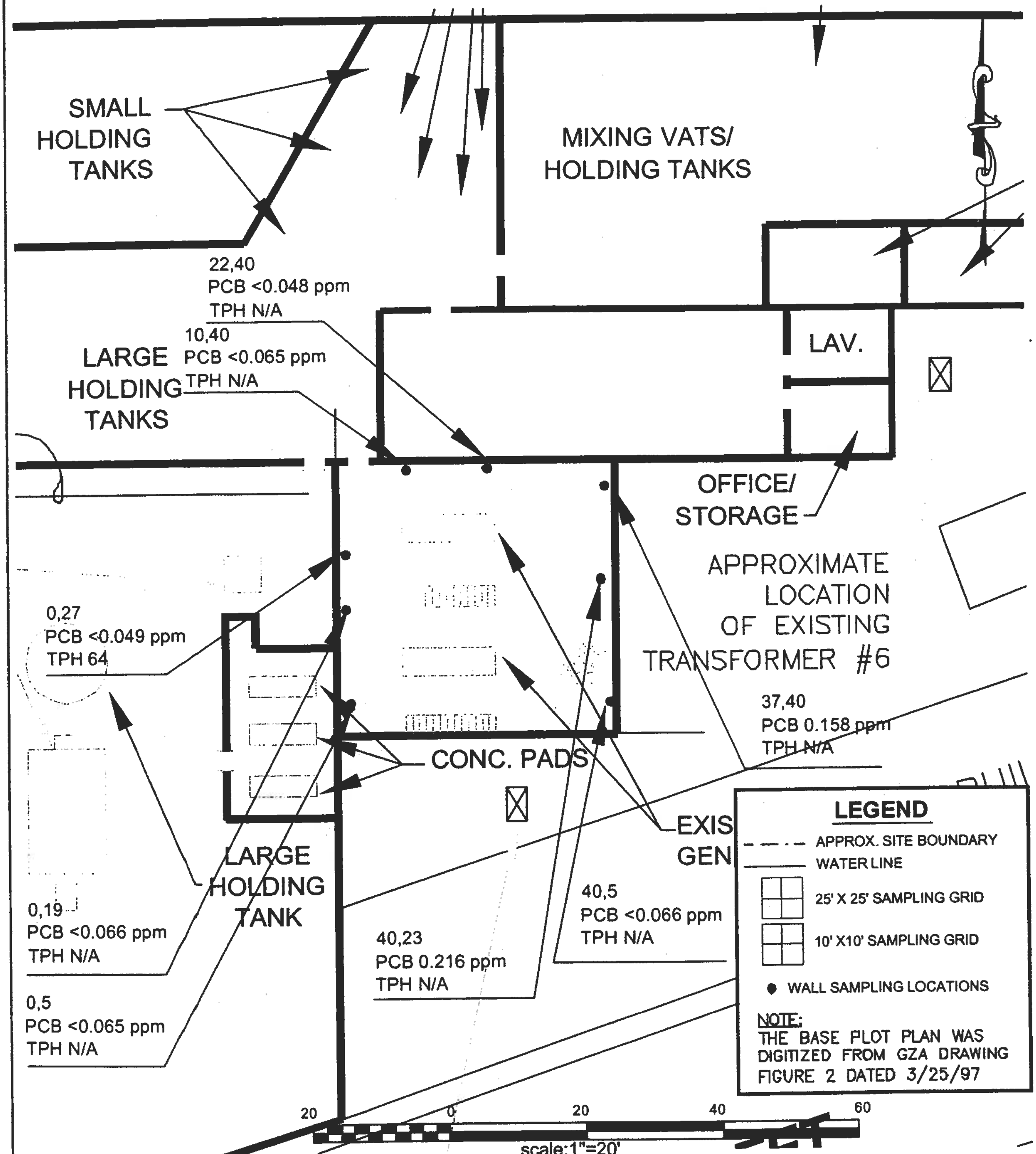
CLIENT: North Amer. Site Developers

LOCATION: Former Oxford Paper Mill
Canal Street
Lawrence, MA

DATE:	5/17/01
JOB NO.:	104-00176-00-000

TITLE: SAMPLING LOCATIONS
BUILDING #4
BASEMENT - FLOORS

FIGURE: 18 F



LFR
194 FORBES ROAD
BRAINTREE, MA 02184
PH:(781)356-7300 FAX:(781)356-2211

FILE No.: 104-00176-00-4b.dwg	SCALE: 1"=20'	SIZE A
DRAWN BY: PPH	CHECKED BY: RS	APPROVED BY: RS

CLIENT: North Amer. Site Developers

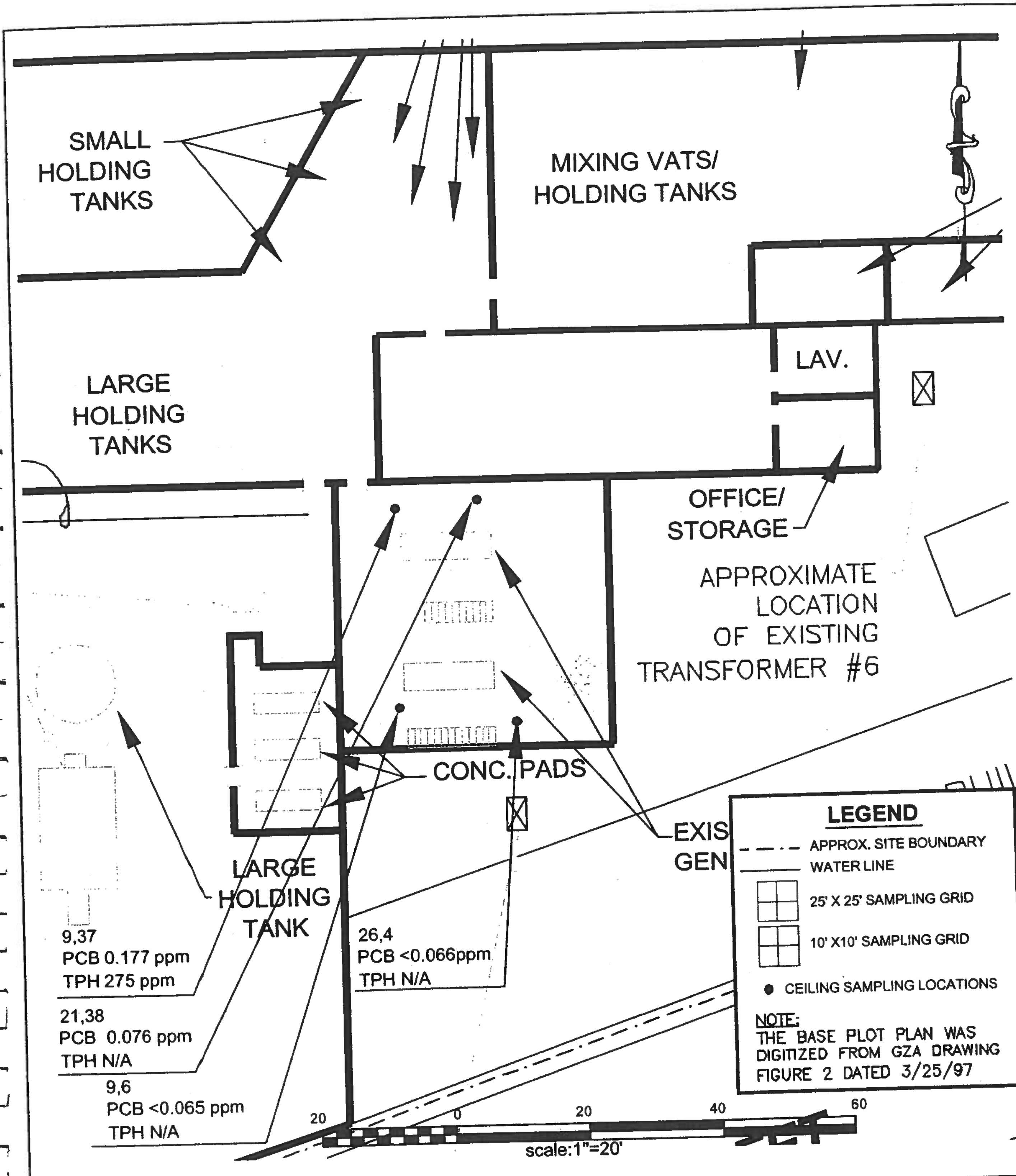
LOCATION: Former Oxford Paper Mill, Canal Street, Lawrence, MA

DATE: 5/17/01

JOB NO.: 104-00176-00-000

TITLE: SAMPLING LOCATIONS BUILDING # 4 BASEMENT - WALLS

FIGURE: 18G



LFR

194 FORBES ROAD
BRAINTREE, MA 02184
PH:(781)356-7300 FAX:(781)356-2211

FILE No.: 104-00176-00-4b.dwg	SCALE: 1"=20'	SIZE A
DRAWN BY: PPH	CHECKED BY: RS	APPROVED BY: RS

CLIENT: North Amer. Site Developers

LOCATION: Former Oxford Paper Mill
Canal Street
Lawrence, MA

DATE:	5/17/01
JOB NO.:	104-00176-00-000

TITLE: SAMPLING LOCATIONS
BUILDING #4
BASEMENT - CEILINGS

FIGURE: 18H

H:\CAD Files\104 Files\104-00176\104-00176-4b.dwg May 17,2001-10:27am

PROJECT NO. 103-00126 SHEET NO. 1 OF 1
PROJECT NAME OXFORD MILLS DEMO
CALCULATED BY DATE
CHECKED BY DATE
SCALE

Levine·Fricke·Recon
ENGINEERS, HYDROGEOLOGISTS & APPLIED SCIENTISTS
..4 FORBES ROAD, BRAINTREE, MA 02184
..LEPHONE: (781) 356-7300
..X: (781) 356-2211

BUILDING'S #5 & #13 FLOOR PLAN

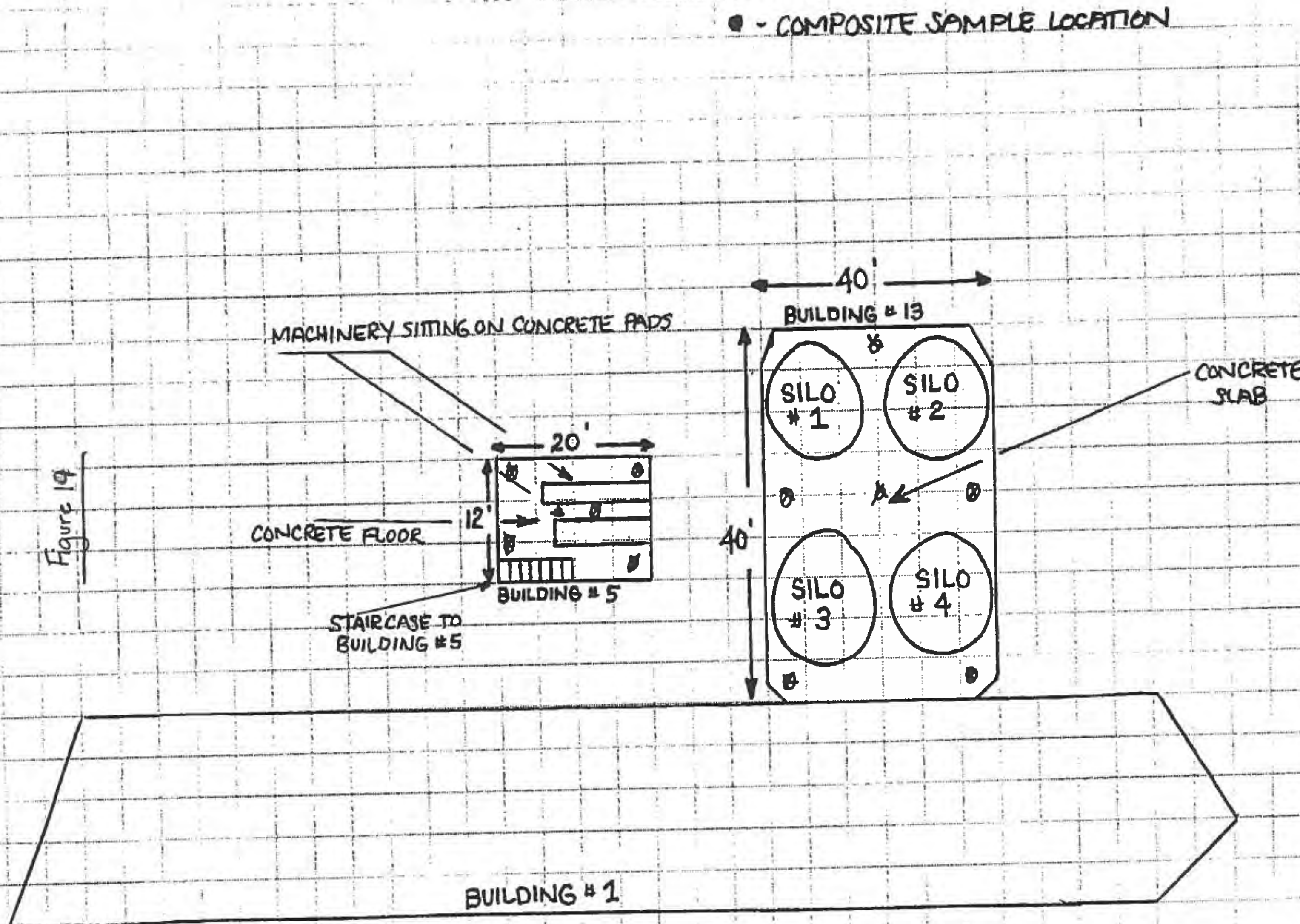
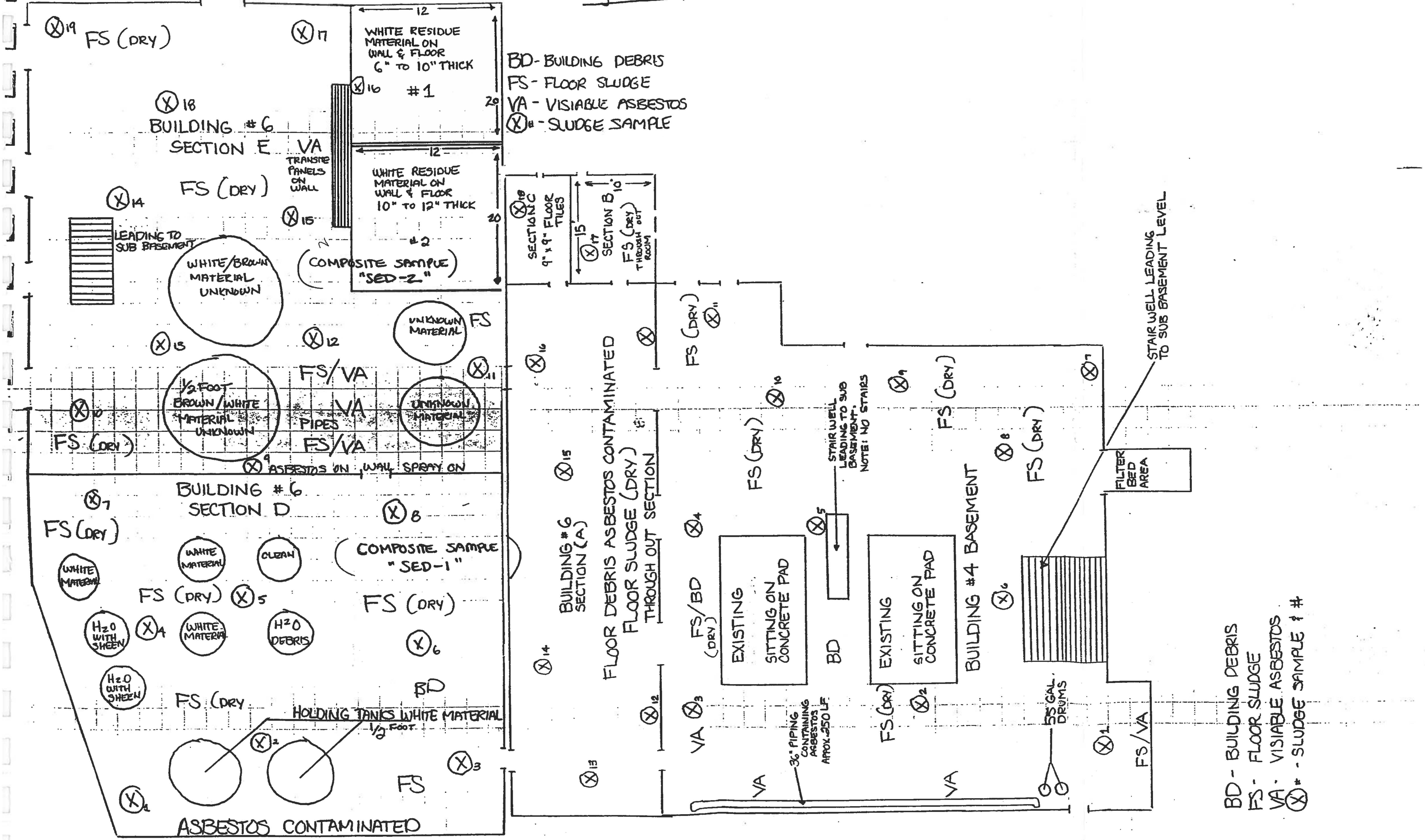
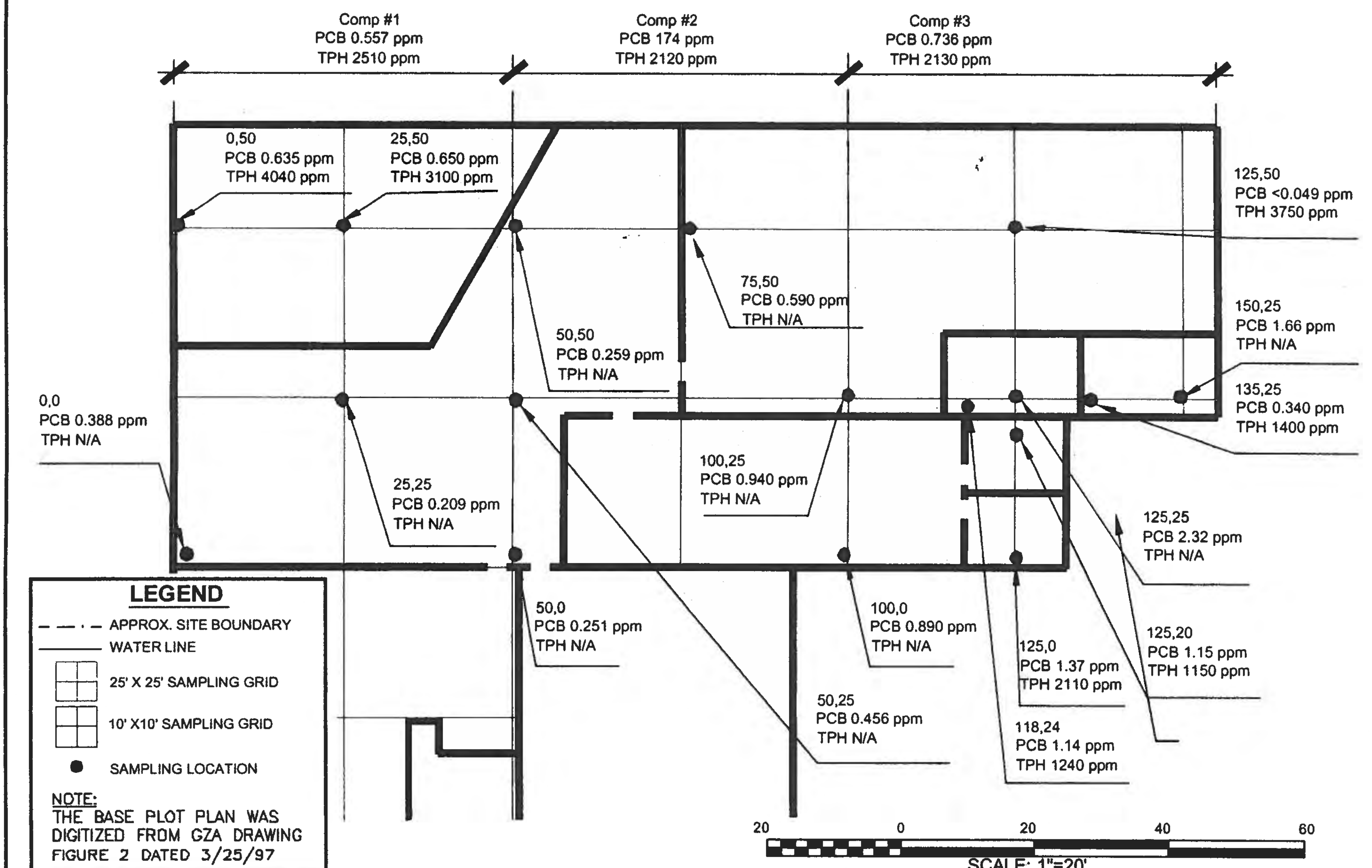


Figure 19

Figure 20A


BD - BUILDING DEBRIS
FS - FLOOR SLUDGE
VA - VISIABLE ASBESTOS
Ⓧ# - SLUDGE SAMPLE
WHITE RESIDUE MATERIAL ON WALL & FLOOR 6" TO 10" THICK
#1
WHITE RESIDUE MATERIAL ON WALL & FLOOR 10" TO 12" THICK
#2
COMPOSITE SAMPLE "SED-2"
BUILDING #6 SECTION E
VA TRANSITE PANELS ON WALL
FS (DRY)
LEADING TO SUB BASEMENT
WHITE/BROWN MATERIAL UNKNOWN
UNKNOWN MATERIAL
FS/VA
1/2 FOOT BROWN/WHITE MATERIAL UNKNOWN
VA PIPES
ASBESTOS ON WALL SPRAY ON
SECTION C 9" x 9" FLOOR TILES
SECTION B
FS (DRY) THROUGH OUT ROOM
BUILDING #6 SECTION D
COMPOSITE SAMPLE "SED-1"
WHITE MATERIAL
CLEAN
H2O WITH SHEEN
H2O DEBRIS
HOLDING TANKS WHITE MATERIAL 1/2 FOOT
ASBESTOS CONTAMINATED
BUILDING #6 SECTION (A)
FLOOR DEBRIS ASBESTOS CONTAMINATED FLOOR SLUDGE (DRY) THROUGH OUT SECTION
FS/BD
EXISTING SITTING ON CONCRETE PAD
STAIR WELL LEADING TO SUB BASEMENT. NOTE: NO STAIRS
BUILDING #4 BASEMENT
36" PIPING CONTAINING ASBESTOS APPROX. 250 LF
55 GAL. DRUMS
FILTER BED AREA
STAIR WELL LEADING TO SUB BASEMENT LEVEL
FS/VA
BD - BUILDING DEBRIS
FS - FLOOR SLUDGE
VA - VISIABLE ASBESTOS
Ⓧ# - SLUDGE SAMPLE #



LFR

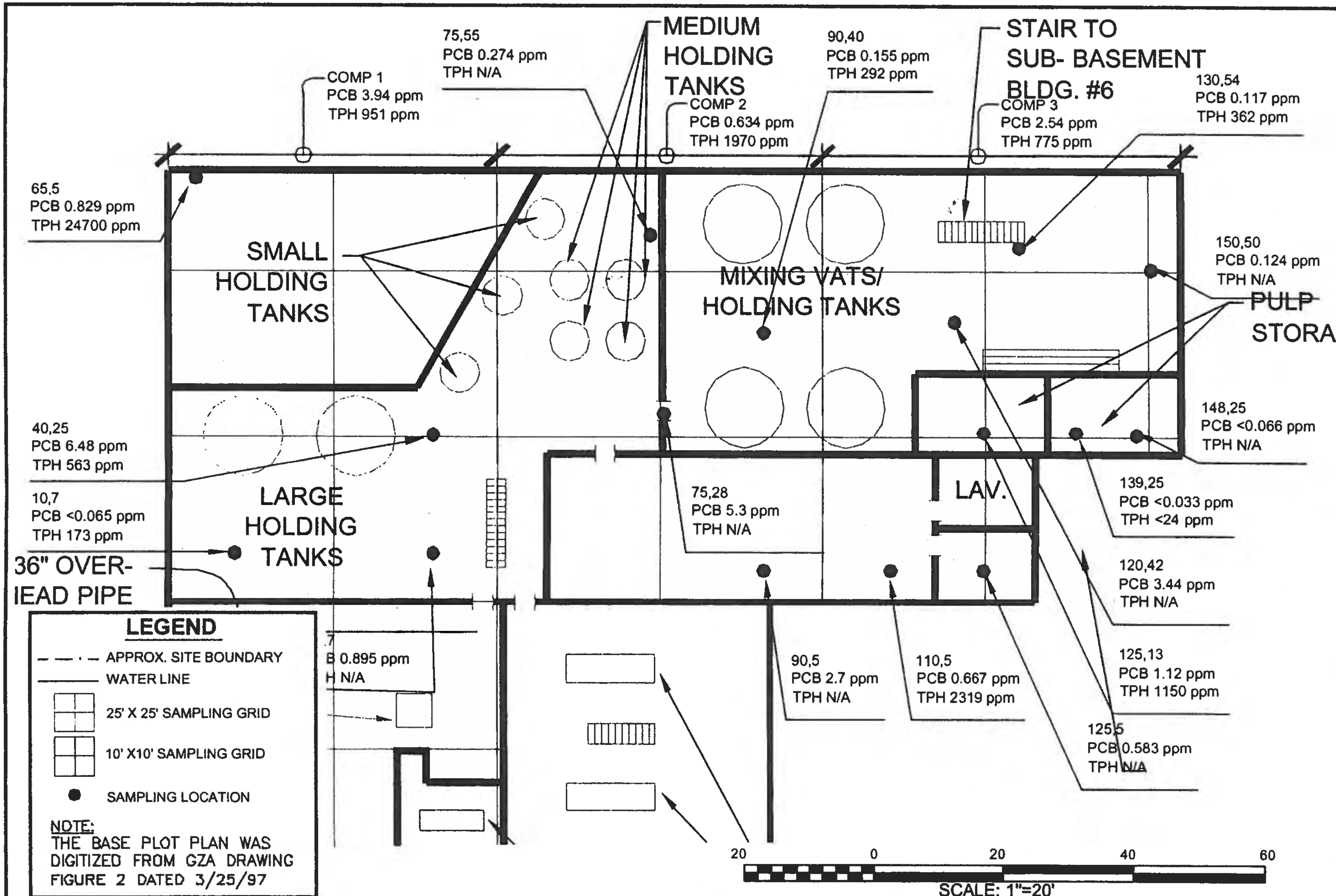
DATE: 5/16/01	SCALE: As Noted	DRAWN BY: PPH	CLIENT: North American Site Developers
JOB NO.: 104-00176		CHECKED BY: GS	SITE: Former Oxford Paper Mills, Canal Street, Lawrence, MA
		APPROVED BY: RS	

TITLE: Building 6 First Floor Sampling Locations Floors

FILE NO.: 104-00176-6

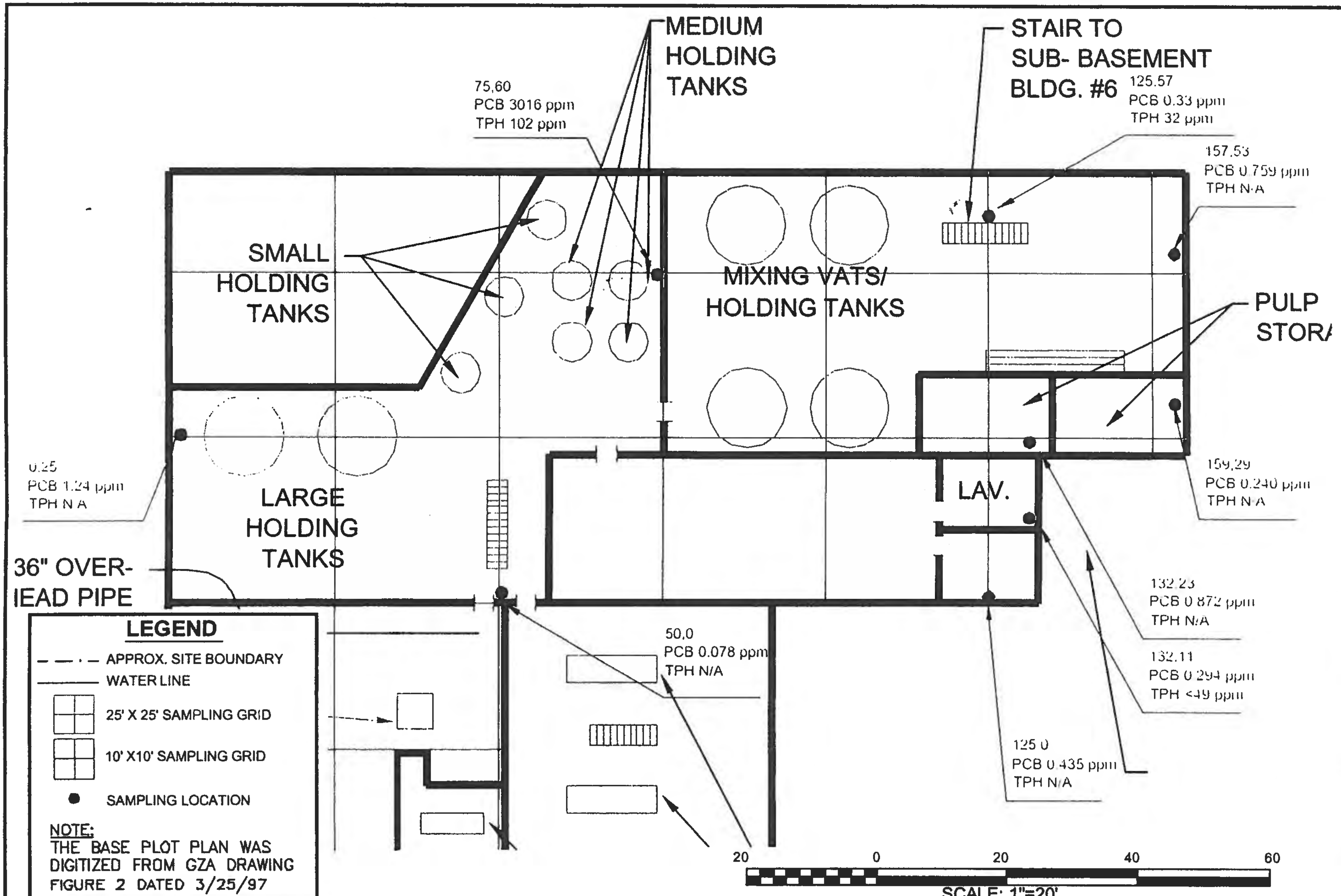
FIGURE: 20B

Jun 26,2001 - 3:30pm

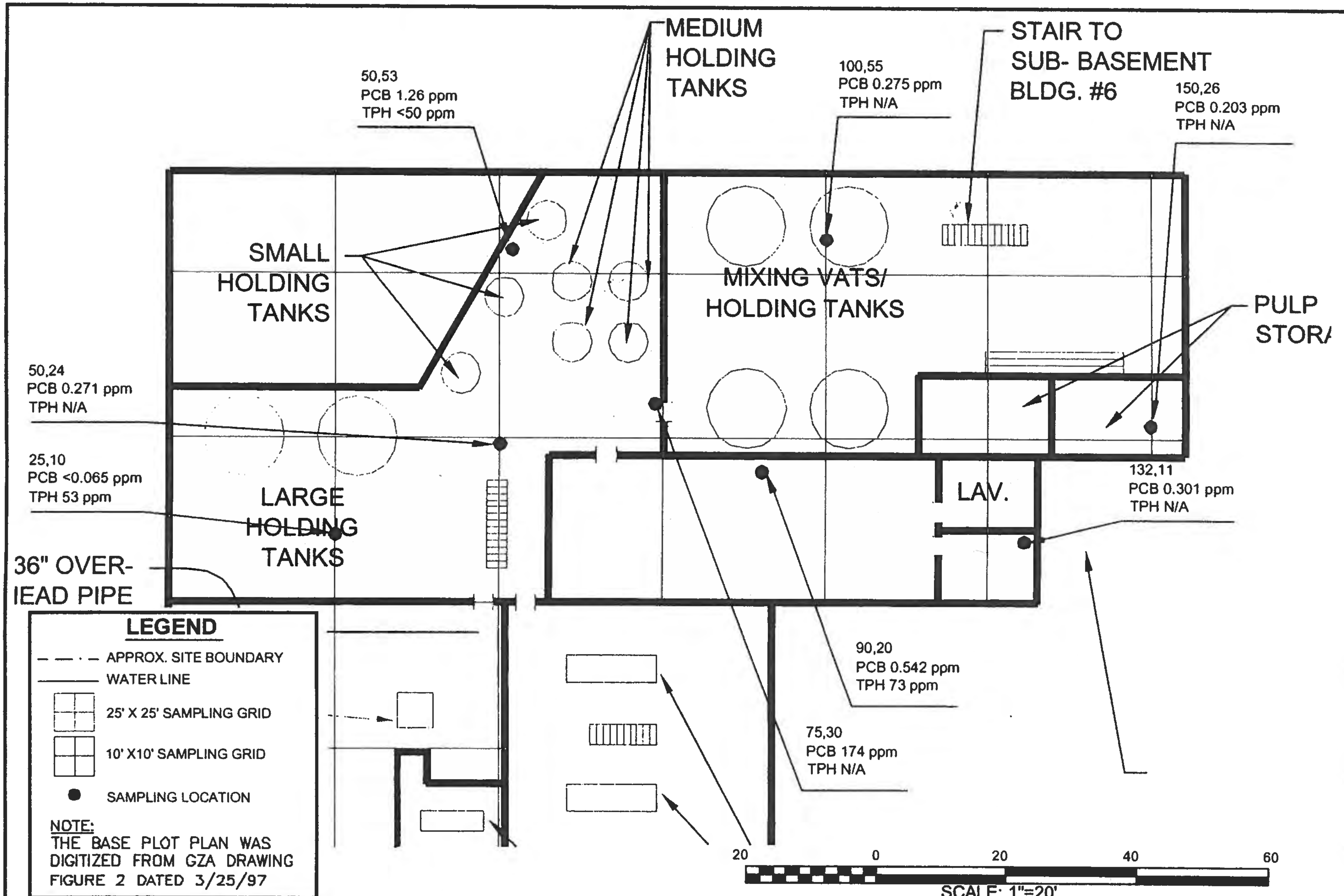


LFR	DRAWN BY: PPH	CLIENT: North American Site Developers	TITLE: Building 6 Basement Sampling Locations Floors
DATE: 5/16/01 SCALE: As Noted	CHECKED BY: GS	SITE: Former Oxford Paper Mills, Canal Street, Lawrence, MA	FIGURE: 20C
JOB NO.: 104—00176	APPROVED BY: RS		FILE NO.: 104—00176—6

H:\CAD Files\104 Files\104-00176\104-00176-6.dwg Jun 28,2001-3:31pm



LFR	DRAWN BY: PPH	CLIENT: North American Site Developers	TITLE: Building 6 Basement Sampling Locations Walls
DATE: 5/16/01 SCALE: As Noted	CHECKED BY: GS	SITE: Former Oxford Paper Mills, Canal Street, Lawrence, MA	FIGURE: 2oD
JOB NO.: 104-00176	APPROVED BY: RS		FILE NO.: 104-00176-6



LFR	DATE: 5/16/01	SCALE: As Noted
JOB NO.: 104-00176		

DRAWN BY:	PPH
CHECKED BY:	GS
APPROVED BY:	RS

CLIENT: North American Site Developers

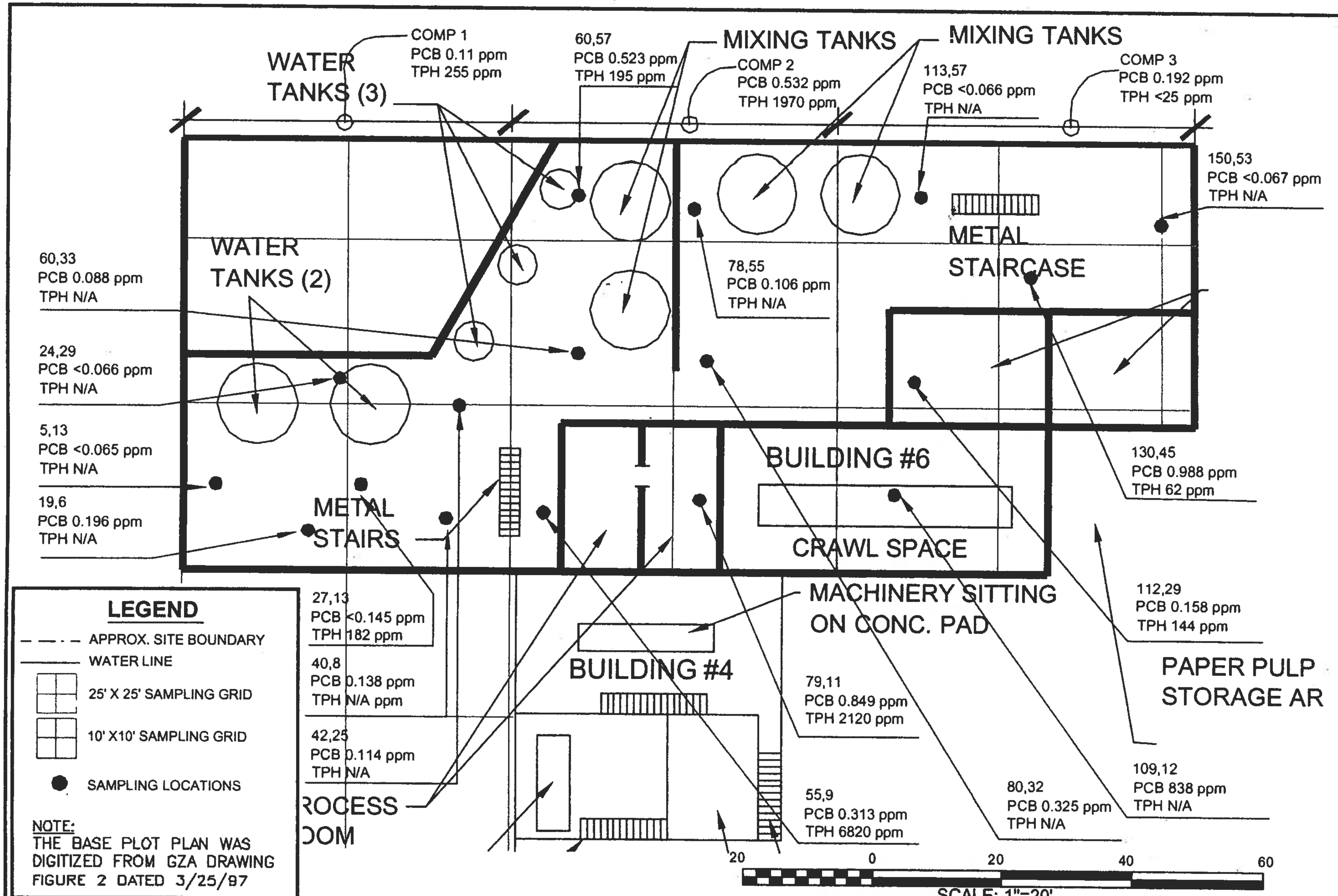
SITE: Former Oxford Paper Mills, Canal Street, Lawrence, MA

TITLE: Building 6 Basement Sampling Locations Ceilings

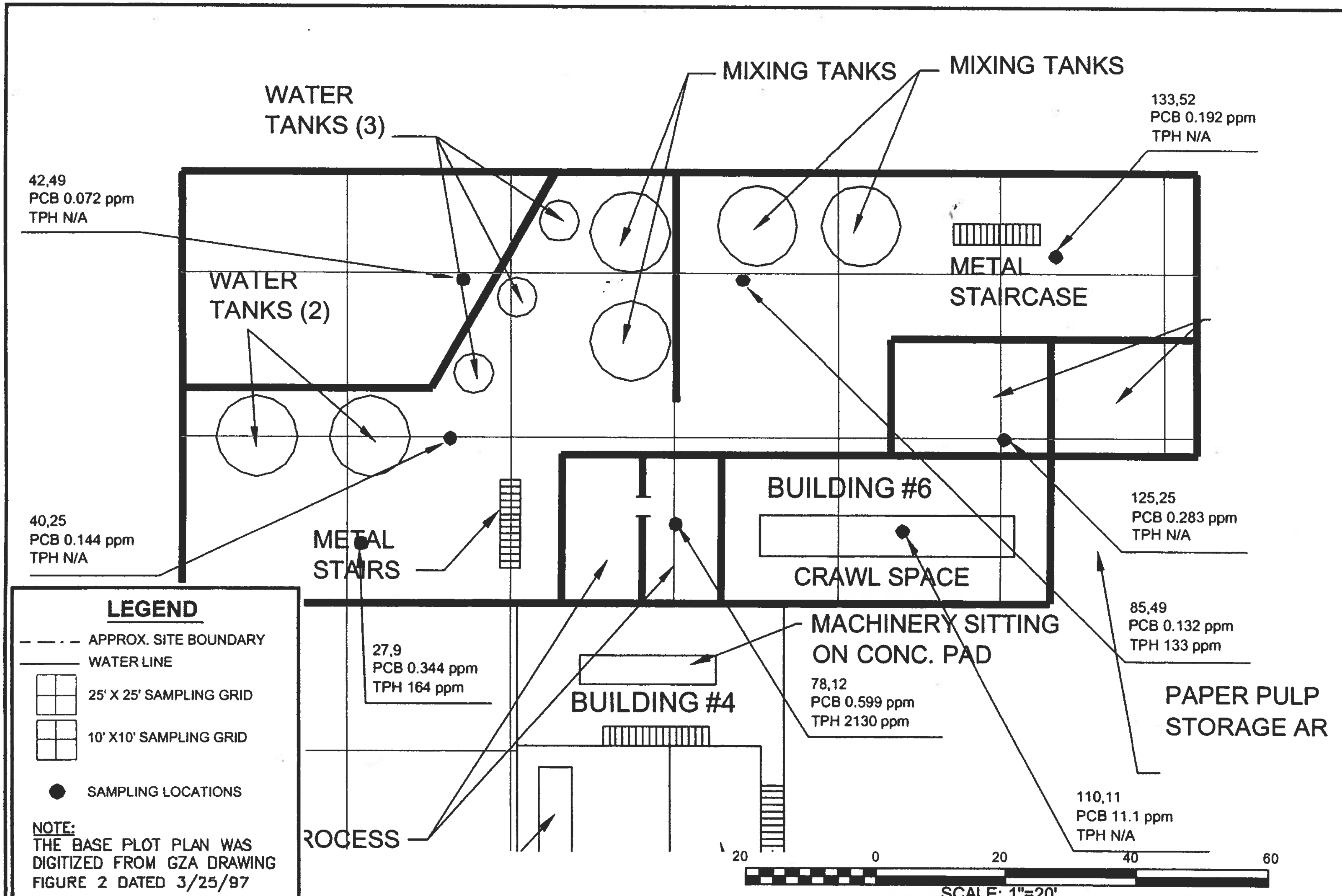
FILE NO.: 104-00176-6

FIGURE: 20E

H:\CAD Files\104 Files\104-00176\104-00176-6.dwg Jun 26,2001 — 3:12pm



LFR	DRAWN BY: PPH	CLIENT: North American Site Developers	TITLE: Building 6 Sub-Basement Sampling Locations Floor
DATE: 5/16/01	CHECKED BY: GS	SITE: Former Oxford Paper Mills, Canal Street, Lawrence, MA	FIGURE: 2 OF
SCALE: As Noted	APPROVED BY: RS		FILE NO.: 104-00176-6
JOB NO.: 104-00176			



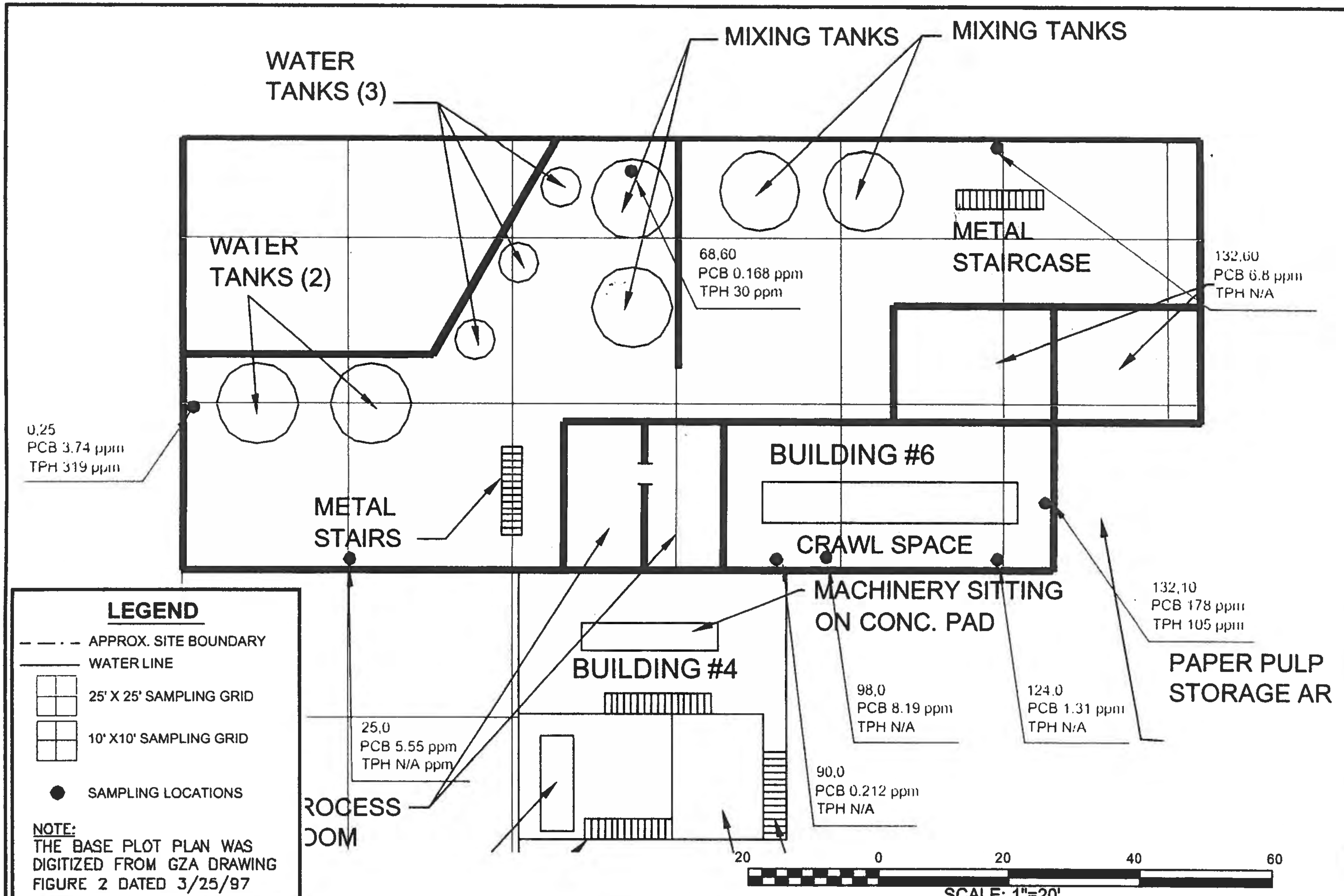
LFR

DATE: 5/16/01	SCALE: As Noted	DRAWN BY: PPH	CLIENT: North American Site Developers
JOB NO.: 104-00176		CHECKED BY: GS	SITE: Former Oxford Paper Mills, Canal Street, Lawrence, MA
		APPROVED BY: RS	

TITLE: Building 6 Sub-Basement Sampling Locations Ceilings

FIGURE: 20G

FILE NO.: 104-00176-6



LFR

DATE: 5/16/01 | SCALE: As Noted

JOB NO.: 104-00176

DRAWN BY: PPH
CHECKED BY: GS
APPROVED BY: RS

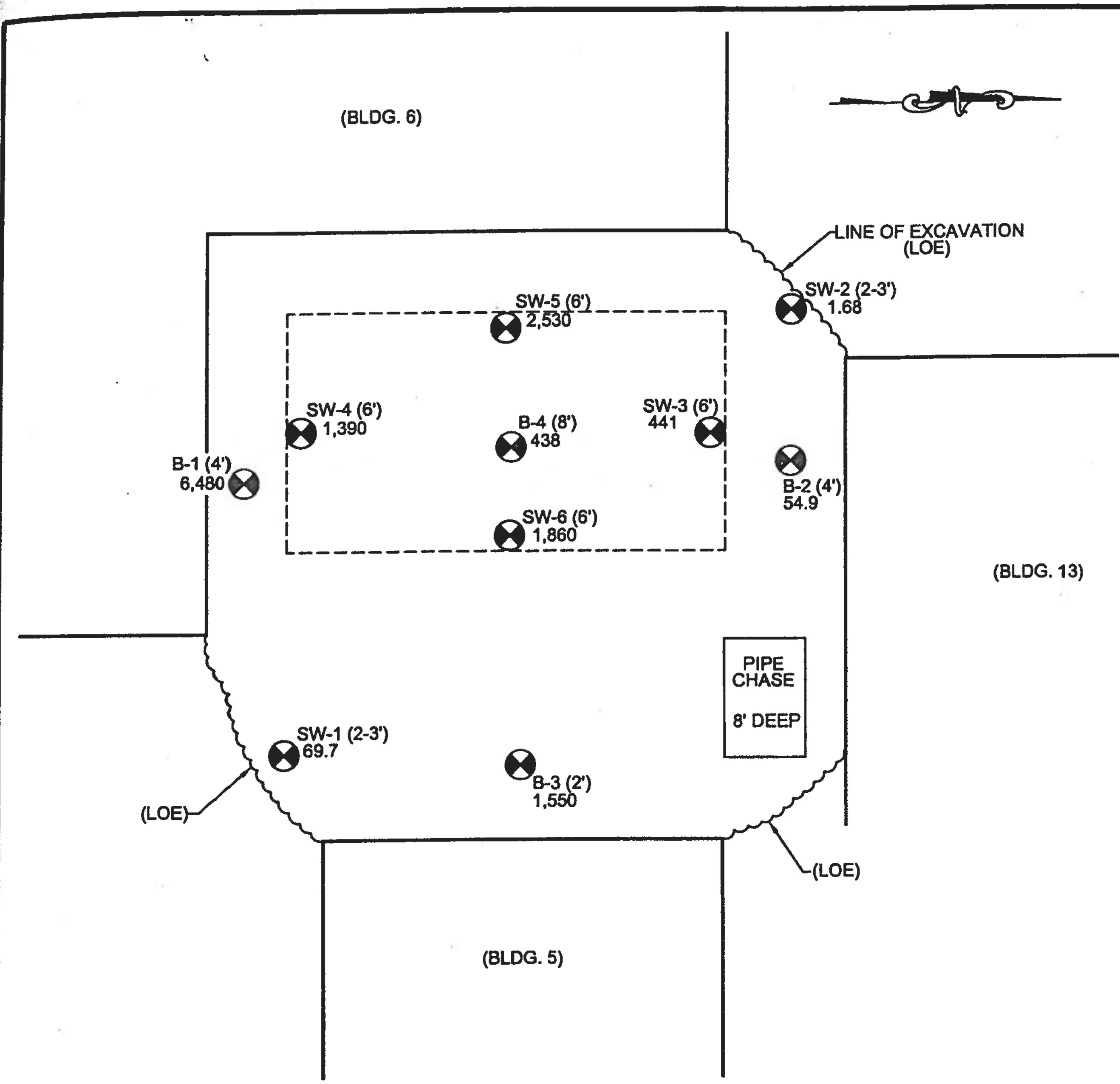
CLIENT: North American Site Developers

SITE: Former Oxford Paper Mills
Canal Street
Lawrence, MA

TITLE: Building 6
Sub-Basement Sampling Locations
Walls

FILE NO.: 104-00176-6

FIGURE: 20 H



LEGEND

- SW-6 (6') - SIDEWALL SAMPLE AT (DEPTH) 1,860 - PCB CONCRETE IN MG/KG
- B-3 (2') - BOTTOM SAMPLE AT (DEPTH) 1,550 - PCB CONCRETE IN MG/KG

Apr 20,2004-9:19am H:\CAD Files\103 Files\103-00126-00.dwg

LFR
194 Forbes Road
Braintree, Massachusetts 02184
Phone: (781) 356-7300
Fax: (781) 356-2211

DATE:	4/20/04
DRAWN BY:	C.T.
REVIEWED BY:	R.S.
APPROVED BY:	R.S.
SCALE:	N.T.S.
FILE NO:	103-00126-00
JOB NO:	103-00126-15

TITLE:
PCB IN SOIL SAMPLING RESULTS IN "TRANSFORMER NO. 6" AREA

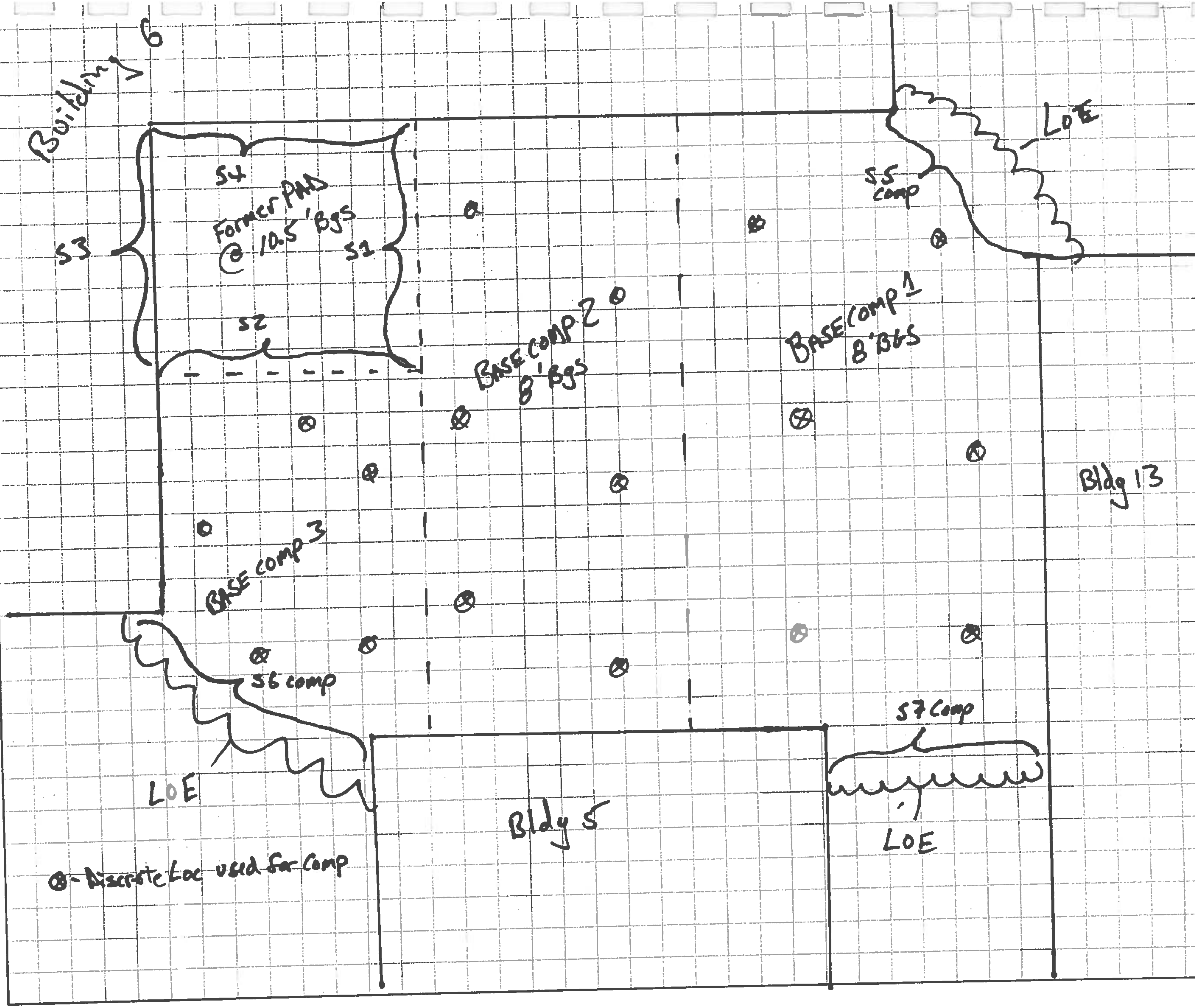
LOCATION:
OXFORD PAPER MILL
LAWRENCE, MASSACHUSETTS

FIGURE:
21

…OLFR
…INE • FRICKE
…4 FORBES ROAD, BRAINTREE, MA 02184
TELEPHONE: (781) 356-7300
…: (781) 356-2211

PROJECT NO. 010-00126-12 SHEET NO. 1 OF 1
PROJECT NAME Oxford Mills PCB Excavation 2
CALCULATED BY GS DATE 4 MAY 04
CHECKED BY DATE
SCALE NTS

Figure 22



TABLES

Table 3-1 - Monitoring Well Development Data for MW-2, MW-9, and MW-10 from the Transformer No. 6 / Courtyard Area Investigation

				MW-2 (March 2005)					
Time	Flow Rate (mL/min)	pH (SU)	DO (mg/L)	Conductivity (µS/cm)	Turbidity (NTU)	Salinity (%)	Temp (^0C)	Purge Volume (gallons)	Water Level (feet)
13:30	Black / gray silt								7.10
13:40	600	5.92	10.15	0.891	50	0.03	7.8		7.10
13:50	600	5.95	10.01	0.713	72	0.03	7.5	5.0	7.10
14:00	600	5.97	9.19	0.792	52	0.03	7.4	9.0	7.10
14:05	600	5.98	9.17	0.773	50	0.03	7.4	12	7.10
14:10	600	5.98	9.19	0.763	50	0.03	7.4	15	7.10

				MW-9 (March 2005)					
Time	Flow Rate (mL/min)	pH (SU)	DO (mg/L)	Conductivity (µS/cm)	Turbidity (NTU)	Salinity (%)	Temp (^0C)	Purge Volume (gallons)	Water Level (feet)
11:15	Dark Gray Silt - Pumped Dry								7.34
11:30	600	6.33	12.14	1.62	50	0.07	10.1	6.0	16.21
11:40	600	6.58	11.95	1.61	49	0.07	10.2	8.0	15.10
12:00	600	6.54	11.98	1.67	>1000	0.07	10.2	10	16.17
12:15	600	6.50	11.98	1.69	51	0.07	10.2	13	14.15
12:40								17	

				MW-10 (May 2005)					
Time	Flow Rate (mL/min)	pH (SU)	DO (mg/L)	Conductivity (µS/cm)	Turbidity (NTU)	Salinity (%)	Temp (^0C)	Purge Volume (gallons)	Water Level (feet)
13:15	Dark Gray Silt								17.91
13:30	600	6.67	2.97	1.16	-5.0	0.1	12.76	6.0	18.81
13:35	600	6.80	3.30	1.23	609	0.1	11.67	8.0	18.81
13:40	600	6.81	4.20	1.13	510	0.1	11.71	10	18.81
13:45	600	6.79	6.30	1.14	120	0.1	10.93	12	18.81
13:50	600	6.76	4.74	1.11	61	0.0	10.87	14	18.81
13:55	600	6.80	6.74	1.14	45	0.1	11.57	16	18.81
14:00	600	6.74	4.92	1.13	42	0.0	10.93	18	18.81

Table 3-1 Cont. - Monitoring Well Development Data for MW-11 from the Transformer No. 6 / Courtyard Area Investigation

				MW-11 (May 2005)					
Time	Flow Rate (mL/min)	pH (SU)	DO (mg/L)	Conductivity (µS/cm)	Turbidity (NTU)	Salinity (%)	Temp (^{0}C)	Purge Volume (gallons)	Water Level (feet)
12:00	Dark Gray Silt - Pumped Dry								11.18
12:10	600	6.14	13.17	1.18	-5.0	0.1	14.25	5.0	14.25
12:15	600	6.27	5.15	1.10	-5.0	0.0	12.73	7.0	14.98
12:20	600	6.35	6.04	0.911	-5.0	0.0	11.15	8.0	15.21
12:25	600	6.50	5.90	0.893	110	0.0	11.81	10	15.45
12:30	600	6.61	5.69	0.990	100	0.0	11.12	11	16.02
12:35	600	6.48	4.24	0.840	75	0.0	10.68	12	16.53
12:40	600	6.46	5.21	0.827	56	0.0	10.80	13	17.23
12:45	600	6.43	5.93	0.823	52	0.0	10.71	15	18.20

Table 3-2 - Monitoring Well Sampling Data for MW-2 from the Transformer No. 6 / Courtyard Area Investigation

				MW-2 (April 2005)					
Time	Volume (L)	Water Level (feet)	Temp (^{0}C)	Cond. (µS/cm)	DO (mg/L)	pH (SU)	Sp. Cond. (µS/cm)	ORP (mV)	Flow Rate (L/min)
10:20		7.56	Started Purging - Water is Clear						
10:25	1.0	7.62	12.37	0.806	1.55	6.55	1.059	-204.2	0.20
10:30	1.0	7.62	12.13	0.785	1.75	6.54	1.033	-182.7	0.20
10:35	1.0	7.62	12.34	0.692	2.30	6.46	0.914	-125.1	0.20
10:40	1.0	7.62	11.37	0.604	3.45	6.36	0.817	-74.1	0.20
10:45	1.0	7.62	11.40	0.594	3.54	6.33	0.802	-67.3	0.20
10:50	1.0	7.62	11.34	0.566	3.82	6.28	0.763	-53.4	0.20
10:55	1.0	7.62	11.49	0.557	4.31	6.27	0.750	-41.9	0.20
11:00	1.0	7.62	11.53	0.552	4.40	6.26	0.742	-38.5	0.20
11:05	1.0	7.62	11.49	0.544	4.47	6.23	0.733	-30.6	0.20
11:10	1.0	7.62	11.46	0.540	4.54	6.21	0.727	-24.2	0.20
11:15	1.0	7.62	11.51	0.537	4.55	6.20	0.722	-17.9	0.20
11:20	1.0	7.62	11.52	0.531	4.61	6.17	0.712	-11.0	0.20
11:25	1.0	7.62	11.49	0.527	4.67	6.17	0.712	-4.2	0.20
11:30	1.0	7.62	11.27	0.522	4.74	6.16	0.707	1.1	0.20
11:35	1.0	7.62	11.14	0.519	4.75	6.16	0.706	5.7	0.20
11:40	1.0	7.62	11.24	0.520	4.72	6.16	0.705	8.1	0.20
11:45	1.0	7.62	11.27	0.522	4.70	6.16	0.703	10.2	0.20
11:50	1.0	7.62	11.28	0.522	4.69	6.16	0.702	11.9	0.20

Table 3-2 Cont. - Monitoring Well Sampling Data for MW-9 from the Transformer No. 6 / Courtyard Area Investigation

				MW-9 (April 2005)					
Time	Volume (L)	Water Level (feet)	Temp (^{0}C)	Cond. (µS/cm)	DO (mg/L)	pH (SU)	Sp. Cond. (µS/cm)	ORP (mV)	Flow Rate (L/min)
12:55		7.34	Started Purging - Water is Clear						
13:00	1.0	8.72	14.48	0.633	0.34	6.67	0.795	5.1	0.20
13:05	1.0	8.82	14.16	0.641	0.32	6.68	0.808	-46.6	0.20
13:10	1.0	8.75	14.80	0.670	0.34	6.65	0.827	-100.1	0.20
13:15	1.0	8.72	15.12	0.675	0.33	6.63	0.830	-131.6	0.20
13:20	1.0	8.70	15.01	0.670	0.34	6.62	0.827	-156.9	0.20
13:25	1.0	8.70	15.05	0.679	0.35	6.56	0.839	-175.2	0.20
13:30	1.0	8.85	14.09	0.665	0.36	6.54	0.840	-194.1	0.20
13:35	1.0	8.95	14.01	0.669	0.37	6.52	0.846	-209.9	0.20
13:40	1.0	8.97	13.91	0.663	0.37	6.54	0.840	-218.6	0.20
13:45	1.0	9.05	13.42	0.657	0.36	6.54	0.843	-223.1	0.20
13:50	1.0	8.97	14.64	0.679	0.38	6.54	0.846	-229.5	0.20
13:55	1.0	8.92	14.46	0.671	0.36	6.56	0.836	-235.3	0.20
14:00	1.0	8.90	14.48	0.673	0.36	6.55	0.841	-241.6	0.20
14:05	1.0	8.82	14.50	0.675	0.36	6.56	0.842	-246.9	0.20

Table 3-2 Cont. - Monitoring Well Sampling Data for MW-10 from the Transformer No. 6 / Courtyard Area Investigation

				MW-10 (May 2005)					
Time	Volume (L)	Water Level (feet)	Temp (^{0}C)	Cond. (µS/cm)	DO (mg/L)	pH (SU)	Sp. Cond. (µS/cm)	ORP (mV)	Flow Rate (L/min)
10:15		18.27	Started Purging - Water is Dark in Color						
10:20	1.5	18.72	12.28	1.151	0.87	6.58	1.521	-468.2	0.20
10:25	1.0	18.72	12.02	1.149	1.52	6.58	1.526	-483.7	0.20
10:30	1.0	18.72	12.05	1.153	1.51	6.59	1.532	-478.2	0.20
10:35	1.0	18.72	12.25	1.157	1.59	6.60	1.546	-472.5	0.20
10:40	1.0	18.72	12.18	1.161	1.71	6.61	1.538	-448.1	0.20
10:45	1.0	18.70	12.12	1.157	1.76	6.61	1.536	-435.4	0.20
10:50	1.0	18.70	12.18	1.161	1.72	6.61	1.535	-461.0	0.20
10:55	1.0	18.70	12.03	1.152	1.66	6.61	1.532	-453.1	0.20
11:00	1.0	18.70	12.36	1.164	0.92	6.62	1.539	-442.3	0.20
11:05	1.0	18.70	12.27	1.156	0.79	6.61	1.528	-427.8	0.20
11:10	1.0	18.70	12.30	1.159	0.76	6.61	1.530	-438.7	0.20
11:15	1.0	18.70	12.42	1.158	0.98	6.61	1.523	-432.8	0.20
11:20	1.0	18.70	12.44	1.156	2.10	6.61	1.532	-432.7	0.20
11:25	1.0	18.70	12.30	1.152	1.03	6.61	1.528	-461.4	0.20
11:30	1.0	18.70	12.35	1.150	1.01	6.61	1.529	-465.2	0.20
11:35	1.0	18.70	12.37	1.147	1.01	6.61	1.527	-468.9	0.20

Table 3-2 Cont. - Monitoring Well Sampling Data for MW-11 from the Transformer No. 6 / Courtyard Area Investigation

				MW-11 (May 2005)					
Time	Volume (L)	Water Level (feet)	Temp (^{0}C)	Cond. (µS/cm)	DO (mg/L)	pH (SU)	Sp. Cond. (µS/cm)	ORP (mV)	Flow Rate (L/min)
7:55		11.38	Started Purging - Water is Clear						
8:00	1.5	11.57	10.70	0.852	1.75	5.98	1.173	-312.9	0.20
8:05	1.0	11.57	10.69	0.849	1.59	5.96	1.172	-345.2	0.20
8:10	1.0	11.57	10.66	0.845	1.35	5.96	1.163	-255.7	0.20
8:15	1.0	11.59	10.68	0.845	1.08	5.96	1.163	-259.1	0.20
8:20	1.0	11.60	10.69	0.841	0.52	5.95	1.159	-263.4	0.20
8:25	1.0	11.60	10.75	0.844	0.55	5.95	1.155	-248.0	0.20
8:30	1.0	11.60	10.76	0.844	1.30	5.95	1.160	-267.1	0.20
8:35	1.0	11.62	10.71	0.841	0.54	5.95	1.154	-311.2	0.20
8:40	1.0	11.62	10.76	0.844	0.41	5.94	1.158	-427.8	0.20
8:45	1.0	11.62	10.70	0.843	0.38	5.94	1.159	-427.1	0.20
8:50	1.0	11.62	10.68	0.837	0.49	5.94	1.155	-416.5	0.20
8:55	1.0	11.62	10.79	0.838	0.24	5.93	1.152	-373.1	0.20
9:00	1.0	11.62	10.81	0.837	0.26	5.93	1.150	-381.2	0.20
9:05	1.0	11.62	10.80	0.835	0.25	5.93	1.148	-385.9	0.20

TABLE 3-3 - Survey Data and Groundwater Elevations from Gauging Rounds - July 1 and July 20, 2005

Survey Data:

Location	Northing	Easting	Grade @ 100' Ref	Corrected to Ref = 45' (1)	Depth below 45' Ref.
			(ft.)	(ft.)	(ft.)
MW-10	3083061.3	750593.084	86.4	31.4	13.6
MW-11	3083075.642	750566.521	79.6	24.6	20.4
MW-2	3083054.368	750560.049	75.87	20.87	24.13
MW-9	3083044.631	750566.767	76.44	21.44	23.56
SB-1	3083061.34	750543.226	80.2	25.2	19.8
SB-12	3083071.355	750557.054	79.1	24.1	20.9
SB-13	3083056.988	750546.884	79.9	24.9	20.1
SB-2	3083060.466	750560.941	76.8	21.8	23.2
SB-4	3083051.491	750570.958	76.7	21.7	23.3
SB-6	3083063.976	750569.837	77.5	22.5	22.5
SB-7	3083047.989	750561.504	76.3	21.3	23.7
SB-8	3083058.637	750566.872	77	22	23

(1) - Assumes Street Elevation not significantly different in elevation

Groundwater Elevation (ft) Data:

	July 1, 2005	July 20, 2005
MW-10	71.01	69.73
MW-11	74.69	69.81
MW-2	74.73	69.95
MW-9	74.84	70.05

TABLE 5-1 - Oxford Paper Mill South Side Soil Analytical Data Summary (Sub-Basement and Transformer #6 / Courtyard Area)
City of Lawrence - 21 Canal Street
RTN 3-2691

Building No. 1

Sample ID	B-1-1		B-1-1 DUP		B-1-2		B-1-3		B-1-4		B-1-4 DUP		B-1-5		B-1-5		B-1-6		B-1-7	
	(0-0.5')		(0-0.5')		(0-0.5')		(0-0.5')		(0-0.5')		(0-0.5')		(0-0.5')		(0-2')		(0-2')		(0-0.5')	
Date Sampled	8/9/01		8/9/01		8/9/01		8/9/01		8/9/01		8/9/01		8/9/01		8/9/01		8/9/01		8/9/01	
Sampling Company	S&W		S&W		S&W		S&W		S&W		S&W		S&W		S&W		S&W		S&W	
Analytes	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL
Metals																				
Arsenic	5.2		5.8		NT		2.3		8.0		NT		11		NT		NT		6.2	
Barium	19		19		NT		30		43		NT		67		NT		NT		120	
Beryllium	0.3U	0.30	0.3U	0.30	NT		0.2U	0.20	0.29		NT		0.2U	0.20	NT		NT		0.2U	0.20
Cadmium	0.3U	0.30	0.3U	0.30	NT		0.2U	0.20	0.2U	0.20	NT		0.2U	0.20	NT		NT		0.2U	0.20
Chromium	12		13		NT		21		12		NT		32		NT		NT		25	
Lead	5.2		5.5		NT		12		58		NT		11		NT		NT		30	
Selenium	1U	1.0	1U	1.0	NT		1U	1.0	1U	1.0	NT		1U	1.0	NT		NT		1U	1.0
Silver	1U	1.0	1U	1.0	NT		1U	1.0	1.2		NT		1U	1.0	NT		NT		3.3	
Zinc	24		26		NT		44		94		NT		38		NT		NT		45	
Mercury	0.06U	0.06	0.06U	0.06	NT		0.05U	0.05	0.068		NT		0.049		NT		NT		0.078	
Polychlorinated Biphenyls - PCBs																				
Aroclor-1016	U	0.130	U	0.130	U	0.110	U	0.110	U	0.110	U	0.100	NT		U	0.110	U	0.110	U	0.110
Aroclor-1248	U	0.130	U	0.130	U	0.110	U	0.110	U	0.110	U	0.100	NT		U	0.110	U	0.110	U	0.110
Aroclor-1254	U	0.130	U	0.130	U	0.110	U	0.110	U	0.110	U	0.100	NT		U	0.110	U	0.110	U	0.110
Aroclor-1260	U	0.130	U	0.130	U	0.110	U	0.110	U	0.110	U	0.100	NT		U	0.110	U	0.110	U	0.110
Pesticides																				
beta-BHC	U	0.013	U	0.013	NT		U	0.011	U	0.011	NT		U	0.011	NT		NT		U	0.011
Volatile Organic Compounds - VOCs																				
Acetone	U	0.050	NT		NT		U	2.8	NT		NT		U	2.8	NT		NT		NT	
Benzene	0.0051	0.0025	NT		NT		U	0.140	NT		NT		U	0.140	NT		NT		NT	
Chloroform	U	0.0025	NT		NT		U	0.140	NT		NT		U	0.140	NT		NT		NT	
Ethylbenzene	U	0.0025	NT		NT		U	0.140	NT		NT		U	0.140	NT		NT		NT	
Trichloroethene (TCE)	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Polyaromatic Hydrocarbons (PAH)																				
Acenaphthene	U	0.440	U	0.440	NT		U	0.410	U	0.370	NT		U	0.360	NT		NT		U	0.370
Anthracene	U	0.440	U	0.440	NT		U	0.410	U	0.370	NT		U	0.360	NT		NT		U	0.370
Benzo(a)anthracene	U	0.440	U	0.440	NT		U	0.410	U	0.370	NT		U	0.360	NT		NT		0.26	0.370
Benzo(b)fluoranthene	U	0.440	U	0.440	NT		U	0.410	U	0.370	NT		U	0.360	NT		NT		0.37	0.370
Benzo(k)fluoranthene	U	0.440	U	0.440	NT		U	0.410	U	0.370	NT		U	0.360	NT		NT		U	0.370
Benzo(g,h,i)perylene	U	0.440	U	0.440	NT		U	0.410	U	0.370	NT		U	0.360	NT		NT		U	0.370
Benzo(a)pyrene	U	0.440	U	0.440	NT		U	0.410	U	0.370	NT		U	0.360	NT		NT		0.23	0.370
Chrysene	U	0.440	U	0.440	NT		U	0.410	U	0.370	NT		U	0.360	NT		NT		0.26	0.370
Dibenzo(a,h)anthracene	U	0.440	U	0.440	NT		U	0.410	U	0.370	NT		U	0.360	NT		NT		U	0.370
Fluoranthene	U	0.440	U	0.440	NT		U	0.410	U	0.370	NT		U	0.360	NT		NT		0.46	0.370
Indeno(1,2,3-cd)pyrene	U	0.440	U	0.440	NT		U	0.410	U	0.370	NT		U	0.360	NT		NT		U	0.370
Naphthalene	U	0.440	U	0.440	NT		U	0.410	U	0.370	NT		U	0.360	NT		NT		U	0.370
Phenanthrene	U	0.440	U	0.440	NT		U	0.410	U	0.370	NT		U	0.360	NT		NT		0.26	0.370
Pyrene	U	0.440	U	0.440	NT		U	0.410	U	0.370	NT		U	0.360	NT		NT		0.37	0.370
Extractable Petroleum Hydrocarbons (EPH)																				
C_9-C_{18} Aliphatics Hydrocarbons	U	4.3	U	4.4	U	4.1	U	3.7	U	3.6	U	3.6	NT		U	3.8	U	3.7	U	3.6
C_{19}-C_{36} Aliphatics Hydrocarbons	U	4.3	U	4.4	93	4.1	U	3.7	U	3.6	U	3.6	NT		U	3.8	U	3.7	U	3.6
C_{11}-C_{22} Aromatics Hydrocarbons	U	4.3	U	4.4	62	4.1	U	3.7	9.1	3.6	6.0	3.6	NT		U	3.8	U	3.7	7.4	3.6
Acenaphthene	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	NT		U	0.4	U	0.4	U	0.4
Acenaphthylene	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	NT		U	0.4	U	0.4	U	0.4
Anthracene	U	0.4	U	0.4	0.46	0.4	U	0.4	U	0.4	U	0.4	NT		U	0.4	U	0.4	U	0.4
Benzo(a)anthracene	U	0.4	U	0.4	1.3	0.4	U	0.4	U	0.4	U	0.4	NT		U	0.4	U	0.4	U	0.4
Benzo(a)pyrene	U	0.4	U	0.4	1.7	0.4	U	0.4	U	0.4	U	0.4	NT		U	0.4	U	0.4	U	0.4
Benzo(b)fluoranthene	U	0.4	U	0.4	1.9	0.4	U	0.4	U	0.4	U	0.4	NT		U	0.4	U	0.4	U	0.4
Benzo(g,h,i)perylene	U	0.4	U	0.4	1.1	0.4	U	0.4	U	0.4	U	0.4	NT		U	0.4	U	0.4	U	0.4
Benzo(k)fluoranthene	U	0.4	U	0.4	0.79	0.4	U	0.4	U	0.4	U	0.4	NT		U	0.4	U	0.4	U	0.4
Chrysene	U	0.4	U	0.4	1.3	0.4	U	0.4	U	0.4	U	0.4	NT		U	0.4	U	0.4	U	0.4
Dibenzo(a,h)anthracene	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	NT		U	0.4	U	0.4	U	0.4
Fluoranthene	U	0.4	U	0.4	2.4	0.4	U	0.4	U	0.4	U	0.4	NT		U	0.4	U	0.4	U	0.4
Fluorene	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	NT		U	0.4	U	0.4	U	0.4
Indeno(1,2,3-cd)pyrene	U	0.4	U	0.4	0.93	0.4	U	0.4	U	0.4	U	0.4	NT		U	0.4	U	0.4	U	0.4
2-Methylnaphthalene	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	NT		U	0.4	U	0.4	U	0.4
Naphthalene	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	NT		U	0.4	U	0.4	U	0.4
Phenanthrene	U	0.4	U	0.4	0.44	0.4	U	0.4	U	0.4	U	0.4	NT		U	0.4	U	0.4	U	0.4
Pyrene	U	0.4	U	0.4	2.4	0.4	U	0.4	U	0.4	U	0.4	NT		U	0.4	U	0.4	U	0.4

Building No. 2 / Building No. 2 - Confirmatory Sampling (TP2-1, TP2-2, TP2-3)

Sample ID	B-2-1		B-2-2		B-2-3		B-2-4		B-2-5		B-2-6		B-2-6		B-2-6		B-2-7		B-2-7		B-2-8		TP2-1		TP2-2		TP2-3	
	(0-0.5')		(0-0.5')		(0-0.5')		(0-0.5')		(0-2')		(0-2')		(2-4')		(4-4.5')		(0-0.5')		(0-2')		(0-0.5')		(5' bgs)		(4' bgs)		(4' bgs)	
Date Sampled	6/18/01		6/18/01		6/18/01		6/18/01		6/18/01		6/18/01		6/18/01		6/18/01		6/18/01		6/18/01		6/18/01		3/8/04		3/8/04		3/8/04	
Sampling Company	S&W		S&W		S&W		S&W		S&W		S&W		S&W		S&W		S&W		S&W		S&W		S&W		S&W		S&W	
Analytes	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL
Metals																												
Arsenic	7.5		NT		NT		5.1		NT		4.5		NT		NT		12		NT		NT		NT		NT		NT	
Barium	49		NT		NT		44		NT		44		NT		NT		65		NT		NT		NT		NT		NT	
Beryllium	0.3		NT		NT		0.45		NT		0.21		NT		NT		0.59		NT		NT		NT		NT		NT	
Cadmium	0.26		NT		NT		0.43		NT		3.0		NT		NT		0.39		NT		NT		NT		NT		NT	
Chromium	28		NT		NT		13		NT		7.7		NT		NT		33		NT		NT		NT		NT		NT	
Lead	30		NT		NT		59		NT		2100		1500		2700		500		NT		NT		98	1.4	130	1.4	21	1.2
Selenium	2.2		NT		NT		1U	1.0	NT		1U	1.0	NT		NT		1U	1.0	NT		NT		NT		NT		NT	
Silver	1U	1.0	NT		NT		1U	1.0	NT		1U	1.0	NT		NT		1U	1.0	NT		NT		NT		NT		NT	
Zinc	35		NT		NT		43		NT		3400		NT		NT		1300		NT		NT		NT		NT		NT	
Mercury	0.1		NT		NT		0.05U	0.05	NT		2.5		NT		NT		NT		NT		NT		NT		NT		NT	
Polychlorinated Biphenyls - PCBs																												
Aroclor-1016	U	0.110	U	0.110	U	0.100	U	0.100	U	0.120	U	0.099	NT		NT		U	0.120	NT		U	0.098	NT		NT		NT	
Aroclor-1248	U	0.110	U	0.110	U	0.100	U	0.100	U	0.120	U	0.099	NT		NT		U	0.120	NT		U	0.098	NT		NT		NT	
Aroclor-1254	U	0.110	U	0.110	U	0.100	U	0.100	U	0.120	U	0.099	NT		NT		U	0.120	NT		U	0.098	NT		NT		NT	
Aroclor-1260	U	0.110	U	0.110	U	0.100	U	0.100	U	0.120	U	0.099	NT		NT		U	0.120	NT		U	0.098	NT		NT		NT	
Pesticides																												
beta-BHC	U	0.011	0.013	0.011	NT		U	0.011	NT		U	0.0099	NT		NT		U	0.012	NT		NT		NT		NT		NT	
Volatile Organic Compounds - VOCs																												
Acetone	U	0.050	NT		NT		NT		NT		NT		NT		NT		NT		U	0.047	NT		NT		NT		NT	
Benzene	0.0051	0.0025	NT		NT		NT		NT		NT		NT		NT		NT		U	0.0023	NT		NT		NT		NT	
Chloroform	U	0.0025	NT		NT		NT		NT		NT		NT		NT		NT		U	0.0023	NT		NT		NT		NT	
Ethylbenzene	U	0.0025	NT		NT		NT		NT		NT		NT		NT		NT		U	0.0023	NT		NT		NT		NT	
Trichloroethene (TCE)	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Polyaromatic Hydrocarbons (PAH)																												
Acenaphthene	U	1.5	NT		NT		U	0.360	NT		U	1.3	NT		NT		U	0.380	NT		NT		NT		NT		NT	
Anthracene	1.4	1.5	NT		NT		U	0.360	NT		U	1.3	NT		NT		0.24	0.380	NT		NT		NT		NT		NT	
Benzo(a)anthracene	5.8	1.5	NT		NT		U	0.360	NT		1.0	1.3	NT		NT		1.4	0.380	NT		NT		NT		NT		NT	
Benzo(b)fluoranthene	6.6	1.5	NT		NT		U	0.360	NT		1.2	1.3	NT		NT		1.6	0.380	NT		NT		NT		NT		NT	
Benzo(k)fluoranthene	3.6	1.5	NT		NT		U	0.360	NT		0.72	1.3	NT		NT		0.83	0.380	NT		NT		NT		NT		NT	
Benzo(g,h,i)perylene	2.9	1.5	NT		NT		U	0.360	NT		U	1.3	NT		NT		0.62	0.380	NT		NT		NT		NT		NT	
Benzo(a)pyrene	5.6	1.5	NT		NT		U	0.360	NT		1.1	1.3	NT		NT		1.3	0.380	NT		NT		NT		NT		NT	
Chrysene	5.4	1.5	NT		NT		U	0.360	NT		1.1	1.3	NT		NT		1.6	0.380	NT		NT		NT		NT		NT	
Dibenzo(a,h)anthracene	1.5	1.5	NT		NT		U	0.360	NT		U	1.3	NT		NT		0.3	0.380	NT		NT		NT		NT		NT	
Fluoranthene	11	1.5	NT		NT		U	0.360	NT		2.4	1.3	NT		NT		3.0	0.380	NT		NT		NT		NT		NT	
Indeno(1,2,3-cd)pyrene	3.2	1.5	NT		NT		U	0.360	NT		U	1.3	NT		NT		0.59	0.380	NT		NT		NT		NT		NT	
Naphthalene	U	1.5	NT		NT		U	0.360	NT		U	1.3	NT		NT		U	0.380	NT		NT		NT		NT		NT	
Phenanthrene	5.5	1.5	NT		NT		U	0.360	NT		2.1	1.3	NT		NT		1.4	0.380	NT		NT		NT		NT		NT	
Pyrene	7.0	1.5	NT		NT		U	0.360	NT		1.4	1.3	NT		NT		2.0	0.380	NT		NT		NT		NT		NT	
Extractable Petroleum Hydrocarbons (EPH)																												
C_9-C_{18} Aliphatics Hydrocarbons	U	9.4	U	20	U	3.4	U	3.6	U	4.4	U	3.3	NT		NT		U	3.8	NT		U	3.3	NT		NT		NT	
C_{19}-C_{36} Aliphatics Hydrocarbons	180	9.4	U	20	U	3.4	U	3.6	U	4.4	U	3.3	NT		NT		40	3.8	NT		U	3.3	NT		NT		NT	
C_{11}-C_{22} Aromatics Hydrocarbons	180	9.4	310	20	U	3.4	U	3.6	28	4.4	10	3.3	NT		NT		63	3.8	NT		6.9	3.3	NT		NT		NT	
Acenaphthene	U	0.9	U	2.0	U	0.3	U	0.4	U	0.4	U	0.3	NT		NT		U	0.4	NT		U	0.3	NT		NT		NT	
Acenaphthylene	U	0.9	3.5	2.0	U	0.3	U	0.4	U	0.4	U	0.3	NT		NT		U	0.4	NT		U	0.3	NT		NT		NT	
Anthracene	0.96	0.9	7.5	2.0	U	0.3	U	0.4	0.45	0.4	U	0.3	NT		NT		U	0.4	NT		U	0.3	NT		NT		NT	
Benzo(a)anthracene	4.7	0.9	18	2.0	U	0.3	U	0.4	1.3	0.4	U	0.3	NT		NT		1.4	0.4	NT		U	0.3	NT		NT		NT	
Benzo(a)pyrene	5.4	0.9	18	2.0	U	0.3	U	0.4	1.3	0.4	U	0.3	NT		NT		1.3	0.4	NT		U	0.3	NT		NT		NT	
Benzo(b)fluoranthene	6.4	0.9	19	2.0	U	0.3	U	0.4	1.4	0.4	0.34	0.3	NT		NT		1.5	0.4	NT		U	0.3	NT		NT		NT	
Benzo(g,h,i)perylene	3.1	0.9	8.3	2.0	U	0.3	U	0.4	0.72	0.4	U	0.3	NT		NT		0.72	0.4	NT		U	0.3	NT		NT		NT	
Benzo(k)fluoranthene	3.0	0.9	7.9	2.0	U	0.3	U	0.4	0.63	0.4	U	0.3	NT		NT		0.57	0.4	NT		U	0.3	NT		NT		NT	
Chrysene	4.4	0.9	14	2.0	U	0.3	U	0.4	1.1	0.4	U	0.3	NT		NT		1.4	0.4	NT		U	0.3	NT		NT		NT	
Dibenzo(a,h)anthracene	U	0.9	2.2	2.0	U	0.3	U	0.4	U	0.4	U	0.3	NT		NT		U	0.4	NT		U	0.3	NT		NT		NT	
Fluoranthene	8.9	0.9	40	2.0	U	0.3	U	0.4	2.7	0.4	0.67	0.3	NT		NT		2.6	0.4	NT		U	0.3	NT		NT		NT	
Fluorene	U	0.9	2.4	2.0	U	0.3	U	0.4	U	0.4	U	0.3	NT		NT		U	0.4	NT		U	0.3	NT		NT		NT	
Indeno(1,2,3-cd)pyrene	3.5	0.9	9.6	2.0	U	0.3	U	0.4	0.75	0.4	U	0.3	NT		NT		0.64	0.4	NT		U	0.3	NT		NT		NT	
2-Methylnaphthalene	U	0.9	U	2.0	U	0.3	U	0.4	U	0.4	U	0.3	NT		NT		U	0.4	NT		U	0.3	NT		NT		NT	
Naphthalene	U	0.9	U	2.0	U	0.3	U	0.4	U	0.4	U	0.3	NT		NT		U	0.4	NT		U	0.3	NT		NT		NT	
Phenanthrene	3.7	0.9	30	2.0	U	0.3	U	0.4	1.9	0.4	0.39	0.3	NT		NT		1.5	0.4	NT		U	0.3	NT		NT		NT	
Pyrene	8.8	0.9	34	2.0	U	0.3	U	0.4	2.5	0.4	0.57	0.30	NT		NT		2.6	0.4	NT		U	0.3	NT		NT		NT	

All concentrations and quantitation limits expressed in mg/kg
U = Not Detected
UJ = Sample-specific detection limit is approximate
J = Quantitation is approximate due to limitations identified in the quality control review
NT = Not Tested
bgs = below ground surface
btg = below transformer pit grade

TABLE 5-1 Cont - Oxford Paper Mill South Side Soil Analytical Data Summary (Sub-Basement and Transformer #6 / Courtyard Area)
City of Lawrence - 21 Canal Street
RTN 3-2691

Building No. 3

Sample ID	B-1		B-1		B-1		B-2		B-3		B-3		B-4		B-4		B-4		B-4		B-5		B-5		B-6	
	(0-0.5')		(0.5-2')		(2-4')		(0-2')		(0-0.5')		(4-6')		(0-0.5')		(0.5-2')		(2-4')		(4-6')		(0-0.5')		(4-6')		(0-0.5')	
Date Sampled	5/7/01		5/7/01		5/7/01		5/7/01		5/7/01		5/7/01		5/7/01		5/7/01		5/7/01		5/7/01		5/7/01		5/7/01		5/7/01	
Sampling Company	S&W		S&W		S&W		S&W		S&W		S&W		S&W		S&W		S&W		S&W		S&W		S&W		S&W	
Analytes	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL
Metals																										
Arsenic	NT		NT		NT		NT		NT		NT		7.0		5.8		7.2		9.0		NT		NT		NT	
Barium	NT		NT		NT		NT		NT		NT		76		71		80		69		NT		NT		NT	
Beryllium	NT		NT		NT		NT		NT		NT		0.39		0.2U	0.20	0.2U	0.20	0.2U	0.20	NT		NT		NT	
Cadmium	NT		NT		NT		NT		NT		NT		0.44		0.34		0.41		0.26		NT		NT		NT	
Chromium	NT		NT		NT		NT		NT		NT		76		59		90		51		NT		NT		NT	
Lead	NT		NT		NT		NT		NT		NT		11		12		8.5		42		NT		NT		NT	
Selenium	NT		NT		NT		NT		NT		NT		1U	1.0	1U	1.0	1U	1.0	1U	1.0	NT		NT		NT	
Silver	NT		NT		NT		NT		NT		NT		1U	1.0	1U	1.0	1U	1.0	1U	1.0	NT		NT		NT	
Zinc	NT		NT		NT		NT		NT		NT		40		37		40		36		NT		NT		NT	
Mercury	NT		NT		NT		NT		NT		NT		0.062		0.048		0.04U	0.04	0.05U	0.05	NT		NT		NT	
Polychlorinated Biphenyls - PCBs																										
Aroclor-1016	U	0.110	U	0.110	U	0.120	U	0.110	U	0.110	U	0.110	U	0.110	U	0.110	U	0.110	U	0.110	U	0.130	U	0.110	U	0.110
Aroclor-1248	U	0.110	U	0.110	U	0.120	U	0.110	U	0.110	U	0.110	U	0.110	U	0.110	U	0.110	U	0.110	U	0.130	U	0.110	U	0.110
Aroclor-1254	U	0.110	U	0.110	U	0.120	U	0.110	U	0.110	U	0.110	U	0.110	U	0.110	2.8	0.110	U	0.110	U	0.130	U	0.110	U	0.110
Aroclor-1260	U	0.110	U	0.110	U	0.120	U	0.110	U	0.110	U	0.110	U	0.110	U	0.110	U	0.110	U	0.110	U	0.130	U	0.110	U	0.110
Pesticides																										
beta-BHC	U	0.011	U	0.011	U	0.011	U	0.011	U	0.011	U	0.011	U	0.011	U	0.011	U	0.011	U	0.011	U	0.011	U	0.011	U	0.011
Volatile Organic Compounds - VOCs																										
Acetone	NT		NT		NT		NT		NT		NT		U	0.060	U	0.064	U	0.073	U	0.067	NT		NT		NT	
Benzene	NT		NT		NT		NT		NT		NT		U	0.003	U	0.0032	U	0.0037	U	0.0033	NT		NT		NT	
Chloroform	NT		NT		NT		NT		NT		NT		0.041	0.003	0.023	0.0032	U	0.0037	0.0067	0.0033	NT		NT		NT	
Ethylbenzene	NT		NT		NT		NT		NT		NT		U	0.003	U	0.0032	U	0.0037	U	0.0033	NT		NT		NT	
Trichloroethene (TCE)	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Polyaromatic Hydrocarbons (PAH)																										
Acenaphthene	NT		NT		NT		NT		NT		NT		U	0.360	U	0.360	U	0.360	U	0.360	NT		NT		NT	
Anthracene	NT		NT		NT		NT		NT		NT		U	0.360	U	0.360	0.55	0.360	0.55	0.360	NT		NT		NT	
Benzo(a)anthracene	NT		NT		NT		NT		NT		NT		U	0.360	U	0.360	1.8	0.360	1.8	0.360	NT		NT		NT	
Benzo(b)fluoranthene	NT		NT		NT		NT		NT		NT		U	0.360	U	0.360	1.3	0.360	1.3	0.360	NT		NT		NT	
Benzo(k)fluoranthene	NT		NT		NT		NT		NT		NT		U	0.360	U	0.360	1.6	0.360	1.6	0.360	NT		NT		NT	
Benzo(g,h,i)perylene	NT		NT		NT		NT		NT		NT		U	0.360	U	0.360	0.74	0.360	0.74	0.360	NT		NT		NT	
Benzo(a)pyrene	NT		NT		NT		NT		NT		NT		U	0.360	U	0.360	1.7	0.360	1.7	0.360	NT		NT		NT	
Chrysene	NT		NT		NT		NT		NT		NT		U	0.360	U	0.360	1.6	0.360	1.6	0.360	NT		NT		NT	
Dibenzo(a,h)anthracene	NT		NT		NT		NT		NT		NT		U	0.360	U	0.360	0.33	0.360	0.33	0.360	NT		NT		NT	
Fluoranthene	NT		NT		NT		NT		NT		NT		U	0.360	U	0.360	3.4	0.360	3.4	0.360	NT		NT		NT	
Indeno(1,2,3-cd)pyrene	NT		NT		NT		NT		NT		NT		U	0.360	U	0.360	0.74	0.360	0.74	0.360	NT		NT		NT	
Naphthalene	NT		NT		NT		NT		NT		NT		U	0.360	U	0.360	U	0.360	U	0.360	NT		NT		NT	
Phenanthrene	NT		NT		NT		NT		NT		NT		U	0.360	U	0.360	2.0	0.360	2.0	0.360	NT		NT		NT	
Pyrene	NT		NT		NT		NT		NT		NT		U	0.360	U	0.360	3.4	0.360	3.4	0.360	NT		NT		NT	
Extractable Petroleum Hydrocarbons (EPH)																										
C_9-C_{18} Aliphatics Hydrocarbons	U	3.7	U	3.7	U	3.8	65	3.8	U	3.7	26	3.8	U	3.5	U	3.5	U	3.6	4.0	3.6	11	4.5	4.0	3.5	U	3.7
C_{19}-C_{36} Aliphatics Hydrocarbons	U	3.7	9.1	3.7	12	3.8	1200	3.8	U	3.7	53	3.8	U	3.5	U	3.5	4.8	3.6	U	3.6	22	4.5	U	3.5	U	3.7
C_{11}-C_{22} Aromatics Hydrocarbons	11	3.7	22	3.7	31	3.8	480	3.8	4.8	3.7	190	3.8	4.9	3.5	6.8	3.5	6.6	3.6	5.6	3.6	33	4.5	8.0	3.5	5.0	3.7
Acenaphthene	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4
Acenaphthylene	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	1.2	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4
Anthracene	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	2.7	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4
Benzo(a)anthracene	U	0.4	0.82	0.4	1.2	0.4	U	0.4	U	0.4	6.1	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4
Benzo(a)pyrene	U	0.4	0.81	0.4	1.0	0.4	U	0.4	U	0.4	5.3	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4
Benzo(b)fluoranthene	U	0.4	0.94	0.4	1.2	0.4	U	0.4	U	0.4	6.2	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4
Benzo(g,h,i)perylene	U	0.4	U	0.4	0.45	0.4	U	0.4	U	0.4	1.9	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4
Benzo(k)fluoranthene	U	0.4	0.46	0.4	0.62	0.4	U	0.4	U	0.4	2.0	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4
Chrysene	U	0.4	0.73	0.4	1.1	0.4	U	0.4	U	0.4	5.5	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4
Dibenzo(a,h)anthracene	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	0.72	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4
Fluoranthene	0.41	0.4	1.4	0.4	2.6	0.4	0.6	0.4	U	0.4	14	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4
Fluorene	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	1.5	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4
Indeno(1,2,3-cd)pyrene	U	0.4	U	0.4	0.39	0.4	U	0.4	U	0.4	2.4	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4
2-Methylnaphthalene	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4
Naphthalene	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4
Phenanthrene	U	0.4	0.62	0.4	2.4	0.4	0.59	0.4	U	0.4	13	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4
Pyrene	0.37	0.4	1.2	0.4	2.6	0.4	0.78	0.4	U	0.4	12	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4

Sample ID	B-7		B-9		B-10		B-11		B-12		B-13		B-14		B-15		B-16A		B-16A DUP		B-17		B-18	
	(0-0.5')		(0-0.5')		(0-0.5')		(0-0.5')		(0-0.5')		(0-0.5')		(0-0.5')		(0-0.5')		(0-0.5')		(0-0.5')		(0-0.5')		(0-0.5')	
Date Sampled	5/7/01		5/7/01		5/7/01		5/7/01		5/7/01		5/7/01		5/7/01		5/7/01		5/7/01		5/7/01		5/7/01		5/7/01	
Sampling Company	S&W		S&W		S&W		S&W		S&W		S&W		S&W		S&W		S&W		S&W		S&W		S&W	
Analytes	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL
Metals																								
Arsenic	10		NT		7.7		NT		NT		NT		NT		NT		8.0		6.0		NT		NT	
Barium	26		NT		57		NT		NT		NT		NT		NT		37		36		NT		NT	
Beryllium	0.3		NT		0.33		NT		NT		NT		NT		NT		0.4		0.35		NT		NT	
Cadmium	0.2U	0.20	NT		0.2U	0.20	NT		NT		NT		NT		NT		0.2U	0.20	0.2U	0.20	NT		NT	
Chromium	18		NT		37		NT		NT		NT		NT		NT		26		20		NT		NT	
Lead	4.8		NT		22		NT		NT		NT		NT		NT		19		13		NT		NT	
Selenium	2U	2.0	NT		2U	2.0	NT		NT		NT		NT		NT		1U	1.0	1U	1.0	NT		NT	
Silver	1U	1.0	NT		1U	1.0	NT		NT		NT		NT		NT		1U	1.0	1U	1.0	NT		NT	
Zinc	24		NT		48		NT		NT		NT		NT		NT		120		43		NT		NT	
Mercury	0.05U	0.05	NT		0.06		NT		NT		NT		NT		NT		0.31		0.079		NT		NT	
Polychlorinated Biphenyls - PCBs																								
Aroclor-1016	U	0.120	U	0.110	U	0.120	U	0.140	U	0.110	U	0.110	U	0.100	U	0.130	U	0.110	U	0.110	U	0.120	U	0.120
Aroclor-1248	U	0.120	U	0.110	U	0.120	U	0.140	U	0.110	U	0.110	U	0.100	U	0.130	U	0.110	U	0.110	U	0.120	U	0.120
Aroclor-1254	U	0.120	U	0.110	U	0.120	U	0.140	U	0.110	U	0.110	U	0.100	U	0.130	U	0.110	U	0.110	U	0.120	U	0.120
Aroclor-1260	U	0.120	U	0.110	U	0.120	U	0.140	U	0.110	U	0.110	U	0.100	U	0.130	U	0.110	U	0.110	U	0.120	U	0.120
Pesticides																								
beta-BHC	U	0.011	U	0.011	U	0.011	U	0.014	U	0.011	U	0.011	U	0.010	U	0.013	U	0.011	U	0.011	U	0.012	U	0.012
Volatile Organic Compounds - VOCs																								
Acetone	U	0.080	NT		U	0.056	NT		NT		NT		NT		NT		U	0.056	0.19	0.068	NT		NT	
Benzene	U	0.004	NT		U	0.0028	NT		NT		NT		NT		NT		0.035	0.0028	U	0.0034	NT		NT	
Chloroform	U	0.004	NT		U	0.0028	NT		NT		NT		NT		NT		0.0031	0.0028	U	0.0034	NT		NT	
Ethylbenzene	U	0.004	NT		U	0.0028	NT		NT		NT		NT		NT		0.003	0.0028	U	0.0034	NT		NT	
Trichloroethene (TCE)	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Polyaromatic Hydrocarbons (PAH)																								
Acenaphthene	U	0.380	NT		U	0.400	NT		NT		NT		NT		NT		U	0.380	0.21	0.390	NT		NT	
Anthracene	U	0.380	NT		U	0.400	NT		NT		NT		NT		NT		U	0.380	0.7	0.390	NT		NT	
Benzo(a)anthracene	U	0.380	NT		U	0.400	NT		NT		NT		NT		NT		0.31	0.380	2.3	0.390	NT		NT	
Benzo(b)fluoranthene	U	0.380	NT		U	0.400	NT		NT		NT		NT		NT		0.28	0.380	2.3	0.390	NT		NT	
Benzo(k)fluoranthene	U	0.380	NT		0.22	0.400	NT		NT		NT		NT		NT		0.23	0.380	1.6	0.390	NT		NT	
Benzo(g,h,i)perylene	U	0.380	NT		U	0.400	NT		NT		NT		NT		NT		U	0.380	1.1	0.390	NT		NT	
Benzo(a)pyrene	U	0.380	NT		0.24	0.400	NT		NT		NT		NT		NT		0.31	0.380	2.3	0.390	NT		NT	
Chrysene	U	0.380	NT		U	0.400	NT		NT		NT		NT		NT		0.3	0.380	2.2	0.390	NT		NT	
Dibenzo(a,h)anthracene	U	0.380	NT		U	0.400	NT		NT		NT		NT		NT		U	0.380	0.5	0.390	NT		NT	
Fluoranthene	U	0.380	NT		0.25	0.400	NT		NT		NT		NT		NT		0.53	0.380	4.2	0.390	NT		NT	
Indeno(1,2,3-cd)pyrene	U	0.380	NT		U	0.400	NT		NT		NT		NT		NT		U	0.380	1.2	0.390	NT		NT	
Naphthalene	U	0.380	NT		U	0.400	NT		NT		NT		NT		NT		U	0.380	0.26	0.390	NT		NT	
Phenanthrene	U	0.380	NT		U	0.400	NT		NT		NT		NT		NT		0.36	0.380	3.0	0.390	NT		NT	
Pyrene	U	0.380	NT		0.29	0.400	NT		NT		NT		NT		NT		0.45	0.380	3.6	0.390	NT		NT	
Extractable Petroleum Hydrocarbons (EPH)																								
C_9-C_{18} Aliphatics Hydrocarbons	U	3.9	U	19	5.2	3.9	14	4.5	4.5	3.8	4.7	3.8	U	3.7	110	4.3	U	3.8	4.6	3.7	6.2	4.0	1400	39
C_{19}-C_{36} Aliphatics Hydrocarbons	U	3.9	27	19	6.5	3.9	16	4.5	7.2	3.8	5.0	3.8	U	3.7	85	4.3	29	3.8	82	3.7	13	4.0	2800	39
C_{11}-C_{22} Aromatics Hydrocarbons	U	3.9	170	19	10	3.9	40	4.5	5.7	3.8	11	3.8	U	3.7	73	4.3	6.8	3.8	9.6	3.7	7.8	4.0	4500	39
Acenaphthene	U	0.4	U	1.9	U	0.4	U	0.5	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	3.9
Acenaphthylene	U	0.4	U	1.9	U	0.4	U	0.5	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	15	3.9
Anthracene	U	0.4	3.2	1.9	U	0.4	U	0.5	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	3.9
Benzo(a)anthracene	U	0.4	16	1.9	U	0.4	U	0.5	U	0.4	U	0.4	U	0.4	0.6	0.4	U	0.4	0.39	0.4	U	0.4	7.8	3.9
Benzo(a)pyrene	U	0.4	11	1.9	0.41	0.4	U	0.5	U	0.4	0.51	0.4	U	0.4	0.53	0.4	U	0.4	0.44	0.4	U	0.4	U	3.9
Benzo(b)fluoranthene	U	0.4	12	1.9	0.46	0.4	U	0.5	U	0.4	0.6	0.4	U	0.4	0.56	0.4	U	0.4	0.5	0.4	U	0.4	U	3.9
Benzo(g,h,i)perylene	U	0.4	2.9	1.9	U	0.4	U	0.5	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	3.9
Benzo(k)fluoranthene	U	0.4	4.2	1.9	U	0.4	U	0.5	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	3.9
Chrysene	U	0.4	12	1.9	U	0.4	U	0.5	U	0.4	0.38	0.4	U	0.4	0.55	0.4	U	0.4	0.39	0.4	U	0.4	12	3.9
Dibenzo(a,h)anthracene	U	0.4	U	1.9	U	0.4	U	0.5	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	3.9
Fluoranthene	U	0.4	40	1.9	0.52	0.4	U	0.5	U	0.4	0.67	0.4	U	0.4	1.3	0.4	U	0.4	0.81	0.4	U	0.4	14	3.9
Fluorene	U	0.4	U	1.9	U	0.4	U	0.5	U	0.4	U	0.4	U	0.4	0.48	0.4	U	0.4	U	0.4	U	0.4	8.5	3.9
Indeno(1,2,3-cd)pyrene	U	0.4	3.5	1.9	U	0.4	U	0.5	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	3.9
2-Methylnaphthalene	U	0.4	U	1.9	U	0.4	0.58	0.5	U	0.4	U	0.4	U	0.4	0.88	0.4	U	0.4	U	0.4	U	0.4	24	3.9
Naphthalene	U	0.4	U	1.9	U	0.4	U	0.5	U	0.4	U	0.4	U	0.4	0.51	0.4	U	0.4	U	0.4	U	0.4	17	3.9
Phenanthrene	U	0.4	5.9	1.9	U	0.4	U	0.5	U	0.4	U	0.4	U	0.4	1.7	0.4	U	0.4	U	0.4	U	0.4	22	3.9
Pyrene	U	0.4	36	1.9	0.53	0.4	U	0.5	U	0.4	0.64	0.4	U	0.4	1.3	0.4	U	0.4	0.76	0.4	U	0.4	14	3.9

All concentrations and quantitation limits expressed in mg/kg
U = Not Detected
UJ = Sample-specific detection limit is appro›
J = Quantitation is approximate due to limitations identified in the quality control review
NT = Not Tested
bgs = below ground surface
btg = below transformer pit grade

TABLE 5-1 Cont - Oxford Paper Mill South Side Soil Analytical Data Summary (Sub-Basement and Transformer #6 / Courtyard Area)
City of Lawrence - 21 Canal Street
RTN 3-2691

	Building No. 3																									
Sample ID	B-19		B-19 DUP		B-20		B-21		B-22		B-23		B-24		B-25		B-26		B-27		B-28		B-29		B-30	
	(0-0.5')		(0-0.5')		(0-0.5')		(0-0.5')		(0-0.5')		(0-0.5')		(0-0.5')		(0-0.5')		(0-0.5')		(0-0.5')		(0-0.5')		(0-0.5')		(0-0.5')	
Date Sampled	5/7/01		5/7/01		5/7/01		5/7/01		5/7/01		5/7/01		5/7/01		5/7/01		5/7/01		5/7/01		5/7/01		5/7/01		5/7/01	
Sampling Company	S&W		S&W		S&W		S&W		S&W		S&W		S&W		S&W		S&W		S&W		S&W		S&W		S&W	
Analytes																										
	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL
Metals																										
Arsenic	NT		NT		17		NT		NT		NT		NT		13		NT		NT		9.7		NT		NT	
Barium	NT		NT		99		NT		NT		NT		NT		85		NT		NT		26		NT		NT	
Beryllium	NT		NT		0.34		NT		NT		NT		NT		0.4		NT		NT		0.39		NT		NT	
Cadmium	NT		NT		0.41		NT		NT		NT		NT		0.35		NT		NT		0.3U	0.30	NT		NT	
Chromium	NT		NT		24		NT		NT		NT		NT		29		NT		NT		13		NT		NT	
Lead	NT		NT		97		NT		NT		NT		NT		82		NT		NT		11		NT		NT	
Selenium	NT		NT		1U	1.0	NT		NT		NT		NT		1U	1.0	NT		NT		2U	2.0	NT		NT	
Silver	NT		NT		1U	1.0	NT		NT		NT		NT		1U	1.0	NT		NT		1U	1.0	NT		NT	
Zinc	NT		NT		92		NT		NT		NT		NT		67		NT		NT		73		NT		NT	
Mercury	NT		NT		0.45		NT		NT		NT		NT		0.2		NT		NT		0.07U	0.07	NT		NT	
Polychlorinated Biphenyls - PCBs																										
Aroclor-1016	U	0.110	U	0.110	U	0.120	U	0.120	U	0.120	U	0.110	U	0.110	U	0.130	U	2.3	U	0.120	U	0.150	U	0.120	U	0.100
Aroclor-1248	U	0.110	U	0.110	U	0.120	U	0.120	U	0.120	U	0.110	U	0.110	U	0.130	U	2.3	U	0.120	U	0.150	U	0.120	U	0.100
Aroclor-1254	U	0.110	U	0.110	U	0.120	U	0.120	U	0.120	U	0.110	2.1	0.110	U	0.130	U	2.3	U	0.120	U	0.150	U	0.120	U	0.100
Aroclor-1260	U	0.110	U	0.110	U	0.120	U	0.120	U	0.120	U	0.110	U	0.110	U	0.130	U	2.3	U	0.120	U	0.150	U	0.120	U	0.100
Pesticides																										
beta-BHC	U	0.011	U	0.011	U	0.012	U	0.012	U	0.012	U	0.011	U	0.011	U	0.013	U	0.230	U	0.012	U	0.015	U	0.012	U	0.010
Volatile Organic Compounds - VOCs																										
Acetone	NT		NT		U	0.056	NT		NT		NT		NT		U	0.058	NT		NT		U	0.067	NT		NT	
Benzene	NT		NT		0.035	0.0028	NT		NT		NT		NT		0.016	0.0029	NT		NT		U	0.0033	NT		NT	
Chloroform	NT		NT		0.031	0.0028	NT		NT		NT		NT		U	0.0029	NT		NT		U	0.0033	NT		NT	
Ethylbenzene	NT		NT		0.003	0.0028	NT		NT		NT		NT		U	0.0029	NT		NT		U	0.0033	NT		NT	
Trichloroethene (TCE)	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Polyaromatic Hydrocarbons (PAH)																										
Acenaphthene	NT		NT		U	0.380	NT		NT		NT		NT		U	0.370	NT		NT		U	0.500	NT		NT	
Anthracene	NT		NT		U	0.380	NT		NT		NT		NT		U	0.370	NT		NT		U	0.500	NT		NT	
Benzo(a)anthracene	NT		NT		0.31	0.380	NT		NT		NT		NT		U	0.370	NT		NT		U	0.500	NT		NT	
Benzo(b)fluoranthene	NT		NT		0.28	0.380	NT		NT		NT		NT		U	0.370	NT		NT		U	0.500	NT		NT	
Benzo(k)fluoranthene	NT		NT		0.23	0.380	NT		NT		NT		NT		U	0.370	NT		NT		U	0.500	NT		NT	
Benzo(g,h,I)perylene	NT		NT		U	0.380	NT		NT		NT		NT		U	0.370	NT		NT		U	0.500	NT		NT	
Benzo(a)pyrene	NT		NT		0.31	0.380	NT		NT		NT		NT		U	0.370	NT		NT		U	0.500	NT		NT	
Chrysene	NT		NT		0.3	0.380	NT		NT		NT		NT		U	0.370	NT		NT		U	0.500	NT		NT	
Dibenzo(a,h)anthracene	NT		NT		U	0.380	NT		NT		NT		NT		U	0.370	NT		NT		U	0.500	NT		NT	
Fluoranthene	NT		NT		0.53	0.380	NT		NT		NT		NT		0.24	0.370	NT		NT		U	0.500	NT		NT	
Indeno(1,2,3-cd)pyrene	NT		NT		U	0.380	NT		NT		NT		NT		U	0.370	NT		NT		U	0.500	NT		NT	
Naphthalene	NT		NT		U	0.380	NT		NT		NT		NT		U	0.370	NT		NT		U	0.500	NT		NT	
Phenanthrene	NT		NT		0.36	0.380	NT		NT		NT		NT		0.2	0.370	NT		NT		U	0.500	NT		NT	
Pyrene	NT		NT		0.45	0.380	NT		NT		NT		NT		0.23	0.370	NT		NT		U	0.500	NT		NT	
Extractable Petroleum Hydrocarbons (EPH)																										
C_9-C_{18} Aliphatics Hydrocarbons	U	3.8	U	3.8	U	3.8	U	38	U	4.1	4.2	3.8	44	18	14	4.4	24	20	U	4.0	U	5.0	4.2	4.0	U	3.5
C_{19}-C_{36} Aliphatics Hydrocarbons	13	3.8	15	3.8	45	3.8	59	38	89	4.1	210	3.8	38000	18	310	4.4	400	20	8.0	4.0	11	5.0	8.1	4.0	12	3.5
C_{11}-C_{22} Aromatics Hydrocarbons	14	3.8	13	3.8	66	3.8	520	38	69	4.1	52	3.8	45	18	320	4.4	830	20	6.6	4.0	6.8	5.0	4.9	4.0	6.1	3.5
Acenaphthene	U	0.4	U	0.4	U	0.4	U	3.7	U	0.4	U	0.4	U	1.8	U	0.4	U	1.9	U	0.4	U	0.5	U	0.4	U	0.3
Acenaphthylene	U	0.4	U	0.4	U	0.4	5.7	3.7	U	0.4	U	0.4	U	1.8	U	0.4	3.8	1.9	U	0.4	U	0.5	U	0.4	U	0.3
Anthracene	U	0.4	U	0.4	0.59	0.4	16	3.7	U	0.4	U	0.4	U	1.8	U	0.4	10	1.9	U	0.4	U	0.5	U	0.4	U	0.3
Benzo(a)anthracene	U	0.4	U	0.4	1.7	0.4	34	3.7	2.3	0.4	U	0.4	U	1.8	0.91	0.4	40	1.9	U	0.4	U	0.5	U	0.4	U	0.3
Benzo(a)pyrene	U	0.4	U	0.4	1.7	0.4	30	3.7	2.4	0.4	U	0.4	U	1.8	1.0	0.4	17	1.9	U	0.4	U	0.5	U	0.4	U	0.3
Benzo(b)fluoranthene	U	0.4	U	0.4	1.8	0.4	37	3.7	3.2	0.4	U	0.4	U	1.8	1.0	0.4	45	1.9	U	0.4	U	0.5	U	0.4	U	0.3
Benzo(g,h,I)perylene	U	0.4	U	0.4	0.72	0.4	11	3.7	1.4	0.4	U	0.4	U	1.8	U	0.4	12	1.9	U	0.4	U	0.5	U	0.4	U	0.3
Benzo(k)fluoranthene	U	0.4	U	0.4	0.84	0.4	14	3.7	1.5	0.4	U	0.4	U	1.8	U	0.4	15	1.9	U	0.4	U	0.5	U	0.4	U	0.3
Chrysene	U	0.4	U	0.4	1.5	0.4	28	3.7	2.2	0.4	U	0.4	U	1.8	0.75	0.4	41	1.9	U	0.4	U	0.5	U	0.4	U	0.3
Dibenzo(a,h)anthracene	U	0.4	U	0.4	U	0.4	U	3.7	U	0.4	U	0.4	U	1.8	U	0.4	3.9	1.9	U	0.4	U	0.5	U	0.4	U	0.3
Fluoranthene	0.56	0.4	0.59	0.4	3.8	0.4	95	3.7	4.7	0.4	0.39	0.4	U	1.8	1.1	0.4	79	1.9	U	0.4	U	0.5	U	0.4	U	0.3
Fluorene	U	0.4	U	0.4	U	0.4	4.0	3.7	U	0.4	U	0.4	U	1.8	U	0.4	3.6	1.9	U	0.4	U	0.5	U	0.4	U	0.3
Indeno(1,2,3-cd)pyrene	U	0.4	U	0.4	0.63	0.4	11	3.7	1.5	0.4	U	0.4	U	1.8	U	0.4	18	1.9	U	0.4	U	0.5	U	0.4	U	0.3
2-Methylnaphthalene	U	0.4	U	0.4	U	0.4	U	3.7	U	0.4	U	0.4	U	1.8	U	0.4	U	1.9	U	0.4	U	0.5	U	0.4	U	0.3
Naphthalene	U	0.4	U	0.4	U	0.4	U	3.7	U	0.4	U	0.4	U	1.8	U	0.4	U	1.9	U	0.4	U	0.5	U	0.4	U	0.3
Phenanthrene	0.43	0.4	0.5	0.4	3.0	0.4	84	3.7	3.0	0.4	U	0.4	U	1.8	0.69	0.4	35	1.9	U	0.4	U	0.5	U	0.4	U	0.3
Pyrene	0.44	0.4	0.53	0.4	3.4	0.4	82	3.7	3.5	0.4	U	0.4	U	1.8	0.86	0.4	70	1.9	U	0.4	U	0.5	U	0.4	U	0.3

	Building No. 3																											
Sample ID	B-31		B-32		B-32 DUP		B-33		B-34		B-35		B-35		B-35		B-36		B-36		B-36		B-36		B-37		B-38	
	(0-0.5')		(0-0.5')		(0-0.5')		(0-0.5')		(0-0.5')		(0-0.5')		(0.5-2')		(2-4')		(0-0.5')		(0.5-2')		(2-4')		(4-6')		(0-0.5')		(0-0.5')	
Date Sampled	5/7/01		5/7/01		5/7/01		5/7/01		5/7/01		5/7/01		5/7/01		5/7/01		5/7/01		5/7/01		5/7/01		5/7/01		5/7/01		5/7/01	
Sampling Company	S&W		S&W		S&W		S&W		S&W		S&W		S&W		S&W		S&W		S&W		S&W		S&W		S&W		S&W	
Analytes																												
	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL
Metals																												
Arsenic	6.6		NT		NT		NT		NT		NT		NT		NT		62		67		50		14		NT		35	
Barium	33		NT		NT		NT		NT		NT		NT		NT		91		NT		NT		NT		NT		58	
Beryllium	0.34		NT		NT		NT		NT		NT		NT		NT		0.3U	0.30	NT		NT		NT		NT		0.53	
Cadmium	0.2U	0.20	NT		NT		NT		NT		NT		NT		NT		0.33		NT		NT		NT		NT		0.41	
Chromium	25		NT		NT		NT		NT		NT		NT		NT		26		NT		NT		NT		NT		15	
Lead	4.8		NT		NT		NT		NT		NT		NT		NT		310		NT		NT		NT		NT		71	
Selenium	1U	1.0	NT		NT		NT		NT		NT		NT		NT		6.2		NT		NT		NT		NT		1U	1.0
Silver	1U	1.0	NT		NT		NT		NT		NT		NT		NT		2U	2.0	NT		NT		NT		NT		1U	1.0
Zinc	81		NT		NT		NT		NT		NT		NT		NT		61		NT		NT		NT		NT		45	
Mercury	0.05U	0.05	NT		NT		NT		NT		NT		NT		NT		0.44		NT		NT		NT		NT		0.31	
Polychlorinated Biphenyls - PCBs																												
Aroclor-1016	U	0.110	U	0.110	U	0.120	U	0.110	U	0.140	U	1.5	NT		NT		U	0.140	NT		NT		NT		U	0.120	U	0.120
Aroclor-1248	U	0.110	U	0.110	U	0.120	U	0.110	U	0.140	U	1.5	NT		NT		U	0.140	NT		NT		NT		U	0.120	U	0.120
Aroclor-1254	U	0.110	U	0.110	U	0.120	U	0.110	U	0.140	U	1.5	NT		NT		U	0.140	NT		NT		NT		U	0.120	U	0.120
Aroclor-1260	U	0.110	U	0.110	U	0.120	U	0.110	U	0.140	U	1.5	NT		NT		U	0.140	NT		NT		NT		U	0.120	U	0.120
Pesticides																												
beta-BHC	U	0.011	U	0.011	U	0.012	U	0.011	U	0.014	U	0.150	NT		NT		U	0.014	NT		NT		NT		U	0.012	U	0.012
Volatile Organic Compounds - VOCs																												
Acetone	0.12	0.084	NT		NT		NT		NT		NT		NT		NT		0.12	0.058	NT		NT		NT		NT		U	0.082
Benzene	U	0.0042	NT		NT		NT		NT		NT		NT		NT		U	0.0029	NT		NT		NT		NT		U	0.0041
Chloroform	U	0.0042	NT		NT		NT		NT		NT		NT		NT		U	0.0029	NT		NT		NT		NT		0.091	0.0041
Ethylbenzene	U	0.0042	NT		NT		NT		NT		NT		NT		NT		U	0.0029	NT		NT		NT		NT		U	0.0041
Trichloroethene (TCE)	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Polyaromatic Hydrocarbons (PAH)																												
Acenaphthene	U	0.510	NT		NT		NT		NT		NT		NT		NT		U	0.490	NT		NT		NT		NT		U	0.490
Anthracene	U	0.510	NT		NT		NT		NT		NT		NT		NT		U	0.490	NT		NT		NT		NT		U	0.490
Benzo(a)anthracene	U	0.510	NT		NT		NT		NT		NT		NT		NT		0.54	0.490	NT		NT		NT		NT		0.54	0.490
Benzo(b)fluoranthene	U	0.510	NT		NT		NT		NT		NT		NT		NT		0.54	0.490	NT		NT		NT		NT		0.54	0.490
Benzo(k)fluoranthene	U	0.510	NT		NT		NT		NT		NT		NT		NT		0.66	0.490	NT		NT		NT		NT		0.66	0.490
Benzo(g,h,I)perylene	U	0.510	NT		NT		NT		NT		NT		NT		NT		0.26	0.490	NT		NT		NT		NT		0.26	0.490
Benzo(a)pyrene	U	0.510	NT		NT		NT		NT		NT		NT		NT		0.55	0.490	NT		NT		NT		NT		0.55	0.490
Chrysene	U	0.510	NT		NT		NT		NT		NT		NT		NT		0.61	0.490	NT		NT		NT		NT		0.61	0.490
Dibenzo(a,h)anthracene	U	0.510	NT		NT		NT		NT		NT		NT		NT		U	0.490	NT		NT		NT		NT		U	0.490
Fluoranthene	U	0.510	NT		NT		NT		NT		NT		NT		NT		0.74	0.490	NT		NT		NT		NT		0.74	0.490
Indeno(1,2,3-cd)pyrene	U	0.510	NT		NT		NT		NT		NT		NT		NT		0.29	0.490	NT		NT		NT		NT		0.29	0.490
Naphthalene	U	0.510	NT		NT		NT		NT		NT		NT		NT		U	0.490	NT		NT		NT		NT		U	0.490
Phenanthrene	U	0.510	NT		NT		NT		NT		NT		NT		NT		0.59	0.490	NT		NT		NT		NT		0.59	0.490
Pyrene	U	0.510	NT		NT		NT		NT		NT		NT		NT		0.72	0.490	NT		NT		NT		NT		0.72	0.490
Extractable Petroleum Hydrocarbons (EPH)																												
C_9-C_{18} Aliphatics Hydrocarbons	20	3.6	U	3.8	U	3.9	U	3.8	24	4.5	300	120	22	16	42	16	18	4.9	NT		NT		NT		4.2	4.1	4.7	3.8
C_{19}-C_{36} Aliphatics Hydrocarbons	1500	3.6	21	3.8	9.5	3.9	14	3.8	120	4.5	1500	120	160	16	220	16	120	4.9	NT		NT		NT		7.8	4.1	26	3.8
C_{11}-C_{22} Aromatics Hydrocarbons	350	3.6	53	3.8	19	3.9	21	3.8	120	4.5	19000	120	670	16	1200	16	150	4.9	NT		NT		NT		11	4.1	32	3.8
Acenaphthene	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	12	U	1.6	U	1.6	U	0.5	NT		NT		NT		U	0.4	U	0.4
Acenaphthylene	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	12	2.4	1.6	6.0	1.6	U	0.5	NT		NT		NT		U	0.4	U	0.4
Anthracene	U	0.4	0.52	0.4	U	0.4	U	0.4	U	0.4	U	12	5.5	1.6	12	1.6	U	0.5	NT		NT		NT		U	0.4	U	0.4
Benzo(a)anthracene	U	0.4	3.2	0.4	0.85	0.4	0.85	0.4	0.95	0.4	U	12	13	1.6	22	1.6	3.1	0.5	NT		NT		NT		U	0.4	1.1	0.4
Benzo(a)pyrene	U	0.4	2.9	0.4	0.81	0.4	0.8	0.4	1.4	0.4	U	12	13	1.6	20	1.6	1.9	0.5	NT		NT		NT		U	0.4	1.0	0.4
Benzo(b)fluoranthene	U	0.4	3.0	0.4	0.82	0.4	0.88	0.4	1.3	0.4	U	12	16	1.6	25	1.6	3.7	0.5	NT		NT		NT		U	0.4	1.2	0.4
Benzo(g,h,I)perylene	U	0.4	1.1	0.4	0.49	0.4	U	0.4	U	0.4	U	12	6.0	1.6	9.0	1.6	1.4	0.5	NT		NT		NT		U	0.4	U	0.4
Benzo(k)fluoranthene	U	0.4	1.5	0.4	0.43	0.4	U	0.4	U	0.4	U	12	5.9	1.6	7.0	1.6	1.4	0.5	NT		NT		NT		U	0.4	0.52	0.4
Chrysene	U	0.4	2.4	0.4	0.77	0.4	0.78	0.4	1.6	0.4	U	12	10	1.6	15	1.6	2.7	0.5	NT		NT		NT		U	0.4	1.0	0.4
Dibenzo(a,h)anthracene	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	12	2.4	1.6	2.8	1.6	0.52	0.5	NT		NT		NT		U	0.4	U	0.4
Fluoranthene	U	0.4	5.0	0.4	1.4	0.4	1.5	0.4	2.9	0.4	13	12	23	1.6	50	1.6	U	0.5	NT		NT		NT		U	0.4	2.1	0.4
Fluorene	U	0.4	U	0.4	U	0.4	U	0.4	ND	0.4	U	12	2.6	1.6	7.3	1.6	U	0.5	NT		NT		NT		U	0.4	U	0.4
Indeno(1,2,3-cd)pyrene	U	0.4	1.4	0.4	U	0.4	U	0.4	0.57	0.4	U	12	6.8	1.6	11	1.6	1.5	0.5	NT		NT		NT		U	0.4	U	0.4
2-Methylnaphthalene	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	12	U	1.6	U	1.6	U	0.5	NT		NT		NT		U	0.4	U	0.4
Naphthalene	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	12	U	1.6	U	1.6	U	0.5	NT		NT		NT		U	0.4	U	0.4
Phenanthrene	U	0.4	2.2	0.4	0.63	0.4	0.98	0.4	1.9	0.4	U	12	20	1.6	47	1.6	1.9	0.5	NT		NT		NT		U	0.4	1.3	0.4
Pyrene	U	0.4	4.4	0.4	1.2	0.4	1.3	0.4	2.2	0.4	U	12	16	1.6	26	1.6	3.8	0.5	NT		NT		NT		U	0.4	1.9	0.4

All concentrations and quantitation limits expressed in mg/kg
U = Not Detected
UJ = Sample-specific detection limit is appro›
J = Quantitation is approximate due to limitations identified in the quality control review
NT = Not Tested
bgs = below ground surface
btg = below transformer pit grade

TABLE 5-1 Cont - Oxford Paper Mill South Side Soil Analytical Data Summary (Sub-Basement and Transformer #6 / Courtyard Area)
City of Lawrence - 21 Canal Street
RTN 3-2691

	Building No. 3													
Sample ID	B-38		B-38		B-38		B-39		B-40		B-41		B-42	
	(0.5-2')		(2-4')		(4-6')		(0-0.5')		(0-0.5')		(0-0.5')		(0-0.5')	
Date Sampled	5/7/01		5/7/01		5/7/01		5/7/01		5/7/01		5/7/01		5/7/01	
Sampling Company	S&W		S&W		S&W		S&W		S&W		S&W		S&W	
Analytes														
	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL
Metals														
Arsenic	65		43		7.9		NT		7.6		8.8		NT	
Barium	NT		NT		NT		NT		69		30		NT	
Beryllium	NT		NT		NT		NT		0.48		0.4		NT	
Cadmium	NT		NT		NT		NT		0.2U	0.20	0.2U	0.20	NT	
Chromium	NT		NT		NT		NT		16		15		NT	
Lead	NT		NT		NT		NT		8.0		13		NT	
Selenium	NT		NT		NT		NT		1U	1.0	0.8U	0.80	NT	
Silver	NT		NT		NT		NT		1U	1.0	0.8U	0.80	NT	
Zinc	NT		NT		NT		NT		13		48		NT	
Mercury	NT		NT		NT		NT		0.05U	0.05	0.05U	0.05	NT	
Polychlorinated Biphenyls - PCBs														
Aroclor-1016	NT		NT		NT		U	0.140	U	0.110	U	0.120	U	0.110
Aroclor-1248	NT		NT		NT		U	0.140	U	0.110	U	0.120	U	0.110
Aroclor-1254	NT		NT		NT		U	0.140	U	0.110	U	0.120	U	0.110
Aroclor-1260	NT		NT		NT		U	0.140	U	0.110	U	0.120	U	0.110
Pesticides														
beta-BHC	NT		NT		NT		U	0.014	NT		U	0.012	U	0.011
Volatile Organic Compounds - VOCs														
Acetone	NT		NT		NT		NT		U	0.068	2.2	0.054	NT	
Benzene	NT		NT		NT		NT		U	0.0034	U	0.0027	NT	
Chloroform	NT		NT		NT		NT		0.013	0.0034	0.0045	0.0027	NT	
Ethylbenzene	NT		NT		NT		NT		U	0.0034	U	0.0027	NT	
Trichloroethene (TCE)	NT		NT		NT		NT		NT		NT		NT	
Polyaromatic Hydrocarbons (PAH)														
Acenaphthene	NT		NT		NT		NT		U	0.380	U	0.380	NT	
Anthracene	NT		NT		NT		NT		0.21	0.380	U	0.380	NT	
Benzo(a)anthracene	NT		NT		NT		NT		0.72	0.380	U	0.380	NT	
Benzo(b)fluoranthene	NT		NT		NT		NT		0.66	0.380	U	0.380	NT	
Benzo(k)fluoranthene	NT		NT		NT		NT		0.54	0.380	U	0.380	NT	
Benzo(g,h,i)perylene	NT		NT		NT		NT		0.34	0.380	U	0.380	NT	
Benzo(a)pyrene	NT		NT		NT		NT		0.7	0.380	U	0.380	NT	
Chrysene	NT		NT		NT		NT		0.73	0.380	0.19	0.380	NT	
Dibenzo(a,h)anthracene	NT		NT		NT		NT		U	0.380	U	0.380	NT	
Fluoranthene	NT		NT		NT		NT		1.1	0.380	U	0.380	NT	
Indeno(1,2,3-cd)pyrene	NT		NT		NT		NT		0.37	0.380	U	0.380	NT	
Naphthalene	NT		NT		NT		NT		U	0.380	U	0.380	NT	
Phenanthrene	NT		NT		NT		NT		0.76	0.380	U	0.380	NT	
Pyrene	NT		NT		NT		NT		1.1	0.380	U	0.380	NT	
Extractable Petroleum Hydrocarbons (EPH)														
C_9-C_{18} Aliphatics Hydrocarbons	NT		NT		NT		10	4.8	6.3	3.8	6.5	4.0	130	19
C_{19}-C_{36} Aliphatics Hydrocarbons	NT		NT		NT		100	4.8	4.5	3.8	380	4.0	6500	19
C_{11}-C_{22} Aromatics Hydrocarbons	NT		NT		NT		34	4.8	22	3.8	120	4.0	2400	19
Acenaphthene	NT		NT		NT		U	0.5	U	0.4	U	0.4	U	1.9
Acenaphthylene	NT		NT		NT		U	0.5	U	0.4	U	0.4	U	1.9
Anthracene	NT		NT		NT		U	0.5	U	0.4	U	0.4	U	1.9
Benzo(a)anthracene	NT		NT		NT		U	0.5	U	0.4	0.41	0.4	U	1.9
Benzo(a)pyrene	NT		NT		NT		U	0.5	U	0.4	0.41	0.4	U	1.9
Benzo(b)fluoranthene	NT		NT		NT		U	0.5	U	0.4	0.53	0.4	U	1.9
Benzo(g,h,i)perylene	NT		NT		NT		U	0.5	U	0.4	0.43	0.4	U	1.9
Benzo(k)fluoranthene	NT		NT		NT		U	0.5	U	0.4	U	0.4	U	1.9
Chrysene	NT		NT		NT		U	0.5	U	0.4	U	0.4	U	1.9
Dibenzo(a,h)anthracene	NT		NT		NT		U	0.5	U	0.4	U	0.4	U	1.9
Fluoranthene	NT		NT		NT		0.83	0.5	U	0.4	0.9	0.4	U	1.9
Fluorene	NT		NT		NT		U	0.5	U	0.4	U	0.4	U	1.9
Indeno(1,2,3-cd)pyrene	NT		NT		NT		U	0.5	U	0.4	U	0.4	U	1.9
2-Methylnaphthalene	NT		NT		NT		U	0.5	U	0.4	U	0.4	U	1.9
Naphthalene	NT		NT		NT		U	0.5	U	0.4	U	0.4	U	1.9
Phenanthrene	NT		NT		NT		1.1	0.5	U	0.4	0.61	0.4	U	1.9
Pyrene	NT		NT		NT		0.97	0.5	U	0.4	0.76	0.4	U	1.9

	Building No. 3																	
Sample ID	B-43		B-43 DUP		B-44		B-44		B-45		B-46		B-46		B-46		B-47	
	(0-0.5')		(0-0.5')		(0-0.5')		(0.5-2')		(0-0.5')		(0-0.5')		(0.5-2')		(2-4')		(0-0.5')	
Date Sampled	5/7/01		5/7/01		5/7/01		5/7/01		5/7/01		5/7/01		5/7/01		5/7/01		5/7/01	
Sampling Company	S&W		S&W		S&W		S&W		S&W		S&W		S&W		S&W		S&W	
Analytes																		
	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL
Metals																		
Arsenic	25		NT		12		10		17		28		NT		NT		NT	
Barium	200		NT		56		44		58		440		NT		NT		NT	
Beryllium	0.44		NT		0.27		0.33		0.38		0.3U	0.30	NT		NT		NT	
Cadmium	0.2U	0.20	NT		0.41		0.33		0.31		17		NT		NT		NT	
Chromium	23		NT		40		32		29		100		NT		NT		NT	
Lead	100		NT		20		45		33		330		NT		NT		NT	
Selenium	0.8U	0.80	NT		1U	1.0	1U	1.0	1U	1.0	4U	4.0	NT		NT		NT	
Silver	0.8U	0.80	NT		1U	1.0	1U	1.0	1U	1.0	2U	2.0	NT		NT		NT	
Zinc	68		NT		51		53		46		1200		NT		NT		NT	
Mercury	0.21		NT		0.056		0.12		0.11		0.48		NT		NT		NT	
Polychlorinated Biphenyls - PCBs																		
Aroclor-1016	U	0.110	U	0.310	U	0.210	U	0.220	U	0.110	U	0.150	U	0.120	U	0.120	U	0.110
Aroclor-1248	U	0.110	U	0.310	U	0.210	U	0.220	U	0.110	1.6	0.150	0.58	0.120	0.4	0.120	U	0.110
Aroclor-1254	U	0.110	U	0.310	U	0.210	U	0.220	U	0.110	U	0.150	U	0.120	U	0.120	U	0.110
Aroclor-1260	U	0.110	U	0.310	U	0.210	U	0.220	U	0.110	0.65	0.150	U	0.120	U	0.120	U	0.110
Pesticides																		
beta-BHC	U	0.011	U	0.031	NT		NT		NT		NT		NT		NT		NT	
Volatile Organic Compounds - VOCs																		
Acetone	U	0.060	U	0.058	0.2	0.054	NT		0.2	0.054	0.34	0.071	NT		NT		NT	
Benzene	U	0.003	U	0.0029	U	0.0027	NT		U	0.0027	U	0.0036	NT		NT		NT	
Chloroform	U	0.003	U	0.0029	0.0029	0.0027	NT		U	0.0027	U	0.0036	NT		NT		NT	
Ethylbenzene	U	0.003	U	0.0029	U	0.0027	NT		U	0.0027	U	0.0036	NT		NT		NT	
Trichloroethene (TCE)	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Polyaromatic Hydrocarbons (PAH)																		
Acenaphthene	U	0.810	U	1.5	U	0.360	NT		U	0.380	U	2.4	NT		NT		NT	
Anthracene	U	0.810	1.3	1.5	U	0.360	NT		U	0.380	2.1	2.4	NT		NT		NT	
Benzo(a)anthracene	U	0.810	3.0	1.5	0.28	0.360	NT		0.33	0.380	4.9	2.4	NT		NT		NT	
Benzo(b)fluoranthene	U	0.810	2.8	1.5	0.32	0.360	NT		0.28	0.380	5.3	2.4	NT		NT		NT	
Benzo(k)fluoranthene	U	0.810	3.0	1.5	0.23	0.360	NT		0.28	0.380	3.7	2.4	NT		NT		NT	
Benzo(g,h,i)perylene	U	0.810	1.0	1.5	U	0.360	NT		U	0.380	1.5	2.4	NT		NT		NT	
Benzo(a)pyrene	U	0.810	2.9	1.5	0.27	0.360	NT		0.28	0.380	4.3	2.4	NT		NT		NT	
Chrysene	U	0.810	3.1	1.5	0.33	0.360	NT		0.35	0.380	5.2	2.4	NT		NT		NT	
Dibenzo(a,h)anthracene	U	0.810	U	1.5	U	0.360	NT		U	0.380	U	2.4	NT		NT		NT	
Fluoranthene	0.59	0.810	5.7	1.5	0.67	0.360	NT		0.59	0.380	11	2.4	NT		NT		NT	
Indeno(1,2,3-cd)pyrene	U	0.810	1.1	1.5	U	0.360	NT		U	0.380	1.6	2.4	NT		NT		NT	
Naphthalene	U	0.810	U	1.5	U	0.360	NT		U	0.380	U	2.4	NT		NT		NT	
Phenanthrene	U	0.810	4.9	1.5	0.45	0.360	NT		0.45	0.380	9.2	2.4	NT		NT		NT	
Pyrene	0.49	0.810	4.5	1.5	0.39	0.360	NT		0.38	0.380	6.5	2.4	NT		NT		NT	
Extractable Petroleum Hydrocarbons (EPH)																		
C_9-C_{18} Aliphatics Hydrocarbons	9.9	3.7	12	3.8	7.0	3.6	U	3.8	U	3.8	8.6	5.0	NT		NT		U	3.9
C_{19}-C_{36} Aliphatics Hydrocarbons	66	3.7	47	3.8	42	3.6	61	3.8	23	3.8	190	5.0	NT		NT		7.1	3.9
C_{11}-C_{22} Aromatics Hydrocarbons	120	3.7	150	3.8	26	3.6	62	3.8	13	3.8	130	5.0	NT		NT		14	3.9
Acenaphthene	0.7	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.5	NT		NT		U	0.4
Acenaphthylene	U	0.4	0.39	0.4	U	0.4	U	0.4	U	0.4	U	0.5	NT		NT		U	0.4
Anthracene	1.7	0.4	1.1	0.4	U	0.4	U	0.4	U	0.4	1.1	0.5	NT		NT		U	0.4
Benzo(a)anthracene	3.2	0.4	4.2	0.4	U	0.4	U	0.4	U	0.4	3.0	0.5	NT		NT		U	0.4
Benzo(a)pyrene	2.9	0.4	4.1	0.4	U	0.4	U	0.4	U	0.4	3.0	0.5	NT		NT		U	0.4
Benzo(b)fluoranthene	3.5	0.4	5.0	0.4	U	0.4	U	0.4	U	0.4	3.4	0.5	NT		NT		U	0.4
Benzo(g,h,i)perylene	1.1	0.4	1.5	0.4	U	0.4	U	0.4	U	0.4	1.3	0.5	NT		NT		U	0.4
Benzo(k)fluoranthene	1.2	0.4	1.9	0.4	U	0.4	U	0.4	U	0.4	1.5	0.5	NT		NT		U	0.4
Chrysene	3.1	0.4	3.9	0.4	U	0.4	U	0.4	U	0.4	3.0	0.5	NT		NT		U	0.4
Dibenzo(a,h)anthracene	U	0.4	0.44	0.4	U	0.4	U	0.4	U	0.4	U	0.5	NT		NT		U	0.4
Fluoranthene	7.0	0.4	8.1	0.4	0.53	0.4	U	0.4	U	0.4	7.1	0.5	NT		NT		U	0.4
Fluorene	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.5	NT		NT		U	0.4
Indeno(1,2,3-cd)pyrene	1.2	0.4	1.8	0.4	U	0.4	U	0.4	U	0.4	1.1	0.5	NT		NT		U	0.4
2-Methylnaphthalene	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.5	NT		NT		U	0.4
Naphthalene	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.5	NT		NT		U	0.4
Phenanthrene	6.8	0.4	4.3	0.4	0.38	0.4	U	0.4	U	0.4	5.2	0.5	NT		NT		U	0.4
Pyrene	6.6	0.4	7.9	0.4	0.47	0.4	U	0.4	U	0.4	6.2	0.5	NT		NT		U	0.4

	Building No. 3										Building No. 3 Confirmatory Sampling											
Sample ID	B-48		B-48		B-48		B-48		B-49		B-4 (1)		B-4 (2)		B-4 (3)		B-4 (4)		B-4 (5)		B-4 (6)	
	(0-0.5')		(0.5-2')		(2-4')		(4-6')		(0-0.5')		(4' bgs)		(4' bgs)		(4' bgs)		(4' bgs)		(4' bgs)		(4' bgs)	
Date Sampled	5/7/01		5/7/01		5/7/01		5/7/01		5/7/01		6/3/02		6/3/02		6/3/02		6/3/02		6/3/02		6/3/02	
Sampling Company	S&W		S&W		S&W		S&W		S&W		S&W		S&W		S&W		S&W		S&W		S&W	
Analytes																						
	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL
Metals																						
Arsenic	65		8.9		6.2		7.5		14		NT		NT		NT		NT		NT		NT	
Barium	130		NT		NT		NT		73		NT		NT		NT		NT		NT		NT	
Beryllium	0.2U	0.20	NT		NT		NT		0.3		NT		NT		NT		NT		NT		NT	
Cadmium	0.72		NT		NT		NT		0.37		NT		NT		NT		NT		NT		NT	
Chromium	55		NT		NT		NT		26		NT		NT		NT		NT		NT		NT	
Lead	150		NT		NT		NT		170		NT		NT		NT		NT		NT		NT	
Selenium	1.2		NT		NT		NT		1U	1.0	NT		NT		NT		NT		NT		NT	
Silver	1U	1.0	NT		NT		NT		1U	1.0	NT		NT		NT		NT		NT		NT	
Zinc	84		NT		NT		NT		74		NT		NT		NT		NT		NT		NT	
Mercury	0.4		NT		NT		NT		0.39		NT		NT		NT		NT		NT		NT	
Polychlorinated Biphenyls - PCBs																						
Aroclor-1016	U	0.120	NT		NT		NT		U	0.120	U	0.115	U	0.108	U	0.109	U	0.109	U	0.107	U	0.155
Aroclor-1248	U	0.120	NT		NT		NT		U	0.120	U	0.115	U	0.108	U	0.109	U	0.109	U	0.107	U	0.155
Aroclor-1254	U	0.120	NT		NT		NT		U	0.120	U	0.115	U	0.108	U	0.109	U	0.109	U	0.107	U	0.155
Aroclor-1260	U	0.120	NT		NT		NT		U	0.120	U	0.115	U	0.108	U	0.109	U	0.109	U	0.107	U	0.155
Pesticides																						
beta-BHC	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Volatile Organic Compounds - VOCs																						
Acetone	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Benzene	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Chloroform	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Ethylbenzene	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Trichloroethene (TCE)	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Polyaromatic Hydrocarbons (PAH)																						
Acenaphthene	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Anthracene	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Benzo(a)anthracene	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Benzo(b)fluoranthene	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Benzo(k)fluoranthene	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Benzo(g,h,i)perylene	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Benzo(a)pyrene	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Chrysene	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Dibenzo(a,h)anthracene	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Fluoranthene	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Indeno(1,2,3-cd)pyrene	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Naphthalene	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Phenanthrene	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Pyrene	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Extractable Petroleum Hydrocarbons (EPH)																						
C_9-C_{18} Aliphatics Hydrocarbons	U	3.9	NT		NT		NT		U	4.0	NT		NT		NT		NT		NT		NT	
C_{19}-C_{36} Aliphatics Hydrocarbons	U	3.9	NT		NT		NT		15	4.0	NT		NT		NT		NT		NT		NT	
C_{11}-C_{22} Aromatics Hydrocarbons	25	3.9	NT		NT		NT		38	4.0	NT		NT		NT		NT		NT		NT	
Acenaphthene	U	0.4	NT		NT		NT		U	0.4	NT		NT		NT		NT		NT		NT	
Acenaphthylene	U	0.4	NT		NT		NT		U	0.4	NT		NT		NT		NT		NT		NT	
Anthracene	U	0.4	NT		NT		NT		U	0.4	NT		NT		NT		NT		NT		NT	
Benzo(a)anthracene	U	0.4	NT		NT		NT		U	0.4	NT		NT		NT		NT		NT		NT	
Benzo(a)pyrene	0.54	0.4	NT		NT		NT		U	0.4	NT		NT		NT		NT		NT		NT	
Benzo(b)fluoranthene	U	0.4	NT		NT		NT		U	0.4	NT		NT		NT		NT		NT		NT	
Benzo(g,h,i)perylene	U	0.4	NT		NT		NT		U	0.4	NT		NT		NT		NT		NT		NT	
Benzo(k)fluoranthene	U	0.4	NT		NT		NT		U	0.4	NT		NT		NT		NT		NT		NT	
Chrysene	U	0.4	NT		NT		NT		U	0.4	NT		NT		NT		NT		NT		NT	
Dibenzo(a,h)anthracene	U	0.4	NT		NT		NT		U	0.4	NT		NT		NT		NT		NT		NT	
Fluoranthene	U	0.4	NT		NT		NT		U	0.4	NT		NT		NT		NT		NT		NT	
Fluorene	U	0.4	NT		NT		NT		U	0.4	NT		NT		NT		NT		NT		NT	
Indeno(1,2,3-cd)pyrene	U	0.4	NT		NT		NT		U	0.4	NT		NT		NT		NT		NT		NT	
2-Methylnaphthalene	U	0.4	NT		NT		NT		U	0.4	NT		NT		NT		NT		NT		NT	
Naphthalene	U	0.4	NT		NT		NT		U	0.4	NT		NT		NT		NT		NT		NT	
Phenanthrene	U	0.4	NT		NT		NT		U	0.4	NT		NT		NT		NT		NT		NT	
Pyrene	0.57	0.4	NT		NT		NT		U	0.4	NT		NT		NT		NT		NT		NT	

All concentrations and quantitation limits expressed in mg/kg
U = Not Detected
UJ = Sample-specific detection limit is appro›
J = Quantitation is approximate due to limitations identified in the quality control review
NT = Not Tested
bgs = below ground surface
btg = below transformer pit grade

TABLE 5-1 Cont - Oxford Paper Mill South Side Soil Analytical Data Summary (Sub-Basement and Transformer #6 / Courtyard Area)
City of Lawrence - 21 Canal Street
RTN 3-2691

Building No. 3 Confirmatory Sampling

Sample ID	B-4 (7)		B-4 (8)		B-4 (9)		B-4 (10)		B-4 (11)		B-4 (12)		B-24 (1)		B-24 (2)	
	(4' bgs)		(4' bgs)		(4' bgs)		(4' bgs)		(4' bgs)		(4' bgs)		(1' bgs)		(1' bgs)	
Date Sampled	6/3/02		6/3/02		6/3/02		6/3/02		6/3/02		6/3/02		5/10/02		5/10/02	
Sampling Company	S&W		S&W		S&W		S&W		S&W		S&W		S&W		S&W	
Analytes	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL
Metals																
Arsenic	NT		NT		NT		NT		NT		NT		NT		NT	
Barium	NT		NT		NT		NT		NT		NT		NT		NT	
Beryllium	NT		NT		NT		NT		NT		NT		NT		NT	
Cadmium	NT		NT		NT		NT		NT		NT		NT		NT	
Chromium	NT		NT		NT		NT		NT		NT		NT		NT	
Lead	NT		NT		NT		NT		NT		NT		NT		NT	
Selenium	NT		NT		NT		NT		NT		NT		NT		NT	
Silver	NT		NT		NT		NT		NT		NT		NT		NT	
Zinc	NT		NT		NT		NT		NT		NT		NT		NT	
Mercury	NT		NT		NT		NT		NT		NT		NT		NT	
Polychlorinated Biphenyls - PCBs																
Aroclor-1016	U	0.120	U	0.111	U	0.117	U	0.106	U	0.110	U	0.111	U	0.110	U	0.120
Aroclor-1248	U	0.120	U	0.111	U	0.117	U	0.106	U	0.110	U	0.111	U	0.110	U	0.120
Aroclor-1254	U	0.120	U	0.111	U	0.117	U	0.106	U	0.110	U	0.111	U	0.110	U	0.120
Aroclor-1260	U	0.120	U	0.111	U	0.117	U	0.106	U	0.110	U	0.111	U	0.110	U	0.120
Pesticides																
beta-BHC	NT		NT		NT		NT		NT		NT		NT		NT	
Volatile Organic Compounds - VOCs																
Acetone	NT		NT		NT		NT		NT		NT		NT		NT	
Benzene	NT		NT		NT		NT		NT		NT		NT		NT	
Chloroform	NT		NT		NT		NT		NT		NT		NT		NT	
Ethylbenzene	NT		NT		NT		NT		NT		NT		NT		NT	
Trichloroethene (TCE)	NT		NT		NT		NT		NT		NT		NT		NT	
Polyaromatic Hydrocarbons (PAH)																
Acenaphthene	NT		NT		NT		NT		NT		NT		NT		NT	
Anthracene	NT		NT		NT		NT		NT		NT		NT		NT	
Benzo(a)anthracene	NT		NT		NT		NT		NT		NT		NT		NT	
Benzo(b)fluoranthene	NT		NT		NT		NT		NT		NT		NT		NT	
Benzo(k)fluoranthene	NT		NT		NT		NT		NT		NT		NT		NT	
Benzo(g,h,i)perylene	NT		NT		NT		NT		NT		NT		NT		NT	
Benzo(a)pyrene	NT		NT		NT		NT		NT		NT		NT		NT	
Chrysene	NT		NT		NT		NT		NT		NT		NT		NT	
Dibenzo(a,h)anthracene	NT		NT		NT		NT		NT		NT		NT		NT	
Fluoranthene	NT		NT		NT		NT		NT		NT		NT		NT	
Indeno(1,2,3-cd)pyrene	NT		NT		NT		NT		NT		NT		NT		NT	
Naphthalene	NT		NT		NT		NT		NT		NT		NT		NT	
Phenanthrene	NT		NT		NT		NT		NT		NT		NT		NT	
Pyrene	NT		NT		NT		NT		NT		NT		NT		NT	
Extractable Petroleum Hydrocarbons (EPH)																
C_9-C_{18} Aliphatics Hydrocarbons	NT		NT		NT		NT		NT		NT		4.0J	3.9	6.7J	3.8
C_{19}-C_{36} Aliphatics Hydrocarbons	NT		NT		NT		NT		NT		NT		150	3.9	280	3.8
C_{11}-C_{22} Aromatics Hydrocarbons	NT		NT		NT		NT		NT		NT		16	3.9	64	3.8
Acenaphthene	NT		NT		NT		NT		NT		NT		U	0.4	U	0.4
Acenaphthylene	NT		NT		NT		NT		NT		NT		U	0.4	U	0.4
Anthracene	NT		NT		NT		NT		NT		NT		U	0.4	U	0.4
Benzo(a)anthracene	NT		NT		NT		NT		NT		NT		U	0.4	U	0.4
Benzo(a)pyrene	NT		NT		NT		NT		NT		NT		U	0.4	U	0.4
Benzo(b)fluoranthene	NT		NT		NT		NT		NT		NT		U	0.4	U	0.4
Benzo(g,h,i)perylene	NT		NT		NT		NT		NT		NT		U	0.4	U	0.4
Benzo(k)fluoranthene	NT		NT		NT		NT		NT		NT		U	0.4	U	0.4
Chrysene	NT		NT		NT		NT		NT		NT		U	0.4	U	0.4
Dibenzo(a,h)anthracene	NT		NT		NT		NT		NT		NT		U	0.4	U	0.4
Fluoranthene	NT		NT		NT		NT		NT		NT		U	0.4	0.56	0.4
Fluorene	NT		NT		NT		NT		NT		NT		U	0.4	U	0.4
Indeno(1,2,3-cd)pyrene	NT		NT		NT		NT		NT		NT		U	0.4	U	0.4
2-Methylnaphthalene	NT		NT		NT		NT		NT		NT		U	0.4	U	0.4
Naphthalene	NT		NT		NT		NT		NT		NT		U	0.4	U	0.4
Phenanthrene	NT		NT		NT		NT		NT		NT		U	0.4	U	0.4
Pyrene	NT		NT		NT		NT		NT		NT		U	0.4	U	0.4

Sample ID	B-24 (3)		B-24 (4)		B-24 (5)		B-24 (6)		B-24 (7)		B-24 (8)		B-24 (9)		B-24 (10)	
	(1' bgs)		(1' bgs)		(1' bgs)		(1' bgs)		(1' bgs)		(1' bgs)		(1' bgs)		(1' bgs)	
Date Sampled	5/10/02		5/10/02		5/10/02		5/10/02		5/10/02		5/10/02		5/10/02		5/10/02	
Sampling Company	S&W		S&W		S&W		S&W		S&W		S&W		S&W		S&W	
Analytes	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL
Metals																
Arsenic	NT		NT		NT		NT		NT		NT		NT		NT	
Barium	NT		NT		NT		NT		NT		NT		NT		NT	
Beryllium	NT		NT		NT		NT		NT		NT		NT		NT	
Cadmium	NT		NT		NT		NT		NT		NT		NT		NT	
Chromium	NT		NT		NT		NT		NT		NT		NT		NT	
Lead	NT		NT		NT		NT		NT		NT		NT		NT	
Selenium	NT		NT		NT		NT		NT		NT		NT		NT	
Silver	NT		NT		NT		NT		NT		NT		NT		NT	
Zinc	NT		NT		NT		NT		NT		NT		NT		NT	
Mercury	NT		NT		NT		NT		NT		NT		NT		NT	
Polychlorinated Biphenyls - PCBs																
Aroclor-1016	U	0.120	U	0.120	U	0.110	U	0.110	U	0.120	U	0.110	U	0.110	U	0.110
Aroclor-1248	U	0.120	U	0.120	U	0.110	U	0.110	U	0.120	U	0.110	U	0.110	U	0.110
Aroclor-1254	U	0.120	U	0.120	U	0.110	U	0.110	U	0.120	U	0.110	U	0.110	U	0.110
Aroclor-1260	U	0.120	U	0.120	U	0.110	U	0.110	U	0.120	U	0.110	U	0.110	U	0.110
Pesticides																
beta-BHC	NT		NT		NT		NT		NT		NT		NT		NT	
Volatile Organic Compounds - VOCs																
Acetone	NT		NT		NT		NT		NT		NT		NT		NT	
Benzene	NT		NT		NT		NT		NT		NT		NT		NT	
Chloroform	NT		NT		NT		NT		NT		NT		NT		NT	
Ethylbenzene	NT		NT		NT		NT		NT		NT		NT		NT	
Trichloroethene (TCE)	NT		NT		NT		NT		NT		NT		NT		NT	
Polyaromatic Hydrocarbons (PAH)																
Acenaphthene	NT		NT		NT		NT		NT		NT		NT		NT	
Anthracene	NT		NT		NT		NT		NT		NT		NT		NT	
Benzo(a)anthracene	NT		NT		NT		NT		NT		NT		NT		NT	
Benzo(b)fluoranthene	NT		NT		NT		NT		NT		NT		NT		NT	
Benzo(k)fluoranthene	NT		NT		NT		NT		NT		NT		NT		NT	
Benzo(g,h,i)perylene	NT		NT		NT		NT		NT		NT		NT		NT	
Benzo(a)pyrene	NT		NT		NT		NT		NT		NT		NT		NT	
Chrysene	NT		NT		NT		NT		NT		NT		NT		NT	
Dibenzo(a,h)anthracene	NT		NT		NT		NT		NT		NT		NT		NT	
Fluoranthene	NT		NT		NT		NT		NT		NT		NT		NT	
Indeno(1,2,3-cd)pyrene	NT		NT		NT		NT		NT		NT		NT		NT	
Naphthalene	NT		NT		NT		NT		NT		NT		NT		NT	
Phenanthrene	NT		NT		NT		NT		NT		NT		NT		NT	
Pyrene	NT		NT		NT		NT		NT		NT		NT		NT	
Extractable Petroleum Hydrocarbons (EPH)																
C_9-C_{18} Aliphatics Hydrocarbons	NT		15J	4.1	NT		UJ	4.0	NT		10J	3.8	NT		4.5J	4.0
C_{19}-C_{36} Aliphatics Hydrocarbons	NT		880	4.1	NT		210	4.0	NT		420	3.8	NT		130	4.0
C_{11}-C_{22} Aromatics Hydrocarbons	NT		140	4.1	NT		54	4.0	NT		92	3.8	NT		25	4.0
Acenaphthene	NT		U	0.4	NT		U	0.4	NT		U	0.4	NT		U	0.4
Acenaphthylene	NT		U	0.4	NT		U	0.4	NT		U	0.4	NT		U	0.4
Anthracene	NT		U	0.4	NT		U	0.4	NT		U	0.4	NT		U	0.4
Benzo(a)anthracene	NT		U	0.4	NT		U	0.4	NT		0.61	0.4	NT		U	0.4
Benzo(a)pyrene	NT		U	0.4	NT		U	0.4	NT		U	0.4	NT		U	0.4
Benzo(b)fluoranthene	NT		U	0.4	NT		U	0.4	NT		0.64	0.4	NT		U	0.4
Benzo(g,h,i)perylene	NT		U	0.4	NT		U	0.4	NT		U	0.4	NT		U	0.4
Benzo(k)fluoranthene	NT		U	0.4	NT		U	0.4	NT		U	0.4	NT		U	0.4
Chrysene	NT		U	0.4	NT		U	0.4	NT		0.57	0.4	NT		U	0.4
Dibenzo(a,h)anthracene	NT		U	0.4	NT		U	0.4	NT		U	0.4	NT		U	0.4
Fluoranthene	NT		1.1	0.4	NT		U	0.4	NT		1.2	0.4	NT		U	0.4
Fluorene	NT		U	0.4	NT		U	0.4	NT		U	0.4	NT		U	0.4
Indeno(1,2,3-cd)pyrene	NT		U	0.4	NT		U	0.4	NT		U	0.4	NT		U	0.4
2-Methylnaphthalene	NT		U	0.4	NT		U	0.4	NT		U	0.4	NT		U	0.4
Naphthalene	NT		U	0.4	NT		U	0.4	NT		U	0.4	NT		U	0.4
Phenanthrene	NT		0.74	0.4	NT		U	0.4	NT		0.59	0.4	NT		U	0.4
Pyrene	NT		0.7	0.4	NT		U	0.4	NT		0.69	0.4	NT		U	0.4

Sample ID	B-24 (11)		B-24 (12)		B-35 (1)		B-35 (2)		B-35 (3)		B-35 (4)		B-35 (4) DUP		B-42 (1)	
	(1' bgs)		(1' bgs)		(0.5' bgs)		(0.5' bgs)		(0.5' bgs)		(0.5' bgs)		(0.5' bgs)		(0.5' bgs)	
Date Sampled	5/10/02		5/10/02		5/10/02		5/10/02		5/10/02		5/10/02		5/10/02		5/10/02	
Sampling Company	S&W		S&W		S&W		S&W		S&W		S&W		S&W		S&W	
Analytes	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL
Metals																
Arsenic	NT		NT		NT		NT		NT		NT		NT		NT	
Barium	NT		NT		NT		NT		NT		NT		NT		NT	
Beryllium	NT		NT		NT		NT		NT		NT		NT		NT	
Cadmium	NT		NT		NT		NT		NT		NT		NT		NT	
Chromium	NT		NT		NT		NT		NT		NT		NT		NT	
Lead	NT		NT		NT		NT		NT		NT		NT		NT	
Selenium	NT		NT		NT		NT		NT		NT		NT		NT	
Silver	NT		NT		NT		NT		NT		NT		NT		NT	
Zinc	NT		NT		NT		NT		NT		NT		NT		NT	
Mercury	NT		NT		NT		NT		NT		NT		NT		NT	
Polychlorinated Biphenyls - PCBs																
Aroclor-1016	U	0.120	U	0.110	NT		NT		NT		NT		NT		NT	
Aroclor-1248	U	0.120	U	0.110	NT		NT		NT		NT		NT		NT	
Aroclor-1254	U	0.120	U	0.110	NT		NT		NT		NT		NT		NT	
Aroclor-1260	U	0.120	U	0.110	NT		NT		NT		NT		NT		NT	
Pesticides																
beta-BHC	NT		NT		NT		NT		NT		NT		NT		NT	
Volatile Organic Compounds - VOCs																
Acetone	NT		NT		NT		NT		NT		NT		NT		NT	
Benzene	NT		NT		NT		NT		NT		NT		NT		NT	
Chloroform	NT		NT		NT		NT		NT		NT		NT		NT	
Ethylbenzene	NT		NT		NT		NT		NT		NT		NT		NT	
Trichloroethene (TCE)	NT		NT		NT		NT		NT		NT		NT		NT	
Polyaromatic Hydrocarbons (PAH)																
Acenaphthene	NT		NT		NT		NT		NT		NT		NT		NT	
Anthracene	NT		NT		NT		NT		NT		NT		NT		NT	
Benzo(a)anthracene	NT		NT		NT		NT		NT		NT		NT		NT	
Benzo(b)fluoranthene	NT		NT		NT		NT		NT		NT		NT		NT	
Benzo(k)fluoranthene	NT		NT		NT		NT		NT		NT		NT		NT	
Benzo(g,h,i)perylene	NT		NT		NT		NT		NT		NT		NT		NT	
Benzo(a)pyrene	NT		NT		NT		NT		NT		NT		NT		NT	
Chrysene	NT		NT		NT		NT		NT		NT		NT		NT	
Dibenzo(a,h)anthracene	NT		NT		NT		NT		NT		NT		NT		NT	
Fluoranthene	NT		NT		NT		NT		NT		NT		NT		NT	
Indeno(1,2,3-cd)pyrene	NT		NT		NT		NT		NT		NT		NT		NT	
Naphthalene	NT		NT		NT		NT		NT		NT		NT		NT	
Phenanthrene	NT		NT		NT		NT		NT		NT		NT		NT	
Pyrene	NT		NT		NT		NT		NT		NT		NT		NT	
Extractable Petroleum Hydrocarbons (EPH)																
C_9-C_{18} Aliphatics Hydrocarbons	NT		NT		7.3J	3.9	10J	6.4	44J	19	22J	8.9	37J	18	UJ	4.0
C_{19}-C_{36} Aliphatics Hydrocarbons	NT		NT		300	3.9	140	6.4	2900	19	270J	8.9	630	18	7.4	4.0
C_{11}-C_{22} Aromatics Hydrocarbons	NT		NT		42	3.9	140	6.4	690	19	400J	8.9	1000	18	16	4.0
Acenaphthene	NT		NT		U	0.4	U	0.6	U	1.9	U	0.9	U	1.8	1.9	0.4
Acenaphthylene	NT		NT		U	0.4	U	0.6	U	1.9	U	0.9	U	1.8	U	0.4
Anthracene	NT		NT		U	0.4	U	0.6	U	1.9	U	0.9	U	1.8	U	0.4
Benzo(a)anthracene	NT		NT		U	0.4	1.0	0.6	U	1.9	U	0.9	U	1.8	0.92	0.4
Benzo(a)pyrene	NT		NT		U	0.4	U	0.6	U	1.9	U	0.9	U	1.8	0.62	0.4
Benzo(b)fluoranthene	NT		NT		0.4	0.4	1.4	0.6	U	1.9	U	0.9	U	1.8	0.92	0.4
Benzo(g,h,i)perylene	NT		NT		U	0.4	U	0.6	U	1.9	U	0.9	U	1.8	U	0.4
Benzo(k)fluoranthene	NT		NT		U	0.4	U	0.6	U	1.9	U	0.9	U	1.8	U	0.4
Chrysene	NT		NT		0.4	0.4	1.4	0.6	U	1.9	U	0.9	U	1.8	0.98	0.4
Dibenzo(a,h)anthracene	NT		NT		U	0.4	ND	0.6	U	1.9	U	0.9	U	1.8	0.55	0.4
Fluoranthene	NT		NT		0.8	0.4	1.2	0.6	U	1.9	U	0.9	U	1.8	2.0	0.4
Fluorene	NT		NT		U	0.4	U	0.6	U	1.9	U	0.9	U	1.8	U	0.4
Indeno(1,2,3-cd)pyrene	NT		NT		U	0.4	0.73	0.6	U	1.9	U	0.9	U	1.8	0.69	0.4
2-Methylnaphthalene	NT		NT		U	0.4	U	0.6	U	1.9	U	0.9	U	1.8	U	0.4
Naphthalene	NT		NT		U	0.4	U	0.6	U	1.9	U	0.9	U	1.8	U	0.4
Phenanthrene	NT		NT		0.54	0.4	1.0	0.6	U	1.9	U	0.9	U	1.8	1.1	0.4
Pyrene	NT		NT		0.48	0.4	1.7	0.6	U	1.9	U	0.9	U	1.8	1.5	0.4

All concentrations and quantitation limits expressed in mg/kg
U = Not Detected
UJ = Sample-specific detection limit is appro›
J = Quantitation is approximate due to limitations identified in the quality control review
NT = Not Tested
bgs = below ground surface
btg = below transformer pit grade

TABLE 5-1 Cont - Oxford Paper Mill South Side Soil Analytical Data Summary (Sub-Basement and Transformer #6 / Courtyard Area)
City of Lawrence - 21 Canal Street
RTN 3-2691

Sample ID	B-42 (2)		B-42 (3)		B-42 (4)		B-42 (5)		B-46 (1)		B-46 (2)		B-46 (3)		B-46 (4)		B-46 (5)	
	(0.5' bgs)		(0.5' bgs)		(0.5' bgs)		(0.5' bgs)		(0.5' bgs)		(0.5' bgs)		(0.5' bgs)		(0.5' bgs)		(0.5' bgs)	
Date Sampled	5/10/02		5/10/02		5/10/02		5/10/02		6/3/02		6/3/02		6/3/02		6/3/02		6/3/02	
Sampling Company	S&W		S&W		S&W		S&W		S&W		S&W		S&W		S&W		S&W	
Analytes	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL
Metals																		
Arsenic	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Barium	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Beryllium	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Cadmium	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Chromium	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Lead	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Selenium	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Silver	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Zinc	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Mercury	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Polychlorinated Biphenyls - PCBs																		
Aroclor-1016	NT		NT		NT		NT		U	0.114	U	0.111	U	0.112	U	0.111	U	0.111
Aroclor-1248	NT		NT		NT		NT		U	0.114	U	0.111	U	0.112	U	0.111	U	0.111
Aroclor-1254	NT		NT		NT		NT		0.179	0.114	U	0.111	U	0.112	U	0.111	U	0.111
Aroclor-1260	NT		NT		NT		NT		U	0.114	U	0.111	U	0.112	U	0.111	U	0.111
Pesticides																		
beta-BHC	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Volatile Organic Compounds - VOCs																		
Acetone	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Benzene	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Chloroform	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Ethylbenzene	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Trichloroethene (TCE)	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Polyaromatic Hydrocarbons (PAH)																		
Acenaphthene	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Anthracene	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Benzo(a)anthracene	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Benzo(b)fluoranthene	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Benzo(k)fluoranthene	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Benzo(g,h,i)perylene	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Benzo(a)pyrene	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Chrysene	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Dibenzo(a,h)anthracene	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Fluoranthene	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Indeno(1,2,3-cd)pyrene	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Naphthalene	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Phenanthrene	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Pyrene	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Extractable Petroleum Hydrocarbons (EPH)																		
C_9-C_{18} Aliphatics Hydrocarbons	UJ	3.9	UJ	3.9	UJ	4.0	UJ	3.8	NT		NT		NT		NT		NT	
C_{19}-C_{36} Aliphatics Hydrocarbons	U	3.9	16	3.9	31	4.0	6.9	3.8	NT		NT		NT		NT		NT	
C_{11}-C_{22} Aromatics Hydrocarbons	U	3.9	4.3	3.9	8.7	4.0	4.5	3.8	NT		NT		NT		NT		NT	
Acenaphthene	U	0.4	U	0.4	U	0.4	U	0.4	NT		NT		NT		NT		NT	
Acenaphthylene	U	0.4	U	0.4	U	0.4	U	0.4	NT		NT		NT		NT		NT	
Anthracene	U	0.4	U	0.4	U	0.4	U	0.4	NT		NT		NT		NT		NT	
Benzo(a)anthracene	U	0.4	U	0.4	U	0.4	U	0.4	NT		NT		NT		NT		NT	
Benzo(a)pyrene	U	0.4	U	0.4	U	0.4	U	0.4	NT		NT		NT		NT		NT	
Benzo(b)fluoranthene	U	0.4	U	0.4	U	0.4	U	0.4	NT		NT		NT		NT		NT	
Benzo(g,h,i)perylene	U	0.4	U	0.4	U	0.4	U	0.4	NT		NT		NT		NT		NT	
Benzo(k)fluoranthene	U	0.4	U	0.4	U	0.4	U	0.4	NT		NT		NT		NT		NT	
Chrysene	U	0.4	U	0.4	U	0.4	U	0.4	NT		NT		NT		NT		NT	
Dibenzo(a,h)anthracene	U	0.4	U	0.4	U	0.4	U	0.4	NT		NT		NT		NT		NT	
Fluoranthene	U	0.4	U	0.4	U	0.4	U	0.4	NT		NT		NT		NT		NT	
Fluorene	U	0.4	U	0.4	U	0.4	U	0.4	NT		NT		NT		NT		NT	
Indeno(1,2,3-cd)pyrene	U	0.4	U	0.4	U	0.4	U	0.4	NT		NT		NT		NT		NT	
2-Methylnaphthalene	U	0.4	U	0.4	U	0.4	U	0.4	NT		NT		NT		NT		NT	
Naphthalene	U	0.4	U	0.4	U	0.4	U	0.4	NT		NT		NT		NT		NT	
Phenanthrene	U	0.4	U	0.4	U	0.4	U	0.4	NT		NT		NT		NT		NT	
Pyrene	U	0.4	U	0.4	U	0.4	U	0.4	NT		NT		NT		NT		NT	

	Building No 3 Confirmatory Sampling																	
Sample ID	B-46 6)		B-46 (7)		B-46 (8)		B-46 (9)		B-46 (10)		B-46 (11)		B-46 (12)		B-46 (13)		B-46 (14)	
	(0.5 bgs)		(0.5' bgs)		(0.5' bgs)		(0.5' bgs)		(0.5' bgs)		(0.5' bgs)		(0.5' bgs)		(0.5' bgs)		(0.5' bgs)	
Date Sampled	6/3/02		6/3/02		6/3/02		6/3/02		6/3/02		6/3/02		6/3/02		6/3/02		6/3/02	
Sampling Company	S&W		S&W		S&W		S&W		S&W		S&W		S&W		S&W		S&W	
Analytes	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL
Metals																		
Arsenic	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Barium	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Beryllium	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Cadmium	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Chromium	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Lead	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Selenium	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Silver	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Zinc	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Mercury	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Polychlorinated Biphenyls - PCBs																		
Aroclor-1016	U	0.107	U	0.111	U	0.109	U	0.103	U	0.110	U	0.112	U	0.109	U	0.101	U	0.108
Aroclor-1248	U	0.107	U	0.111	U	0.109	U	0.103	U	0.110	U	0.112	U	0.109	U	0.101	U	0.108
Aroclor-1254	U	0.107	0.168	0.111	U	0.109	0.135	0.103	U	0.110	U	0.112	U	0.109	0.134	0.101	1.07	0.108
Aroclor-1260	U	0.107	U	0.111	U	0.109	U	0.103	U	0.110	U	0.112	U	0.109	U	0.101	U	0.108
Pesticides																		
beta-BHC	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Volatile Organic Compounds - VOCs																		
Acetone	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Benzene	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Chloroform	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Ethylbenzene	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Trichloroethene (TCE)	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Polyaromatic Hydrocarbons (PAH)																		
Acenaphthene	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Anthracene	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Benzo(a)anthracene	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Benzo(b)fluoranthene	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Benzo(k)fluoranthene	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Benzo(g,h,i)perylene	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Benzo(a)pyrene	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Chrysene	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Dibenzo(a,h)anthracene	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Fluoranthene	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Indeno(1,2,3-cd)pyrene	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Naphthalene	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Phenanthrene	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Pyrene	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Extractable Petroleum Hydrocarbons (EPH)																		
C_9-C_{18} Aliphatics Hydrocarbons	NT		NT		NT		NT		NT		NT		NT		NT		NT	
C_{19}-C_{36} Aliphatics Hydrocarbons	NT		NT		NT		NT		NT		NT		NT		NT		NT	
C_{11}-C_{22} Aromatics Hydrocarbons	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Acenaphthene	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Acenaphthylene	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Anthracene	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Benzo(a)anthracene	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Benzo(a)pyrene	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Benzo(b)fluoranthene	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Benzo(g,h,i)perylene	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Benzo(k)fluoranthene	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Chrysene	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Dibenzo(a,h)anthracene	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Fluoranthene	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Fluorene	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Indeno(1,2,3-cd)pyrene	NT		NT		NT		NT		NT		NT		NT		NT		NT	
2-Methylnaphthalene	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Naphthalene	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Phenanthrene	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Pyrene	NT		NT		NT		NT		NT		NT		NT		NT		NT	

Sample ID	B-46 (14) -Confirm		B-46 (15)		B-46 (16)		B-46 (17)		B-46 (18)		B-46 (19)		B-46 (20)		B-46 (21)		B-46 (22)	
	(0.5' bgs)		(0.5' bgs)		(0.5' bgs)		(0.5' bgs)		(0.5' bgs)		(0.5' bgs)		(0.5' bgs)		(0.5' bgs)		(0.5' bgs)	
Date Sampled	6/12/02		6/3/02		6/3/02		6/3/02		6/3/02		6/3/02		6/3/02		6/3/02		6/3/02	
Sampling Company	S&W		S&W		S&W		S&W		S&W		S&W		S&W		S&W		S&W	
Analytes	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL
Metals																		
Arsenic	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Barium	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Beryllium	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Cadmium	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Chromium	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Lead	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Selenium	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Silver	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Zinc	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Mercury	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Polychlorinated Biphenyls - PCBs																		
Aroclor-1016	U	0.114	U	0.109	U	0.111	U	0.102	U	0.111	U	0.109	U	0.105	U	0.103	U	0.111
Aroclor-1248	U	0.114	U	0.109	U	0.111	U	0.102	U	0.111	U	0.109	U	0.105	U	0.103	U	0.111
Aroclor-1254	U	0.114	0.119	0.109	U	0.111	U	0.102	U	0.111	U	0.109	U	0.105	U	0.103	U	0.111
Aroclor-1260	U	0.114	U	0.109	U	0.111	U	0.102	U	0.111	U	0.109	U	0.105	U	0.103	U	0.111
Pesticides																		
beta-BHC	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Volatile Organic Compounds - VOCs																		
Acetone	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Benzene	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Chloroform	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Ethylbenzene	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Trichloroethene (TCE)	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Polyaromatic Hydrocarbons (PAH)																		
Acenaphthene	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Anthracene	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Benzo(a)anthracene	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Benzo(b)fluoranthene	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Benzo(k)fluoranthene	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Benzo(g,h,i)perylene	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Benzo(a)pyrene	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Chrysene	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Dibenzo(a,h)anthracene	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Fluoranthene	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Indeno(1,2,3-cd)pyrene	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Naphthalene	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Phenanthrene	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Pyrene	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Extractable Petroleum Hydrocarbons (EPH)																		
C_9-C_{18} Aliphatics Hydrocarbons	NT		NT		NT		NT		NT		NT		NT		NT		NT	
C_{19}-C_{36} Aliphatics Hydrocarbons	NT		NT		NT		NT		NT		NT		NT		NT		NT	
C_{11}-C_{22} Aromatics Hydrocarbons	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Acenaphthene	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Acenaphthylene	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Anthracene	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Benzo(a)anthracene	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Benzo(a)pyrene	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Benzo(b)fluoranthene	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Benzo(g,h,i)perylene	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Benzo(k)fluoranthene	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Chrysene	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Dibenzo(a,h)anthracene	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Fluoranthene	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Fluorene	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Indeno(1,2,3-cd)pyrene	NT		NT		NT		NT		NT		NT		NT		NT		NT	
2-Methylnaphthalene	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Naphthalene	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Phenanthrene	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Pyrene	NT		NT		NT		NT		NT		NT		NT		NT		NT	

All concentrations and quantitation limits expressed in mg/kg
U = Not Detected
UJ = Sample-specific detection limit is approximate
J = Quantitation is approximate due to limitations identified in the quality control review
NT = Not Tested
bgs = below ground surface
btg = below transformer pit grade

TABLE 5-1 Cont - Oxford Paper Mill South Side Soil Analytical Data Summary (Sub-Basement and Transformer #6 / Courtyard Area)
City of Lawrence - 21 Canal Street
RTN 3-2691

Sample ID	Building No. 3 Confirmatory Sampling: B-46 (23)		B-46 (24)		B-46 (25)		B-46 (26)		B-46 (27)		B-46 (28)		B-46 (29)		B-46 (30)		B-46 (31)		B-46 (32)	
	(0.5' bgs)		(0.5' bgs)		(0.5' bgs)		(0.5' bgs)		(0.5' bgs)		(0.5' bgs)		(0.5' bgs)		(0.5' bgs)		(0.5' bgs)		(0.5' bgs)	
Date Sampled	6/3/02		6/3/02		6/3/02		6/3/02		6/3/02		6/3/02		6/3/02		6/3/02		6/3/02		6/3/02	
Sampling Company	S&W		S&W		S&W		S&W		S&W		S&W		S&W		S&W		S&W		S&W	
Analytes	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL
Metals																				
Arsenic	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Barium	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Beryllium	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Cadmium	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Chromium	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Lead	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Selenium	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Silver	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Zinc	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Mercury	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Polychlorinated Biphenyls - PCBs																				
Aroclor-1016	U	0.105	U	0.110	U	0.114	U	0.126	U	0.113	U	0.109	U	0.097	U	0.124	U	0.108	U	0.115
Aroclor-1248	U	0.105	U	0.110	U	0.114	U	0.126	U	0.113	U	0.109	U	0.097	U	0.124	U	0.108	U	0.115
Aroclor-1254	U	0.105	U	0.110	U	0.114	0.180	0.126	0.142	0.113	U	0.109	U	0.097	U	0.124	U	0.108	U	0.115
Aroclor-1260	U	0.105	U	0.110	U	0.114	U	0.126	U	0.113	U	0.109	U	0.097	U	0.124	U	0.108	U	0.115
Pesticides																				
beta-BHC	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Volatile Organic Compounds - VOCs																				
Acetone	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Benzene	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Chloroform	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Ethylbenzene	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Trichloroethene (TCE)	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Polyaromatic Hydrocarbons (PAH)																				
Acenaphthene	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Anthracene	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Benzo(a)anthracene	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Benzo(b)fluoranthene	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Benzo(k)fluoranthene	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Benzo(g,h,i)perylene	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Benzo(a)pyrene	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Chrysene	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Dibenzo(a,h)anthracene	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Fluoranthene	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Indeno(1,2,3-cd)pyrene	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Naphthalene	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Phenanthrene	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Pyrene	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Extractable Petroleum Hydrocarbons (EPH)																				
C_9-C_{18} Aliphatics Hydrocarbons	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
C_{19}-C_{36} Aliphatics Hydrocarbons	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
C_{11}-C_{22} Aromatics Hydrocarbons	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Acenaphthene	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Acenaphthylene	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Anthracene	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Benzo(a)anthracene	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Benzo(a)pyrene	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Benzo(b)fluoranthene	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Benzo(g,h,i)perylene	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Benzo(k)fluoranthene	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Chrysene	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Dibenzo(a,h)anthracene	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Fluoranthene	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Fluorene	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Indeno(1,2,3-cd)pyrene	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
2-Methylnaphthalene	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Naphthalene	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Phenanthrene	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Pyrene	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	

Sample ID	Building No. 4: B-4-1		B-4-2		B-4-3		Building No. 5: B-5-1	
	(0-0.5')		(0-0.5')		(0-0.5')		(0-0.5')	
Date Sampled	6/20/01		6/20/01		6/20/01		8/9/01	
Sampling Company	S&W		S&W		S&W		S&W	
Analytes	Result	QL	Result	QL	Result	QL	Result	QL
Metals								
Arsenic	9.0		NT		7.2		11	
Barium	21		NT		38		67	
Beryllium	0.35		NT		0.3U	0.30	0.2U	0.20
Cadmium	0.3U	0.30	NT		0.3U	0.30	0.2U	0.20
Chromium	21		NT		23		32	
Lead	4.5		NT		5.1		11	
Selenium	1U	1.0	NT		1U	1.0	1U	1.0
Silver	1U	1.0	NT		1U	1.0	1U	1.0
Zinc	24		NT		25		38	
Mercury	0.05U	0.05	NT		0.05U	0.05	0.049	
Polychlorinated Biphenyls - PCBs								
Aroclor-1016	U	0.130	U	0.150	U	0.130	U	0.110
Aroclor-1248	U	0.130	U	0.150	U	0.130	U	0.110
Aroclor-1254	U	0.130	U	0.150	U	0.130	U	0.110
Aroclor-1260	U	0.130	U	0.150	U	0.130	U	0.110
Pesticides								
beta-BHC	U	0.013	NT		U	0.013	U	0.011
Volatile Organic Compounds - VOCs								
Acetone	U	0.066	NT		NT		U	2.8
Benzene	U	0.0033	NT		NT		U	0.140
Chloroform	U	0.0033	NT		NT		U	0.140
Ethylbenzene	U	0.0033	NT		NT		U	0.140
Trichloroethene (TCE)	NT		NT		NT		NT	
Polyaromatic Hydrocarbons (PAH)								
Acenaphthene	U	0.440	NT		U	0.450	U	0.360
Anthracene	U	0.440	NT		U	0.450	U	0.360
Benzo(a)anthracene	U	0.440	NT		U	0.450	U	0.360
Benzo(b)fluoranthene	U	0.440	NT		U	0.450	U	0.360
Benzo(k)fluoranthene	U	0.440	NT		U	0.450	U	0.360
Benzo(g,h,i)perylene	U	0.440	NT		U	0.450	U	0.360
Benzo(a)pyrene	U	0.440	NT		U	0.450	U	0.360
Chrysene	U	0.440	NT		U	0.450	U	0.360
Dibenzo(a,h)anthracene	U	0.440	NT		U	0.450	U	0.360
Fluoranthene	U	0.440	NT		U	0.450	U	0.360
Indeno(1,2,3-cd)pyrene	U	0.440	NT		U	0.450	U	0.360
Naphthalene	U	0.440	NT		U	0.450	U	0.360
Phenanthrene	U	0.440	NT		U	0.450	U	0.360
Pyrene	U	0.440	NT		U	0.450	U	0.360
Extractable Petroleum Hydrocarbons (EPH)								
C_9-C_{18} Aliphatics Hydrocarbons	U	4.4	U	4.9	U	4.5	U	3.8
C_{19}-C_{36} Aliphatics Hydrocarbons	U	4.4	U	4.9	U	4.5	U	3.8
C_{11}-C_{22} Aromatics Hydrocarbons	U	4.4	6.3	4.9	U	4.5	U	3.8
Acenaphthene	U	0.4	U	0.5	U	0.5	U	0.4
Acenaphthylene	U	0.4	U	0.5	U	0.5	U	0.4
Anthracene	U	0.4	U	0.5	U	0.5	U	0.4
Benzo(a)anthracene	U	0.4	U	0.5	U	0.5	U	0.4
Benzo(a)pyrene	U	0.4	U	0.5	U	0.5	U	0.4
Benzo(b)fluoranthene	U	0.4	U	0.5	U	0.5	U	0.4
Benzo(g,h,i)perylene	U	0.4	U	0.5	U	0.5	U	0.4
Benzo(k)fluoranthene	U	0.4	U	0.5	U	0.5	U	0.4
Chrysene	U	0.4	U	0.5	U	0.5	U	0.4
Dibenzo(a,h)anthracene	U	0.4	U	0.5	U	0.5	U	0.4
Fluoranthene	U	0.4	U	0.5	U	0.5	U	0.4
Fluorene	U	0.4	U	0.5	U	0.5	U	0.4
Indeno(1,2,3-cd)pyrene	U	0.4	U	0.5	U	0.5	U	0.4
2-Methylnaphthalene	U	0.4	U	0.5	U	0.5	U	0.4
Naphthalene	U	0.4	U	0.5	U	0.5	U	0.4
Phenanthrene	U	0.4	U	0.5	U	0.5	U	0.4
Pyrene	U	0.4	U	0.5	U	0.5	U	0.4

Sample ID	Building No. 6: B-6-1A		B-6-2		B-6-3		B-6-3		B-6-4		B-6-4	
	(0-0.5')		(0-0.5')		(0-0.5')		(0-1')		(0-0.5')		(0.5-2')	
Date Sampled	7/21/03		7/10/01		7/10/01		7/10/01		7/10/01		7/10/01	
Sampling Company	S&W		S&W		S&W		S&W		S&W		S&W	
Analytes	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL
Metals												
Arsenic	NT		9.9		NT		14		NT		NT	
Barium	NT		40		NT		130		NT		NT	
Beryllium	NT		0.2U	0.20	NT		0.26		NT		NT	
Cadmium	NT		0.2U	0.20	NT		0.62		NT		NT	
Chromium	NT		21		NT		46		NT		NT	
Lead	NT		24		NT		410		NT		NT	
Selenium	NT		1U	1.0	NT		2U	2.0	NT		NT	
Silver	NT		1U	1.0	NT		2U	2.0	NT		NT	
Zinc	NT		52		NT		170		NT		NT	
Mercury	NT		0.3		NT		7.0		NT		NT	
Polychlorinated Biphenyls - PCBs												
Aroclor-1016	U	0.114	U	0.120	NT		U	0.280	U	17	U	8.2
Aroclor-1248	U	0.114	U	0.120	NT		U	0.280	U	17	U	8.2
Aroclor-1254	U	0.114	U	0.120	NT		U	0.280	U	17	U	8.2
Aroclor-1260	U	0.114	U	0.120	NT		4.1	0.280	345	17	140	8.2
Pesticides												
beta-BHC	NT		U	0.012	NT		U	0.028	NT		NT	
Volatile Organic Compounds - VOCs												
Acetone	NT		NT		NT		NT		NT		NT	
Benzene	NT		NT		NT		NT		NT		NT	
Chloroform	NT		NT		NT		NT		NT		NT	
Ethylbenzene	NT		NT		NT		NT		NT		NT	
Trichloroethene (TCE)	NT		NT		NT		NT		NT		NT	
Polyaromatic Hydrocarbons (PAH)												
Acenaphthene	NT		U	0.400	U	0.480	NT		NT		NT	
Anthracene	NT		U	0.400	0.41	0.480	NT		NT		NT	
Benzo(a)anthracene	NT		U	0.400	0.94	0.480	NT		NT		NT	
Benzo(b)fluoranthene	NT		U	0.400	0.9	0.480	NT		NT		NT	
Benzo(k)fluoranthene	NT		U	0.400	0.8	0.480	NT		NT		NT	
Benzo(g,h,i)perylene	NT		U	0.400	0.44	0.480	NT		NT		NT	
Benzo(a)pyrene	NT		U	0.400	0.83	0.480	NT		NT		NT	
Chrysene	NT		U	0.400	0.97	0.480	NT		NT		NT	
Dibenzo(a,h)anthracene	NT		U	0.400	0.26	0.480	NT		NT		NT	
Fluoranthene	NT		U	0.400	2.3	0.480	NT		NT		NT	
Indeno(1,2,3-cd)pyrene	NT		U	0.400	0.44	0.480	NT		NT		NT	
Naphthalene	NT		U	0.400	U	0.480	NT		NT		NT	
Phenanthrene	NT		U	0.400	1.6	0.480	NT		NT		NT	
Pyrene	NT		U	0.400	1.5	0.480	NT		NT		NT	
Extractable Petroleum Hydrocarbons (EPH)												
C_9-C_{18} Aliphatics Hydrocarbons	5.5	3.8	U	4.0	7.8	4.8	NT		180	8.8	NT	
C_{19}-C_{36} Aliphatics Hydrocarbons	11.6	3.8	17	4.0	290	4.8	NT		1600	8.8	NT	
C_{11}-C_{22} Aromatics Hydrocarbons	11.5	3.8	7.4	4.0	140	4.8	NT		1300	8.8	NT	
Acenaphthene	U	0.38	U	0.4	U	0.5	NT		1.6	0.9	NT	
Acenaphthylene	U	0.38	U	0.4	U	0.5	NT		U	0.9	NT	
Anthracene	U	0.38	U	0.4	0.99	0.5	NT		2.9	0.9	NT	
Benzo(a)anthracene	U	0.38	U	0.4	1.7	0.5	NT		4.3	0.9	NT	
Benzo(a)pyrene	U	0.38	U	0.4	2.1	0.5	NT		4.4	0.9	NT	
Benzo(b)fluoranthene	U	0.38	U	0.4	1.5	0.5	NT		9.5	0.9	NT	
Benzo(g,h,i)perylene	U	0.38	U	0.4	0.98	0.5	NT		3.3	0.9	NT	
Benzo(k)fluoranthene	U	0.38	U	0.4	U	0.5	NT		4.2	0.9	NT	
Chrysene	U	0.38	U	0.4	1.7	0.5	NT		8.7	0.9	NT	
Dibenzo(a,h)anthracene	U	0.38	U	0.4	U	0.5	NT		U	0.9	NT	
Fluoranthene	U	0.38	U	0.4	5.1	0.5	NT		21	0.9	NT	
Fluorene	U	0.38	U	0.4	U	0.5	NT		1.6	0.9	NT	
Indeno(1,2,3-cd)pyrene	U	0.38	U	0.4	1.0	0.5	NT		3.4	0.9	NT	
2-Methylnaphthalene	U	0.38	U	0.4	U	0.5	NT		U	0.9	NT	
Naphthalene	U	0.38	U	0.4	U	0.5	NT		1.7	0.9	NT	
Phenanthrene	U	0.38	U	0.4	4.3	0.5	NT		15	0.9	NT	
Pyrene	U	0.38	U	0.4	3.3	0.5	NT		21	0.9	NT	

Sample ID	Building No. 6: B-6-5		B-6-5		B-6-6		B-6-7		B-6-8		B-6-9		B-6-10	
	(0-0.5')		(0-2')		(0-2')		(0-0.5')		(0-0.5')		(0-0.5')		(0-0.5')	
Date Sampled	7/10/01		7/10/01		7/10/01		7/10/01		7/10/01		7/10/01		7/10/01	
Sampling Company	S&W		S&W		S&W		S&W		S&W		S&W		S&W	
Analytes	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL
Metals														
Arsenic	6.8		NT		NT		3.9		NT		11		NT	
Barium	120		NT		NT		30		NT		52		NT	
Beryllium	0.7U	0.70	NT		NT		0.24		NT		0.26		NT	
Cadmium	0.46		NT		NT		0.2U	0.20	NT		0.27		NT	
Chromium	47		NT		NT		38		NT		38		NT	
Lead	540		NT		NT		6.9		NT		71		NT	
Selenium	3U	3.0	NT		NT		1U	1.0	NT		2U	2.0	NT	
Silver	3U	3.0	NT		NT		1U	1.0	NT		2U	2.0	NT	
Zinc	180		NT		NT		28		NT		100		NT	
Mercury	0.96		NT		NT		0.05U	0.05	NT		8.0		NT	
Polychlorinated Biphenyls - PCBs														
Aroclor-1016	NT		U	0.260	U	0.120	U	0.110	U	0.110	U	0.340	U	0.130
Aroclor-1248	NT		U	0.260	U	0.120	U	0.110	U	0.110	U	0.340	U	0.130
Aroclor-1254	NT		U	0.260	U	0.120	U	0.110	U	0.110	U	0.340	U	0.130
Aroclor-1260	NT		U	0.260	U	0.120	U	0.110	U	0.110	U	0.340	U	0.130
Pesticides														
beta-BHC	U	0.026	NT		NT		U	0.011	NT		U	0.034	NT	
Volatile Organic Compounds - VOCs														
Acetone	0.2	0.065	NT		NT		U	0.054	NT		U	0.084	NT	
Benzene	U	0.0032	NT		NT		U	0.0027	NT		U	0.0042	NT	
Chloroform	0.01	0.0032	NT		NT		U	0.0027	NT		U	0.0042	NT	
Ethylbenzene	U	0.0032	NT		NT		U	0.0027	NT		U	0.0042	NT	
Trichloroethene (TCE)	NT		NT		NT		NT		NT		NT		NT	
Polyaromatic Hydrocarbons (PAH)														
Acenaphthene	NT		NT		NT		U	0.370	NT		U	1.1	NT	
Anthracene	NT		NT		NT		U	0.370	NT		U	1.1	NT	
Benzo(a)anthracene	NT		NT		NT		U	0.370	NT		U	1.1	NT	
Benzo(b)fluoranthene	NT		NT		NT		U	0.370	NT		U	1.1	NT	
Benzo(k)fluoranthene	NT		NT		NT		U	0.370	NT		U	1.1	NT	
Benzo(g,h,i)perylene	NT		NT		NT		U	0.370	NT		U	1.1	NT	
Benzo(a)pyrene	NT		NT		NT		U	0.370	NT		U	1.1	NT	
Chrysene	NT		NT		NT		U	0.370	NT		U	1.1	NT	
Dibenzo(a,h)anthracene	NT		NT		NT		U	0.370	NT		U	1.1	NT	
Fluoranthene	NT		NT		NT		U	0.370	NT		U	1.1	NT	
Indeno(1,2,3-cd)pyrene	NT		NT		NT		U	0.370	NT		U	1.1	NT	
Naphthalene	NT		NT		NT		U	0.370	NT		U	1.1	NT	
Phenanthrene	NT		NT		NT		U	0.370	NT		U	1.1	NT	
Pyrene	NT		NT		NT		U	0.370	NT		U	1.1	NT	
Extractable Petroleum Hydrocarbons (EPH)														
C_9-C_{18} Aliphatics Hydrocarbons	NT		5.8	4.3	U	3.8	U	3.7	4.3	3.8	92	8.4	6.9	4.4
C_{19}-C_{36} Aliphatics Hydrocarbons	NT		180	4.3	75	3.8	67	3.7	130	3.8	1800	8.4	16	4.4
C_{11}-C_{22} Aromatics Hydrocarbons	NT		73	4.3	41	3.8	26	3.7	53	3.8	1500	8.4	12	4.4
Acenaphthene	NT		U	0.4	U	0.4	U	0.4	U	0.4	U	0.8	U	0.4
Acenaphthylene	NT		U	0.4	U	0.4	U	0.4	U	0.4	U	0.8	U	0.4
Anthracene	NT		U	0.4	U	0.4	U	0.4	U	0.4	U	0.8	U	0.4
Benzo(a)anthracene	NT		U	0.4	U	0.4	U	0.4	U	0.4	U	0.8	U	0.4
Benzo(a)pyrene	NT		U	0.4	U	0.4	U	0.4	U	0.4	U	0.8	U	0.4
Benzo(b)fluoranthene	NT		U	0.4	U	0.4	U	0.4	U	0.4	U	0.8	U	0.4
Benzo(g,h,i)perylene	NT		U	0.4	U	0.4	U	0.4	U	0.4	U	0.8	U	0.4
Benzo(k)fluoranthene	NT		U	0.4	U	0.4	U	0.4	U	0.4	U	0.8	U	0.4
Chrysene	NT		U	0.4	U	0.4	U	0.4	U	0.4	U	0.8	U	0.4
Dibenzo(a,h)anthracene	NT		U	0.4	U	0.4	U	0.4	U	0.4	U	0.8	U	0.4
Fluoranthene	NT		U	0.4	U	0.4	U	0.4	U	0.4	U	0.8	U	0.4
Fluorene	NT		U	0.4	U	0.4	U	0.4	U	0.4	U	0.8	U	0.4
Indeno(1,2,3-cd)pyrene	NT		U	0.4	U	0.4	U	0.4	U	0.4	U	0.8	U	0.4
2-Methylnaphthalene	NT		U	0.4	U	0.4	U	0.4	U	0.4	U	0.8	U	0.4
Naphthalene	NT		U	0.4	U	0.4	U	0.4	U	0.4	U	0.8	U	0.4
Phenanthrene	NT		U	0.4	U	0.4	U	0.4	U	0.4	U	0.8	U	0.4
Pyrene	NT		U	0.4	U	0.4	U	0.4	U	0.4	U	0.8	U	0.4

All concentrations and quantitation limits expressed in mg/kg
U = Not Detected
UJ = Sample-specific detection limit is approximate
J = Quantitation is approximate due to limitations identified in the quality control review
NT = Not Tested
bgs = below ground surface
btg = below transformer pit grade

TABLE 5-1 Cont - Oxford Paper Mill South Side Soil Analytical Data Summary (Sub-Basement and Transformer #6 / Courtyard Area)
City of Lawrence - 21 Canal Street
RTN 3-2691

Building No. 6

Sample ID	B-6-11		B-6-12		B-6-13		B-6-13 DUP		B-6-14		B-6-15		B-6-15 DUP		B-6-16	
	(0-0.5')		(0-0.5')		(0-0.5')		(0-0.5')		(0-0.5')		(0-0.5')		(0-0.5')		(0-0.5')	
Date Sampled	7/10/01		7/21/03		7/21/03		7/21/03		7/22/03		7/22/03		7/22/03		7/22/03	
Sampling Company	S&W		S&W		S&W		S&W		S&W		S&W		S&W		S&W	
Analytes	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL
Metals																
Arsenic	18		NT		9.25	1.16	12.6	1.17	NT		7.35	1.16	6.34	1.27	NT	
Barium	34		NT		41.2	1.16	37	1.17	NT		48.3	1.16	53.1	1.27	NT	
Beryllium	0.2U	0.20	NT		0.235	0.231	0.293	0.234	NT		U	0.232	U	0.254	NT	
Cadmium	0.2U	0.20	NT		U	0.231	U	0.234	NT		U	0.232	U	0.254	NT	
Chromium	51		NT		46.2	1.16	33.5	1.17	NT		33.2	1.16	35.3	1.27	NT	
Lead	110		NT		6.68	1.16	10.7	1.17	NT		35.3	1.16	32.5	1.27	NT	
Selenium	1U	1.0	NT		U	1.16	U	1.17	NT		U	1.16	U	1.27	NT	
Silver	1U	1.0	NT		U	1.16	U	1.17	NT		U	1.16	U	1.27	NT	
Zinc	74		NT		52	5.79	44	5.86	NT		63.8	5.8	73.1	6.34	NT	
Mercury	2.6		NT		0.061	0.049	0.123	0.057	NT		0.818	0.047	0.741	0.049	NT	
Polychlorinated Biphenyls - PCBs																
Aroclor-1016	U	0.120	U	0.113	U	0.107	U	0.105	U	0.112	U	0.106	U	0.106	U	0.101
Aroclor-1248	U	0.120	U	0.113	U	0.107	U	0.105	U	0.112	U	0.106	U	0.106	U	0.101
Aroclor-1254	U	0.120	U	0.113	U	0.107	U	0.105	U	0.112	U	0.106	U	0.106	U	0.101
Aroclor-1260	0.16	0.120	U	0.113	U	0.107	U	0.105	U	0.112	U	0.106	U	0.106	U	0.101
Pesticides																
beta-BHC	U	0.012	NT		U	0.011	U	0.010	NT		U	0.011	U	0.011	NT	
Volatile Organic Compounds - VOCs																
Acetone	U	0.059	NT		0.65J	0.068	0.31J	0.047	NT		U	0.044	U	0.058	NT	
Benzene	U	0.003	NT		U	0.003	U	0.002	NT		U	0.002	U	0.003	NT	
Chloroform	U	0.003	NT		0.01	0.003	0.008	0.002	NT		U	0.002	U	0.003	NT	
Ethylbenzene	U	0.003	NT		U	0.003	U	0.002	NT		U	0.002	U	0.003	NT	
Trichloroethene (TCE)	NT		NT		U	0.003	U	0.002	NT		U	0.002	U	0.003	NT	
Polyaromatic Hydrocarbons (PAH)																
Acenaphthene	U	0.400	NT		U	0.180	U	0.180	NT		U	0.180	U	0.190	NT	
Anthracene	U	0.400	NT		U	0.180	U	0.180	NT		U	0.180	U	0.190	NT	
Benzo(a)anthracene	U	0.400	NT		U	0.180	U	0.180	NT		0.19	0.180	U	0.190	NT	
Benzo(b)fluoranthene	U	0.400	NT		U	0.180	U	0.180	NT		0.15J	0.180	U	0.190	NT	
Benzo(k)fluoranthene	U	0.400	NT		U	0.180	U	0.180	NT		0.15J	0.180	U	0.190	NT	
Benzo(g,h,i)perylene	U	0.400	NT		U	0.180	U	0.180	NT		U	0.180	U	0.190	NT	
Benzo(a)pyrene	U	0.400	NT		U	0.180	U	0.180	NT		0.16J	0.180	U	0.190	NT	
Chrysene	U	0.400	NT		U	0.180	U	0.180	NT		0.16J	0.180	U	0.190	NT	
Dibenzo(a,h)anthracene	U	0.400	NT		U	0.180	U	0.180	NT		U	0.180	U	0.190	NT	
Fluoranthene	U	0.400	NT		U	0.180	U	0.180	NT		0.42J	0.180	0.11J	0.190	NT	
Indeno(1,2,3-cd)pyrene	U	0.400	NT		U	0.180	U	0.180	NT		U	0.180	U	0.190	NT	
Naphthalene	U	0.400	NT		U	0.180	U	0.180	NT		U	0.180	U	0.190	NT	
Phenanthrene	U	0.400	NT		U	0.180	U	0.180	NT		U	0.180	U	0.190	NT	
Pyrene	U	0.400	NT		U	0.180	U	0.180	NT		0.39J	0.180	0.13J	0.190	NT	
Extractable Petroleum Hydrocarbons (EPH)																
C_9-C_{18} Aliphatics Hydrocarbons	U	4.0	U	3.7	U	3.5	U	3.5	U	3.7	U	3.6	U	3.7	U	3.6
C_{19}-C_{36} Aliphatics Hydrocarbons	U	4.0	5.6	3.7	U	3.5	U	3.5	U	3.7	7.7	3.6	6.0	3.7	17	3.6
C_{11}-C_{22} Aromatics Hydrocarbons	U	4.0	24.5	3.7	U	3.5	U	3.5	U	3.7	13.3	3.6	8.6	3.7	10.5	3.6
Acenaphthene	U	0.4	U	0.37	U	0.35	U	0.35	U	0.37	1.54J	0.36	UJ	0.37	U	0.36
Acenaphthylene	U	0.4	U	0.37	U	0.35	U	0.35	U	0.37	U	0.36	U	0.37	U	0.36
Anthracene	U	0.4	0.38	0.37	U	0.35	U	0.35	U	0.37	U	0.36	U	0.37	U	0.36
Benzo(a)anthracene	U	0.4	0.59	0.37	U	0.35	U	0.35	U	0.37	0.59	0.36	U	0.37	U	0.36
Benzo(a)pyrene	U	0.4	U	0.37	U	0.35	U	0.35	U	0.37	0.49	0.36	U	0.37	U	0.36
Benzo(b)fluoranthene	U	0.4	0.63	0.37	U	0.35	U	0.35	U	0.37	U	0.36	U	0.37	U	0.36
Benzo(g,h,i)perylene	U	0.4	U	0.37	U	0.35	U	0.35	U	0.37	U	0.36	U	0.37	U	0.36
Benzo(k)fluoranthene	U	0.4	U	0.37	U	0.35	U	0.35	U	0.37	0.43	0.36	U	0.37	U	0.36
Chrysene	U	0.4	0.57	0.37	U	0.35	U	0.35	U	0.37	0.59	0.36	U	0.37	U	0.36
Dibenzo(a,h)anthracene	U	0.4	U	0.37	U	0.35	U	0.35	U	0.37	U	0.36	U	0.37	U	0.36
Fluoranthene	U	0.4	1.24	0.37	U	0.35	U	0.35	U	0.37	1.16J	0.36	UJ	0.37	U	0.36
Fluorene	U	0.4	U	0.37	U	0.35	U	0.35	U	0.37	U	0.36	U	0.37	U	0.36
Indeno(1,2,3-cd)pyrene	U	0.4	U	0.37	U	0.35	U	0.35	U	0.37	U	0.36	U	0.37	U	0.36
2-Methylnaphthalene	U	0.4	U	0.37	U	0.35	U	0.35	U	0.37	U	0.36	U	0.37	U	0.36
Naphthalene	U	0.4	U	0.37	U	0.35	U	0.35	U	0.37	U	0.36	U	0.37	U	0.36
Phenanthrene	U	0.4	1.34	0.37	U	0.35	U	0.35	U	0.37	U	0.36	U	0.37	U	0.36
Pyrene	U	0.4	1.12	0.37	U	0.35	U	0.35	U	0.37	0.77J	0.36	UJ	0.37	U	0.36

Building No. 6 Confirmatory Sampling

Sample ID	TP6-1		TP6-2		TP6-3		TP6-4		TP6-5		TP6-6	
	(5' bgs)		(5' bgs)		(4' bgs)		(3.5' bgs)		(3.5' bgs)		(5' bgs)	
Date Sampled	3/8/04		3/8/04		3/8/04		3/8/04		3/8/04		3/8/04	
Sampling Company	S&W		S&W		S&W		S&W		S&W		S&W	
Analytes	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL
Metals												
Arsenic	NT		NT		NT		NT		NT		NT	
Barium	NT		NT		NT		NT		NT		NT	
Beryllium	NT		NT		NT		NT		NT		NT	
Cadmium	NT		NT		NT		NT		NT		NT	
Chromium	NT		NT		NT		NT		NT		NT	
Lead	NT		NT		NT		NT		NT		NT	
Selenium	NT		NT		NT		NT		NT		NT	
Silver	NT		NT		NT		NT		NT		NT	
Zinc	NT		NT		NT		NT		NT		NT	
Mercury	NT		NT		NT		NT		NT		NT	
Polychlorinated Biphenyls - PCBs												
Aroclor-1016	U	0.118	U	0.549	U	2.37	U	1100	U	0.234	U	0.598
Aroclor-1248	U	0.118	U	0.549	U	2.37	U	1100	U	0.234	U	0.598
Aroclor-1254	U	0.118	U	0.549	U	2.37	U	1100	U	0.234	U	0.598
Aroclor-1260	0.325J	0.118	3.43	0.549	14.5	2.37	17100	1100	2.93	0.234	3.22J	0.598
Pesticides												
beta-BHC	NT		NT		NT		NT		NT		NT	
Volatile Organic Compounds - VOCs												
Acetone	NT		NT		NT		NT		NT		NT	
Benzene	NT		NT		NT		NT		NT		NT	
Chloroform	NT		NT		NT		NT		NT		NT	
Ethylbenzene	NT		NT		NT		NT		NT		NT	
Trichloroethene (TCE)	NT		NT		NT		NT		NT		NT	
Polyaromatic Hydrocarbons (PAH)												
Acenaphthene	NT		NT		NT		NT		NT		NT	
Anthracene	NT		NT		NT		NT		NT		NT	
Benzo(a)anthracene	NT		NT		NT		NT		NT		NT	
Benzo(b)fluoranthene	NT		NT		NT		NT		NT		NT	
Benzo(k)fluoranthene	NT		NT		NT		NT		NT		NT	
Benzo(g,h,i)perylene	NT		NT		NT		NT		NT		NT	
Benzo(a)pyrene	NT		NT		NT		NT		NT		NT	
Chrysene	NT		NT		NT		NT		NT		NT	
Dibenzo(a,h)anthracene	NT		NT		NT		NT		NT		NT	
Fluoranthene	NT		NT		NT		NT		NT		NT	
Indeno(1,2,3-cd)pyrene	NT		NT		NT		NT		NT		NT	
Naphthalene	NT		NT		NT		NT		NT		NT	
Phenanthrene	NT		NT		NT		NT		NT		NT	
Pyrene	NT		NT		NT		NT		NT		NT	
Extractable Petroleum Hydrocarbons (EPH)												
C_9-C_{18} Aliphatics Hydrocarbons	NT		NT		NT		NT		NT		NT	
C_{19}-C_{36} Aliphatics Hydrocarbons	NT		NT		NT		NT		NT		NT	
C_{11}-C_{22} Aromatics Hydrocarbons	NT		NT		NT		NT		NT		NT	
Acenaphthene	NT		NT		NT		NT		NT		NT	
Acenaphthylene	NT		NT		NT		NT		NT		NT	
Anthracene	NT		NT		NT		NT		NT		NT	
Benzo(a)anthracene	NT		NT		NT		NT		NT		NT	
Benzo(a)pyrene	NT		NT		NT		NT		NT		NT	
Benzo(b)fluoranthene	NT		NT		NT		NT		NT		NT	
Benzo(g,h,i)perylene	NT		NT		NT		NT		NT		NT	
Benzo(k)fluoranthene	NT		NT		NT		NT		NT		NT	
Chrysene	NT		NT		NT		NT		NT		NT	
Dibenzo(a,h)anthracene	NT		NT		NT		NT		NT		NT	
Fluoranthene	NT		NT		NT		NT		NT		NT	
Fluorene	NT		NT		NT		NT		NT		NT	
Indeno(1,2,3-cd)pyrene	NT		NT		NT		NT		NT		NT	
2-Methylnaphthalene	NT		NT		NT		NT		NT		NT	
Naphthalene	NT		NT		NT		NT		NT		NT	
Phenanthrene	NT		NT		NT		NT		NT		NT	
Pyrene	NT		NT		NT		NT		NT		NT	

Building No. 28

Sample ID	B-28-1		B-28-2		B-28-3		DUP1		B-28-4		B-28-5		B-28-6		DUP2	
	(0-0.5')		(0-0.5')		(0-0.5')		(0-0.5')		(0-0.5')		(0-0.5')		(0-0.5')		(0-0.5')	
Date Sampled	7/20/05		7/20/05		7/20/05		7/20/05		7/20/05		7/20/05		7/20/05		7/20/05	
Sampling Company	S&W		S&W		S&W		S&W		S&W		S&W		S&W		S&W	
Analytes	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL
Metals																
Arsenic	NT		4.8	1.3	NT		NT		NT		13	3.2	NT		NT	
Barium	NT		20	1.3	NT		NT		NT		1100	3.2	NT		NT	
Beryllium	NT		U	0.25	NT		NT		NT		U	0.64	NT		NT	
Cadmium	NT		U	0.25	NT		NT		NT		U	0.64	NT		NT	
Chromium	NT		35J	1.3	NT		NT		NT		14J	3.2	NT		NT	
Lead	NT		3.7	1.3	NT		NT		NT		140	3.2	NT		NT	
Selenium	NT		U	1.3	NT		NT		NT		U	3.2	NT		NT	
Silver	NT		UJ	1.3	NT		NT		NT		UJ	3.2	NT		NT	
Zinc	NT		17J	6.3	NT		NT		NT		180J	16	NT		NT	
Mercury	NT		U	0.027	NT		NT		NT		0.16	0.16	NT		NT	
Polychlorinated Biphenyls - PCBs																
Aroclor-1016	U	0.110	U	0.100	U	0.100	U	0.110	U	0.110	U	0.120	U	0.110	U	0.100
Aroclor-1248	U	0.110	U	0.100	U	0.100	U	0.110	U	0.110	U	0.120	U	0.110	U	0.100
Aroclor-1254	U	0.110	U	0.100	U	0.100	U	0.110	U	0.110	U	0.120	0.74	0.110	0.67	0.100
Aroclor-1260	U	0.110	0.52	0.100	U	0.100	U	0.110	U	0.110	U	0.120	U	0.110	U	0.100
Pesticides																
beta-BHC	NT		U	0.0098	NT		NT		NT		U	0.012	NT		NT	
Volatile Organic Compounds - VOCs																
Acetone	NT		UJ	0.260	NT		NT		NT		U	13	NT		NT	
Benzene	NT		U	0.0026	NT		NT		NT		U	0.130	NT		NT	
Chloroform	NT		U	0.0026	NT		NT		NT		U	0.130	NT		NT	
Ethylbenzene	NT		U	0.0026	NT		NT		NT		U	0.130	NT		NT	
Trichloroethene (TCE)	NT		U	0.0026	NT		NT		NT		0.46	0.130	NT		NT	
Polyaromatic Hydrocarbons (PAH)																
Acenaphthene	NT		U	0.170	NT		NT		NT		U	0.200	NT		NT	
Anthracene	NT		U	0.170	NT		NT		NT		0.25	0.200	NT		NT	
Benzo(a)anthracene	NT		U	0.170	NT		NT		NT		0.74	0.200	NT		NT	
Benzo(b)fluoranthene	NT		U	0.170	NT		NT		NT		0.72	0.200	NT		NT	
Benzo(k)fluoranthene	NT		U	0.170	NT		NT		NT		0.43	0.200	NT		NT	
Benzo(g,h,i)perylene	NT		U	0.170	NT		NT		NT		0.22	0.200	NT		NT	
Benzo(a)pyrene	NT		U	0.170	NT		NT		NT		0.70	0.200	NT		NT	
Chrysene	NT		U	0.170	NT		NT		NT		0.79	0.200	NT		NT	
Dibenzo(a,h)anthracene	NT		U	0.170	NT		NT		NT		0.13J	0.200	NT		NT	
Fluoranthene	NT		U	0.170	NT		NT		NT		1.6	0.200	NT		NT	
Indeno(1,2,3-cd)pyrene	NT		U	0.170	NT		NT		NT		0.24	0.200	NT		NT	
Naphthalene	NT		U	0.170	NT		NT		NT		U	0.200	NT		NT	
Phenanthrene	NT		U	0.170	NT		NT		NT		1.3	0.200	NT		NT	
Pyrene	NT		U	0.170	NT		NT		NT		1.2	0.200	NT		NT	
Extractable Petroleum Hydrocarbons (EPH)																
C_9-C_{18} Aliphatics Hydrocarbons	U	3.7	U	3.4	U	3.4	U	3.6	5.1J	3.6	U	4.0	U	3.4	U	3.4
C_{19}-C_{36} Aliphatics Hydrocarbons	U	3.7	U	3.4	U	3.4	U	3.6	18J	3.6	14	4.0	U	3.4	U	3.4
C_{11}-C_{22} Aromatics Hydrocarbons	52	3.7	7.4	3.4	U	3.4	U	3.6	16	3.6	25	4.0	U	3.4	U	3.4
Acenaphthene	U	0.37	U	0.34	U	0.34	U	0.36	U	0.36	U	0.4	U	0.34	U	0.34
Acenaphthylene	U	0.37	U	0.34	U	0.34	U	0.36	U	0.36	U	0.4	U	0.34	U	0.34
Anthracene	0.65	0.37	U	0.34	U	0.34	U	0.36	U	0.36	0.53	0.4	U	0.34	U	0.34
Benzo(a)anthracene	1.1	0.37	U	0.34	U	0.34	U	0.36	U	0.36	0.97	0.4	U	0.34	U	0.34
Benzo(a)pyrene	0.92	0.37	U	0.34	U	0.34	U	0.36	U	0.36	0.71	0.4	U	0.34	U	0.34
Benzo(b)fluoranthene	0.71	0.37	U	0.34	U	0.34	U	0.36	U	0.36	0.66	0.4	U	0.34	U	0.34
Benzo(g,h,i)perylene	0.43	0.37	U	0.34	U	0.34	U	0.36	U	0.36	U	0.4	U	0.34	U	0.34
Benzo(k)fluoranthene	0.89	0.37	U	0.34	U	0.34	U	0.36	U	0.36	0.78	0.4	U	0.34	U	0.34
Chrysene	1.1	0.37	U	0.34	U	0.34	U	0.36	U	0.36	1.0	0.4	U	0.34	U	0.34
Dibenzo(a,h)anthracene	U	0.37	U	0.34	U	0.34	U	0.36	U	0.36	U	0.4	U	0.34	U	0.34
Fluoranthene	2.4	0.37	U	0.34	U	0.34	U	0.36	U	0.36	2.3	0.4	U	0.34	U	0.34
Fluorene	U	0.37	U	0.34	U	0.34	U	0.36	U	0.36	U	0.4	U	0.34	U	0.34
Indeno(1,2,3-cd)pyrene	U	0.37	U	0.34	U	0.34	U	0.36	U	0.36	U	0.4	U	0.34	U	0.34
2-Methylnaphthalene	U	0.37	U	0.34	U	0.34	U	0.36	U	0.36	U	0.4	U	0.34	U	0.34
Naphthalene	U	0.37	U	0.34	U	0.34	U	0.36	U	0.36	U	0.4	U	0.34	U	0.34
Phenanthrene	2.4	0.37	U	0.34	U	0.34	U	0.36	U	0.36	2.0	0.4	U	0.34	U	0.34
Pyrene	2.5	0.37	U	0.34	U	0.34	U	0.36	U	0.36	2.3	0.4	U	0.34	U	0.34

Building No. 6 Transformer / Courtyard Area

Sample ID	B1-5		B1-9.5		B1-14.5		B1-19.5		B1-19.5 DUP1	
	(5' btg)		(9.5' btg)		(14.5' btg)		(19.5' btg)		(19.5' btg)	
Date Sampled	9/3/04		9/3/04		9/3/04		9/3/04		9/3/04	
Sampling Company	S&W		S&W		S&W		S&W		S&W	
Analytes	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL
Metals										
Arsenic	NT		NT		NT		NT		NT	
Barium	NT		NT		NT		NT		NT	
Beryllium	NT		NT		NT		NT		NT	
Cadmium	NT		NT		NT		NT		NT	
Chromium	NT		NT		NT		NT		NT	
Lead	NT		NT		NT		NT		NT	
Selenium	NT		NT		NT		NT		NT	
Silver	NT		NT		NT		NT		NT	
Zinc	NT		NT		NT		NT		NT	
Mercury	NT		NT		NT		NT		NT	
Polychlorinated Biphenyls - PCBs										
Aroclor-1016	2.4J	0.120	U	540	0.51J	0.110	U	0.110	U	0.100
Aroclor-1248	U	0.120	U	540	U	0.110	U	0.110	U	0.100
Aroclor-1254	U	0.120	U	540	U	0.110	U	0.110	U	0.100
Aroclor-1260	39J	6.0	2900J	540	35J	5.3	0.72J	0.110	1.6J	0.100
Pesticides										
beta-BHC	NT		NT		NT		NT		NT	
Volatile Organic Compounds - VOCs										
Acetone	NT		NT		NT		NT		NT	
Benzene	NT		NT		NT		NT		NT	
Chloroform	NT		NT		NT		NT		NT	
Ethylbenzene	NT		NT		NT		NT		NT	
Trichloroethene (TCE)	NT		NT		NT		NT		NT	
Polyaromatic Hydrocarbons (PAH)										
Acenaphthene	NT		NT		NT		NT		NT	
Anthracene	NT		NT		NT		NT		NT	
Benzo(a)anthracene	NT		NT		NT		NT		NT	
Benzo(b)fluoranthene	NT		NT		NT		NT		NT	
Benzo(k)fluoranthene	NT		NT		NT		NT		NT	
Benzo(g,h,i)perylene	NT		NT		NT		NT		NT	
Benzo(a)pyrene	NT		NT		NT		NT		NT	
Chrysene	NT		NT		NT		NT		NT	
Dibenzo(a,h)anthracene	NT		NT		NT		NT		NT	
Fluoranthene	NT		NT		NT		NT		NT	
Indeno(1,2,3-cd)pyrene	NT		NT		NT		NT		NT	
Naphthalene	NT		NT		NT		NT		NT	
Phenanthrene	NT		NT		NT		NT		NT	
Pyrene	NT		NT		NT		NT		NT	
Extractable Petroleum Hydrocarbons (EPH)										
C_9-C_{18} Aliphatics Hydrocarbons	NT		NT		NT		NT		NT	
C_{19}-C_{36} Aliphatics Hydrocarbons	NT		NT		NT		NT		NT	
C_{11}-C_{22} Aromatics Hydrocarbons	NT		NT		NT		NT		NT	
Acenaphthene	NT		NT		NT		NT		NT	
Acenaphthylene	NT		NT		NT		NT		NT	
Anthracene	NT		NT		NT		NT		NT	
Benzo(a)anthracene	NT		NT		NT		NT		NT	
Benzo(a)pyrene	NT		NT		NT		NT		NT	
Benzo(b)fluoranthene	NT		NT		NT		NT		NT	
Benzo(g,h,i)perylene	NT		NT		NT		NT		NT	
Benzo(k)fluoranthene	NT		NT		NT		NT		NT	
Chrysene	NT		NT		NT		NT		NT	
Dibenzo(a,h)anthracene	NT		NT		NT		NT		NT	
Fluoranthene	NT		NT		NT		NT		NT	
Fluorene	NT		NT		NT		NT		NT	
Indeno(1,2,3-cd)pyrene	NT		NT		NT		NT		NT	
2-Methylnaphthalene	NT		NT		NT		NT		NT	
Naphthalene	NT		NT		NT		NT		NT	
Phenanthrene	NT		NT		NT		NT		NT	
Pyrene	NT		NT		NT		NT		NT	

All concentrations and quantitation limits expressed in mg/kg
U = Not Detected
UJ = Sample-specific detection limit is approximate
J = Quantitation is approximate due to limitations identified in the quality control review
NT = Not Tested
bgs = below ground surface
btg = below transformer pit grade

TABLE 5-1 Cont - Oxford Paper Mill South Side Soil Analytical Data Summary (Sub-Basement and Transformer #6 / Courtyard Area)
City of Lawrence - 21 Canal Street
RTN 3-2691

	Building No. 6 Transformer / Courtyard Area																									
Sample ID	B2-5		B2-9.5		B2-14.5		B2-20		B3-5		B3-10		B3-15		B3-19.5		B4-5		B4-9.5		B4-15		B4-19.5		B5-4.5	
	(5' btg)		(9.5' btg)		(14.5' btg)		(20' btg)		(5' btg)		(10' btg)		(15' btg)		(19.5' btg)		(5' btg)		(9.5' btg)		(15' btg)		(19.5' btg)		(4.5' btg)	
Date Sampled	9/3/04		9/3/04		9/3/04		9/3/04		9/3/04		9/3/04		9/3/04		9/3/04		9/3/04		9/3/04		9/3/04		9/3/04		9/3/04	
Sampling Company	S&W		S&W		S&W		S&W		S&W		S&W		S&W		S&W		S&W		S&W		S&W		S&W		S&W	
Analytes	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL
Metals																										
Arsenic	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Barium	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Beryllium	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Cadmium	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Chromium	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Lead	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Selenium	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Silver	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Zinc	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Mercury	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Polychlorinated Biphenyls - PCBs																										
Aroclor-1016	U	0.230	U	0.120	U	0.110	U	0.110	U	0.110	U	0.120	U	0.110	U	0.100	0.86J	0.130	0.42J	0.110	U	4200	0.3J	0.100	U	0.110
Aroclor-1248	U	0.230	U	0.120	U	0.110	U	0.110	U	0.110	U	0.120	U	0.110	U	0.100	U	0.130	U	0.110	U	4200	U	0.100	U	0.110
Aroclor-1254	U	0.230	U	0.120	U	0.110	U	0.110	U	0.110	U	0.120	U	0.110	U	0.100	U	0.130	U	0.110	U	4200	U	0.100	U	0.110
Aroclor-1260	2.3J	0.230	U	0.120	0.33J	0.110	U	0.110	U	0.110	1.2J	0.120	1.5J	0.110	U	0.100	27J	2.5	29J	5.7	25000J	4200	22J	2.1	U	0.110
Pesticides																										
beta-BHC	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Volatile Organic Compounds - VOCs																										
Acetone	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Benzene	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Chloroform	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Ethylbenzene	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Trichloroethene (TCE)	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Polyaromatic Hydrocarbons (PAH)																										
Acenaphthene	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Anthracene	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Benzo(a)anthracene	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Benzo(b)fluoranthene	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Benzo(k)fluoranthene	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Benzo(g,h,i)perylene	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Benzo(a)pyrene	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Chrysene	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Dibenzo(a,h)anthracene	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Fluoranthene	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Indeno(1,2,3-cd)pyrene	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Naphthalene	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Phenanthrene	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Pyrene	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Extractable Petroleum Hydrocarbons (EPH)																										
C_9-C_{18} Aliphatics Hydrocarbons	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
C_{19}-C_{36} Aliphatics Hydrocarbons	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
C_{11}-C_{22} Aromatics Hydrocarbons	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Acenaphthene	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Acenaphthylene	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Anthracene	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Benzo(a)anthracene	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Benzo(a)pyrene	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Benzo(b)fluoranthene	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Benzo(g,h,i)perylene	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Benzo(k)fluoranthene	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Chrysene	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Dibenzo(a,h)anthracene	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Fluoranthene	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Fluorene	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Indeno(1,2,3-cd)pyrene	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
2-Methylnaphthalene	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Naphthalene	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Phenanthrene	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Pyrene	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	

Sample ID	B5-4.5 DUP2		B5-9		B5-14		B5-19		SB-1-5		SB-1-15		SB-2-5		SB-2-15		SB-2-25		DUP2		SB-4-5		SB-6-5	
	(4.5' btg)		(9' btg)		(14' btg)		(19' btg)		(5' btg)		(15' btg)		(5' btg)		(15' btg)		(25' btg)		(24' btg)		(5' btg)		(5' btg)	
Date Sampled	9/3/04		9/3/04		9/3/04		9/3/04		3/24/05		3/24/05		3/23/05		3/23/05		3/23/05		3/23/05		3/22/05		3/22/05	
Sampling Company	S&W		S&W		S&W		S&W		S&W		S&W		S&W		S&W		S&W		S&W		S&W		S&W	
Analytes	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL
Metals																								
Arsenic	NT		NT		NT		NT		6.1	1.5	NT		NT		NT		NT		NT		3.8	1.7	NT	
Barium	NT		NT		NT		NT		22	1.5	NT		NT		NT		NT		NT		29	1.7	NT	
Beryllium	NT		NT		NT		NT		U	0.30	NT		NT		NT		NT		NT		U	0.34	NT	
Cadmium	NT		NT		NT		NT		U	0.30	NT		NT		NT		NT		NT		1.1	0.34	NT	
Chromium	NT		NT		NT		NT		21	1.5	NT		NT		NT		NT		NT		24	1.7	NT	
Lead	NT		NT		NT		NT		10J	1.5	NT		NT		NT		NT		NT		4.0	1.7	NT	
Selenium	NT		NT		NT		NT		U	1.5	NT		NT		NT		NT		NT		U	1.7	NT	
Silver	NT		NT		NT		NT		U	1.5	NT		NT		NT		NT		NT		U	1.7	NT	
Zinc	NT		NT		NT		NT		28	7.4	NT		NT		NT		NT		NT		92	8.5	NT	
Mercury	NT		NT		NT		NT		U	0.12	NT		NT		NT		NT		NT		U	0.095	NT	
Polychlorinated Biphenyls - PCBs																								
Aroclor-1016	U	0.120	U	0.120	1.8J	0.100	U	50	U	1.2	U	1.1	U	0.110	U	22	U	0.110	U	11	U	62	U	12
Aroclor-1248	U	0.120	U	0.120	U	0.100	U	50	U	1.2	U	1.1	U	0.110	U	22	U	0.110	U	11	U	62	U	12
Aroclor-1254	U	0.120	U	0.120	U	0.100	U	50	U	1.2	U	1.1	U	0.110	U	22	U	0.110	U	11	U	82	U	12
Aroclor-1260	0.23	0.120	0.68J	0.120	120J	10	610J	50	15	1.2	11	1.1	1.5	0.110	360	22	2.1	0.110	210	11	610	62	110	12
Pesticides																								
beta-BHC	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Volatile Organic Compounds - VOCs																								
Acetone	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Benzene	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Chloroform	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Ethylbenzene	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Trichloroethene (TCE)	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Polyaromatic Hydrocarbons (PAH)																								
Acenaphthene	NT		NT		NT		NT		U	0.200	NT		U	0.180	U	0.190	U	0.180	U	0.180	U	0.210	U	0.210
Anthracene	NT		NT		NT		NT		U	0.200	NT		U	0.180	U	0.190	U	0.180	U	0.180	U	0.210	U	0.210
Benzo(a)anthracene	NT		NT		NT		NT		U	0.200	NT		U	0.180	U	0.190	U	0.180	U	0.180	U	0.210	U	0.210
Benzo(b)fluoranthene	NT		NT		NT		NT		U	0.200	NT		U	0.180	U	0.190	U	0.180	U	0.180	U	0.210	U	0.210
Benzo(k)fluoranthene	NT		NT		NT		NT		U	0.200	NT		U	0.180	U	0.190	U	0.180	U	0.180	U	0.210	U	0.210
Benzo(g,h,i)perylene	NT		NT		NT		NT		U	0.200	NT		U	0.180	U	0.190	U	0.180	U	0.180	U	0.210	U	0.210
Benzo(a)pyrene	NT		NT		NT		NT		U	0.200	NT		U	0.180	U	0.190	U	0.180	U	0.180	U	0.210	U	0.210
Chrysene	NT		NT		NT		NT		U	0.200	NT		U	0.180	U	0.190	U	0.180	U	0.180	U	0.210	U	0.210
Dibenzo(a,h)anthracene	NT		NT		NT		NT		U	0.200	NT		U	0.180	U	0.190	U	0.180	U	0.180	U	0.210	U	0.210
Fluoranthene	NT		NT		NT		NT		U	0.200	NT		U	0.180	U	0.190	U	0.180	U	0.180	U	0.210	U	0.210
Indeno(1,2,3-cd)pyrene	NT		NT		NT		NT		U	0.200	NT		U	0.180	U	0.190	U	0.180	U	0.180	U	0.210	U	0.210
Naphthalene	NT		NT		NT		NT		U	0.200	NT		U	0.180	U	0.190	U	0.180	U	0.180	U	0.210	U	0.210
Phenanthrene	NT		NT		NT		NT		U	0.200	NT		U	0.180	U	0.190	U	0.180	U	0.180	U	0.210	U	0.210
Pyrene	NT		NT		NT		NT		U	0.200	NT		U	0.180	0.14J	0.190	U	0.180	U	0.180	U	0.210	U	0.210
Extractable Petroleum Hydrocarbons (EPH)																								
C_9-C_{18} Aliphatics Hydrocarbons	NT		NT		NT		NT		U	4.1	NT		U	3.6	35	3.8	U	3.7	25	3.7	U	4.2	U	4.3
C_{19}-C_{36} Aliphatics Hydrocarbons	NT		NT		NT		NT		U	4.1	NT		U	3.6	85	3.8	U	3.7	30	3.7	53	4.2	7.1	4.3
C_{11}-C_{22} Aromatics Hydrocarbons	NT		NT		NT		NT		U	4.1	NT		U	3.6	23	3.8	U	3.7	11	3.7	18	4.2	7.2	4.3
Acenaphthene	NT		NT		NT		NT		U	0.41	NT		U	0.36	U	0.38	U	0.37	U	0.37	U	0.42	U	0.43
Acenaphthylene	NT		NT		NT		NT		U	0.41	NT		U	0.36	U	0.38	U	0.37	U	0.37	U	0.42	U	0.43
Anthracene	NT		NT		NT		NT		U	0.41	NT		U	0.36	U	0.38	U	0.37	U	0.37	U	0.42	U	0.43
Benzo(a)anthracene	NT		NT		NT		NT		U	0.41	NT		U	0.36	U	0.38	U	0.37	U	0.37	U	0.42	U	0.43
Benzo(a)pyrene	NT		NT		NT		NT		U	0.41	NT		U	0.36	U	0.38	U	0.37	U	0.37	U	0.42	U	0.43
Benzo(b)fluoranthene	NT		NT		NT		NT		U	0.41	NT		U	0.36	U	0.38	U	0.37	U	0.37	U	0.42	U	0.43
Benzo(g,h,i)perylene	NT		NT		NT		NT		U	0.41	NT		U	0.36	U	0.38	U	0.37	U	0.37	U	0.42	U	0.43
Benzo(k)fluoranthene	NT		NT		NT		NT		U	0.41	NT		U	0.36	U	0.38	U	0.37	U	0.37	U	0.42	U	0.43
Chrysene	NT		NT		NT		NT		U	0.41	NT		U	0.36	U	0.38	U	0.37	U	0.37	U	0.42	U	0.43
Dibenzo(a,h)anthracene	NT		NT		NT		NT		U	0.41	NT		U	0.36	U	0.38	U	0.37	U	0.37	U	0.42	U	0.43
Fluoranthene	NT		NT		NT		NT		U	0.41	NT		U	0.36	U	0.38	U	0.37	U	0.37	U	0.42	U	0.43
Fluorene	NT		NT		NT		NT		U	0.41	NT		U	0.36	U	0.38	U	0.37	U	0.37	U	0.42	U	0.43
Indeno(1,2,3-cd)pyrene	NT		NT		NT		NT		U	0.41	NT		U	0.36	U	0.38	U	0.37	U	0.37	U	0.42	U	0.43
2-Methylnaphthalene	NT		NT		NT		NT		U	0.41	NT		U	0.36	U	0.38	U	0.37	U	0.37	U	0.42	U	0.43
Naphthalene	NT		NT		NT		NT		U	0.41	NT		U	0.36	U	0.38	U	0.37	U	0.37	U	0.42	U	0.43
Phenanthrene	NT		NT		NT		NT		U	0.41	NT		U	0.36	U	0.38	U	0.37	U	0.37	U	0.42	U	0.43
Pyrene	NT		NT		NT		NT		U	0.41	NT		U	0.36	U	0.38	U	0.37	U	0.37	U	0.42	U	0.43

All concentrations and quantitation limits expressed in mg/kg
U = Not Detected
UJ = Sample-specific detection limit is approximate
J = Quantitation is approximate due to limitations identified in the quality control review
NT = Not Tested
bgs = below ground surface
btg = below transformer pit grade

TABLE 5-1 Cont - Oxford Paper Mill South Side Soil Analytical Data Summary (Sub-Basement and Transformer #6 / Courtyard Area)
City of Lawrence - 21 Canal Street
RTN 3-2691

	Building No. 6 Transformer / Courtyard Area																	
Sample ID	SB-7-5		SB-7-15		SB-8-5		SB-8-15		SB-9-5		SB-9-15		SB-9-25		DUP1		SB-10-5	
	(5' btg)		(15' btg)		(5' btg)		(15' btg)		(5' btg)		(15' btg)		(25' btg)		(25' btg)		(13' bgs)	
Date Sampled	3/21/05		3/21/05		3/21/05		3/21/05		3/21/05		3/21/05		3/21/05		3/21/05		5/11/05	
Sampling Company	S&W		S&W		S&W		S&W		S&W		S&W		S&W		S&W		S&W	
Analytes	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL
Metals																		
Arsenic	NT		NT		5.5	1.5	NT		NT		NT		NT		NT		NT	
Barium	NT		NT		19J	1.5	NT		NT		NT		NT		NT		NT	
Beryllium	NT		NT		U	0.31	NT		NT		NT		NT		NT		NT	
Cadmium	NT		NT		U	0.31	NT		NT		NT		NT		NT		NT	
Chromium	NT		NT		21	1.5	NT		NT		NT		NT		NT		NT	
Lead	NT		NT		3.3	1.5	NT		NT		NT		NT		NT		NT	
Selenium	NT		NT		U	1.5	NT		NT		NT		NT		NT		NT	
Silver	NT		NT		U	1.5	NT		NT		NT		NT		NT		NT	
Zinc	NT		NT		28	7.7	NT		NT		NT		NT		NT		NT	
Mercury	NT		NT		U	0.10	NT		NT		NT		NT		NT		NT	
Polychlorinated Biphenyls - PCBs																		
Aroclor-1016	U	0.690	U	0.110	U	0.120	U	0.110	U	0.120	U	0.210	U	0.110	U	0.100	UJ	0.130
Aroclor-1248	U	0.690	U	0.110	U	0.120	U	0.110	U	0.120	U	0.210	U	0.110	U	0.100	U	0.130
Aroclor-1254	U	0.690	U	0.110	U	0.120	U	0.110	U	0.120	U	0.210	U	0.110	U	0.100	U	0.130
Aroclor-1260	11	0.690	0.49	0.110	1.6	0.120	1.1	0.110	0.36	0.120	2.6	0.210	0.13	0.110	0.11	0.100	0.90	0.130
Pesticides																		
beta-BHC	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Volatile Organic Compounds - VOCs																		
Acetone	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Benzene	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Chloroform	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Ethylbenzene	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Trichloroethene (TCE)	NT		NT		NT		NT		NT		NT		NT		NT		NT	
Polyaromatic Hydrocarbons (PAH)																		
Acenaphthene	U	0.230	U	0.180	U	0.220	U	0.180	U	0.220	U	0.190	U	0.190	U	0.180	U	0.210
Anthracene	U	0.230	U	0.180	U	0.220	U	0.180	U	0.220	U	0.190	U	0.190	U	0.180	U	0.210
Benzo(a)anthracene	U	0.230	U	0.180	U	0.220	U	0.180	U	0.220	U	0.190	U	0.190	U	0.180	U	0.210
Benzo(b)fluoranthene	U	0.230	U	0.180	U	0.220	U	0.180	U	0.220	U	0.190	U	0.190	U	0.180	U	0.210
Benzo(k)fluoranthene	U	0.230	U	0.180	U	0.220	U	0.180	U	0.220	U	0.190	U	0.190	U	0.180	U	0.210
Benzo(g,h,i)perylene	U	0.230	U	0.180	U	0.220	U	0.180	U	0.220	U	0.190	U	0.190	U	0.180	U	0.210
Benzo(a)pyrene	U	0.230	U	0.180	U	0.220	U	0.180	U	0.220	U	0.190	U	0.190	U	0.180	U	0.210
Chrysene	U	0.230	U	0.180	U	0.220	U	0.180	U	0.220	U	0.190	U	0.190	U	0.180	U	0.210
Dibenzo(a,h)anthracene	U	0.230	U	0.180	U	0.220	U	0.180	U	0.220	U	0.190	U	0.190	U	0.180	U	0.210
Fluoranthene	U	0.230	U	0.180	U	0.220	U	0.180	U	0.220	U	0.190	U	0.190	U	0.180	U	0.210
Indeno(1,2,3-cd)pyrene	U	0.230	U	0.180	U	0.220	U	0.180	U	0.220	U	0.190	U	0.190	U	0.180	U	0.210
Naphthalene	U	0.230	U	0.180	U	0.220	U	0.180	U	0.220	U	0.190	U	0.190	U	0.180	U	0.210
Phenanthrene	U	0.230	U	0.180	U	0.220	U	0.180	U	0.220	U	0.190	U	0.190	U	0.180	U	0.210
Pyrene	U	0.230	U	0.180	U	0.220	U	0.180	U	0.220	U	0.190	U	0.190	U	0.180	U	0.210
Extractable Petroleum Hydrocarbons (EPH)																		
C_9-C_{18} Aliphatics Hydrocarbons	U	4.6	U	3.6	U	4.4	U	3.6	U	4.4	U	3.7	U	3.7	U	3.6	U	4.2
C_{19}-C_{36} Aliphatics Hydrocarbons	U	4.6	U	3.6	U	4.4	U	3.6	U	4.4	U	3.7	U	3.7	U	3.6	U	4.2
C_{11}-C_{22} Aromatics Hydrocarbons	U	4.6	U	3.6	U	4.4	U	3.6	U	4.4	U	3.7	U	3.7	U	3.6	U	4.2
Acenaphthene	U	0.46	U	0.36	U	0.44	U	0.36	U	0.44	U	0.37	U	0.37	U	0.36	U	0.42
Acenaphthylene	U	0.46	U	0.36	U	0.44	U	0.36	U	0.44	U	0.37	U	0.37	U	0.36	U	0.42
Anthracene	U	0.46	U	0.36	U	0.44	U	0.36	U	0.44	U	0.37	U	0.37	U	0.36	U	0.42
Benzo(a)anthracene	U	0.46	U	0.36	U	0.44	U	0.36	U	0.44	U	0.37	U	0.37	U	0.36	U	0.42
Benzo(a)pyrene	U	0.46	U	0.36	U	0.44	U	0.36	U	0.44	U	0.37	U	0.37	U	0.36	U	0.42
Benzo(b)fluoranthene	U	0.46	U	0.36	U	0.44	U	0.36	U	0.44	U	0.37	U	0.37	U	0.36	U	0.42
Benzo(g,h,i)perylene	U	0.46	U	0.36	U	0.44	U	0.36	U	0.44	U	0.37	U	0.37	U	0.36	U	0.42
Benzo(k)fluoranthene	U	0.48	U	0.36	U	0.44	U	0.36	U	0.44	U	0.37	U	0.37	U	0.36	U	0.42
Chrysene	U	0.48	U	0.36	U	0.44	U	0.36	U	0.44	U	0.37	U	0.37	U	0.36	U	0.42
Dibenzo(a,h)anthracene	U	0.46	U	0.36	U	0.44	U	0.36	U	0.44	U	0.37	U	0.37	U	0.36	U	0.42
Fluoranthene	U	0.46	U	0.36	U	0.44	U	0.36	U	0.44	U	0.37	U	0.37	U	0.36	U	0.42
Fluorene	U	0.46	U	0.36	U	0.44	U	0.36	U	0.44	U	0.37	U	0.37	U	0.36	U	0.42
Indeno(1,2,3-cd)pyrene	U	0.46	U	0.36	U	0.44	U	0.36	U	0.44	U	0.37	U	0.37	U	0.36	U	0.42
2-Methylnaphthalene	U	0.46	U	0.38	U	0.44	U	0.36	U	0.44	U	0.37	U	0.37	U	0.36	U	0.42
Naphthalene	U	0.46	U	0.36	U	0.44	U	0.36	U	0.44	U	0.37	U	0.37	U	0.36	U	0.42
Phenanthrene	U	0.46	U	0.36	U	0.44	U	0.36	U	0.44	U	0.37	U	0.37	U	0.36	U	0.42
Pyrene	U	0.46	U	0.36	U	0.44	U	0.36	U	0.44	U	0.37	U	0.37	U	0.36	U	0.42

Sample ID	SB-10-15		SB-10-25		SB-11-5		SB-11-15		DUP		SB-11-25		SB-12-5		SB-12-15		SB-12-25		SB-13-5		SB-13-15		SB-13-25	
	(23' bgs)		(33' bgs)		(5' btg)		(15' btg)		(15' btg)		(25' btg)		(5' btg)		(15' btg)		(25' btg)		(5' btg)		(15' btg)		(25' btg)	
Date Sampled	5/11/05		5/11/05		5/10/05		5/10/05		5/10/05		5/10/05		5/11/05		5/11/05		5/11/05		5/10/05		5/10/05		5/10/05	
Sampling Company	S&W		S&W		S&W		S&W		S&W		S&W		S&W		S&W		S&W		S&W		S&W		S&W	
Analytes	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL
Metals																								
Arsenic	NT		NT		NT		NT		NT		NT		NT		NT		NT		4.4	1.5	NT		NT	
Barium	NT		NT		NT		NT		NT		NT		NT		NT		NT		16	1.5	NT		NT	
Beryllium	NT		NT		NT		NT		NT		NT		NT		NT		NT		U	0.30	NT		NT	
Cadmium	NT		NT		NT		NT		NT		NT		NT		NT		NT		U	0.30	NT		NT	
Chromium	NT		NT		NT		NT		NT		NT		NT		NT		NT		18	1.5	NT		NT	
Lead	NT		NT		NT		NT		NT		NT		NT		NT		NT		4.2	1.5	NT		NT	
Selenium	NT		NT		NT		NT		NT		NT		NT		NT		NT		U	1.5	NT		NT	
Silver	NT		NT		NT		NT		NT		NT		NT		NT		NT		U	1.5	NT		NT	
Zinc	NT		NT		NT		NT		NT		NT		NT		NT		NT		18	7.4	NT		NT	
Mercury	NT		NT		NT		NT		NT		NT		NT		NT		NT		U	0.029	NT		NT	
Polychlorinated Biphenyls - PCBs																								
Aroclor-1016	UJ	0.120	UJ	0.110	UJ	0.130	UJ	0.120	UJ	0.110	UJ	0.220	UJ	2.3	UJ	0.570	UJ	0.110	UJ	0.620	UJ	0.210	UJ	0.550
Aroclor-1248	U	0.120	U	0.110	U	0.130	U	0.120	U	0.110	U	0.220	U	2.3	U	0.570	U	0.110	U	0.620	U	0.210	U	0.550
Aroclor-1254	U	0.120	U	0.110	U	0.130	U	0.120	U	0.110	U	0.220	U	2.3	U	0.570	U	0.110	U	0.620	U	0.210	U	0.550
Aroclor-1260	0.13	0.120	U	0.110	1.6	0.130	U	0.120	0.25	0.110	3.4	0.220	46	2.3	4.9	0.570	0.6	0.110	10	0.620	3.3	0.210	7.8	0.550
Pesticides																								
beta-BHC	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Volatile Organic Compounds - VOCs																								
Acetone	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Benzene	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Chloroform	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Ethylbenzene	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Trichloroethene (TCE)	NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT		NT	
Polyaromatic Hydrocarbons (PAH)																								
Acenaphthene	U	0.200	U	0.170	U	0.220	U	0.190	U	0.190	U	0.190	U	0.210	U	0.190	U	0.190	U	0.210	U	0.180	U	0.180
Anthracene	U	0.200	U	0.170	U	0.220	U	0.190	U	0.190	U	0.190	U	0.210	U	0.190	U	0.190	U	0.210	U	0.180	U	0.180
Benzo(a)anthracene	U	0.200	U	0.170	U	0.220	U	0.190	U	0.190	U	0.190	U	0.210	U	0.190	U	0.190	U	0.210	U	0.180	U	0.180
Benzo(b)fluoranthene	U	0.200	U	0.170	U	0.220	U	0.190	U	0.190	U	0.190	U	0.210	U	0.190	U	0.190	U	0.210	U	0.180	U	0.180
Benzo(k)fluoranthene	U	0.200	U	0.170	U	0.220	U	0.190	U	0.190	U	0.190	U	0.210	U	0.190	U	0.190	U	0.210	U	0.180	U	0.180
Benzo(g,h,i)perylene	U	0.200	U	0.170	U	0.220	U	0.190	U	0.190	U	0.190	U	0.210	U	0.190	U	0.190	U	0.210	U	0.180	U	0.180
Benzo(a)pyrene	U	0.200	U	0.170	U	0.220	U	0.190	U	0.190	U	0.190	U	0.210	U	0.190	U	0.190	U	0.210	U	0.180	U	0.180
Chrysene	U	0.200	U	0.170	U	0.220	U	0.190	U	0.190	U	0.190	U	0.210	U	0.190	U	0.190	U	0.210	U	0.180	U	0.180
Dibenzo(a,h)anthracene	U	0.200	U	0.170	U	0.220	U	0.190	U	0.190	U	0.190	U	0.210	U	0.190	U	0.190	U	0.210	U	0.180	U	0.180
Fluoranthene	U	0.200	U	0.170	U	0.220	U	0.190	U	0.190	U	0.190	U	0.210	U	0.190	U	0.190	U	0.210	U	0.180	U	0.180
Indeno(1,2,3-cd)pyrene	U	0.200	U	0.170	U	0.220	U	0.190	U	0.190	U	0.190	U	0.210	U	0.190	U	0.190	U	0.210	U	0.180	U	0.180
Naphthalene	U	0.200	U	0.170	U	0.220	U	0.190	U	0.190	U	0.190	U	0.210	U	0.190	U	0.190	U	0.210	U	0.180	U	0.180
Phenanthrene	U	0.200	U	0.170	U	0.220	U	0.190	U	0.190	U	0.190	U	0.210	U	0.190	U	0.190	U	0.210	U	0.180	U	0.180
Pyrene	U	0.200	U	0.170	U	0.220	U	0.190	U	0.190	U	0.190	U	0.210	U	0.190	U	0.190	U	0.210	U	0.180	U	0.180
Extractable Petroleum Hydrocarbons (EPH)																								
C_9-C_{18} Aliphatics Hydrocarbons	U	4.0	U	3.5	U	4.3	U	3.8	U	3.8	U	3.7	U	4.1	5.6	3.8	U	3.9	6.1J	4.2	7.2	3.7	5.4	3.6
C_{19}-C_{36} Aliphatics Hydrocarbons	U	4.0	U	3.5	6.6	4.3	U	3.8	U	3.8	U	3.7	U	4.1	6.0	3.8	U	3.9	U	4.2	6.3	3.7	7.2	3.6
C_{11}-C_{22} Aromatics Hydrocarbons	U	4.0	U	3.5	8.7	4.3	6.1	3.8	6.5	3.8	5.4	3.7	U	4.1	U	3.8	11	3.9	6.5	4.2	10	3.7	7.9	3.6
Acenaphthene	U	0.4	U	0.35	U	0.43	U	0.38	U	0.38	U	0.37	U	0.41	U	0.38	U	0.39	U	0.42	U	0.37	U	0.36
Acenaphthylene	U	0.4	U	0.35	U	0.43	U	0.38	U	0.38	U	0.37	U	0.41	U	0.38	U	0.39	U	0.42	U	0.37	U	0.36
Anthracene	U	0.4	U	0.35	U	0.43	U	0.38	U	0.38	U	0.37	U	0.41	U	0.38	U	0.39	U	0.42	U	0.37	U	0.36
Benzo(a)anthracene	U	0.4	U	0.35	U	0.43	U	0.38	U	0.38	U	0.37	U	0.41	U	0.38	U	0.39	U	0.42	U	0.37	U	0.36
Benzo(a)pyrene	U	0.4	U	0.35	U	0.43	U	0.38	U	0.38	U	0.37	U	0.41	U	0.38	U	0.39	U	0.42	U	0.37	U	0.36
Benzo(b)fluoranthene	U	0.4	U	0.35	U	0.43	U	0.38	U	0.38	U	0.37	U	0.41	U	0.38	U	0.39	U	0.42	U	0.37	U	0.36
Benzo(g,h,i)perylene	U	0.4	U	0.35	U	0.43	U	0.38	U	0.38	U	0.37	U	0.41	U	0.38	U	0.39	UJ	0.42	U	0.37	U	0.36
Benzo(k)fluoranthene	U	0.4	U	0.35	U	0.43	U	0.38	U	0.38	U	0.37	U	0.41	U	0.38	U	0.39	U	0.42	U	0.37	U	0.36
Chrysene	U	0.4	U	0.35	U	0.43	U	0.38	U	0.38	U	0.37	U	0.41	U	0.38	U	0.39	U	0.42	U	0.37	U	0.36
Dibenzo(a,h)anthracene	U	0.4	U	0.35	U	0.43	U	0.38	U	0.38	U	0.37	U	0.41	U	0.38	U	0.39	UJ	0.42	U	0.37	U	0.36
Fluoranthene	U	0.4	U	0.35	U	0.43	U	0.38	U	0.38	U	0.37	U	0.41	U	0.38	U	0.39	U	0.42	U	0.37	U	0.36
Fluorene	U	0.4	U	0.35	U	0.43	U	0.38	U	0.38	U	0.37	U	0.41	U	0.38	U	0.39	U	0.42	U	0.37	U	0.36
Indeno(1,2,3-cd)pyrene	U	0.4	U	0.35	U	0.43	U	0.38	U	0.38	U	0.37	U	0.41	U	0.38	U	0.39	U	0.42	U	0.37	U	0.36
2-Methylnaphthalene	U	0.4	U	0.35	U	0.43	U	0.38	U	0.38	U	0.37	U	0.41	U	0.38	U	0.39	U	0.42	U	0.37	U	0.36
Naphthalene	U	0.4	U	0.35	U	0.43	U	0.38	U	0.38	U	0.37	U	0.41	U	0.38	U	0.39	UJ	0.42	U	0.37	U	0.36
Phenanthrene	U	0.4	U	0.35	U	0.43	U	0.38	U	0.38	U	0.37	U	0.41	U	0.38	U	0.39	U	0.42	U	0.37	U	0.36
Pyrene	U	0.4	U	0.35	U	0.43	U	0.38	U	0.38	U	0.37	U	0.41	U	0.38	U	0.39	U	0.42	U	0.37	U	0.36

All concentrations and quantitation limits expressed in mg/kg
U = Not Detected
UJ = Sample-specific detection limit is approximate
J = Quantitation is approximate due to limitations identified in the quality control review
NT = Not Tested
bgs = below ground surface
btg = below transformer pit grade

TABLE 5-2
SUMMARY OF PCB, PAHs, and EPH GROUNDWATER SAMPLING RESULTS FROM TRANSFORMER NO. 6 / COURTYARD AREA
Former Oxford Paper Mill - April and May 2005
Lawrence, Massachusetts

Transformer No. 6 Area - PCBs, PAHs, and EPH

Sample ID	MW-2 Total Non-Filtered		MW-2 DUP Total Non-Filtered		MW-9 Total Non-Filtered		MW-10 Total Non-Filtered		MW-10 Dissolved Filtered		MW-11 Total Non-Filtered		MW-11 Dissolved Filtered		MW-11 DUP Total Non-Filtered		MW-11 DUP Dissolved Filtered	
Date Sampled	4/20/2005		4/20/2005		4/20/2005		5/20/05 & 5/25/05		5/20/2005		5/20/2005		5/20/2005		5/20/2005		5/20/2005	
Analytes	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL	Result	QL
Polychlorinated Biphenyls - PCBs																		
Aroclor 1016	**3.1**	0.30	**2.9**	0.30	**2.1**	0.30	UJ	0.30	U	0.30	**1.3**	0.30	**1.1**	0.30	**1.3**	0.30	**1.1**	0.30
Aroclor 1221	U	0.30	U	0.30	U	0.30	UJ	0.30	U	0.30	U	0.30	U	0.30	U	0.30	U	0.30
Aroclor 1232	U	0.30	U	0.30	U	0.30	UJ	0.30	U	0.30	U	0.30	U	0.30	U	0.30	U	0.30
Aroclor 1242	U	0.30	U	0.30	U	0.30	UJ	0.30	U	0.30	U	0.30	U	0.30	U	0.30	U	0.30
Aroclor 1248	U	0.30	U	0.30	U	0.30	UJ	0.30	U	0.30	U	0.30	U	0.30	U	0.30	U	0.30
Aroclor 1254	U	0.30	U	0.30	U	0.30	UJ	0.30	U	0.30	U	0.30	U	0.30	U	0.30	U	0.30
Aroclor 1260	**4.0**	0.30	**2.9**	0.30	**2.6**	0.30	UJ	0.30	U	0.30	**0.54**	0.30	U	0.30	**0.6**	0.30	**0.38**	0.30
Polyaromatic Hydrocarbons - PAHs																		
Naphthalene	U	5.0	U	5.0	U	5.0	UJ	5.0	NT		U	5.0	NT		U	5.0	NT	
2-Methylnaphthalene	U	5.0	U	5.0	U	5.0	UJ	5.0	NT		U	5.0	NT		U	5.0	NT	
Acenaphthylene	U	5.0	U	5.0	U	5.0	UJ	5.0	NT		U	5.0	NT		U	5.0	NT	
Acenaphthene	U	5.0	U	5.0	U	5.0	UJ	5.0	NT		U	5.0	NT		U	5.0	NT	
Fluorene	U	5.0	U	5.0	U	5.0	UJ	5.0	NT		U	5.0	NT		U	5.0	NT	
Phenanthrene	U	5.0	U	5.0	U	5.0	UJ	5.0	NT		U	5.0	NT		U	5.0	NT	
Anthracene	U	5.0	U	5.0	U	5.0	UJ	5.0	NT		U	5.0	NT		U	5.0	NT	
Fluoranthene	U	5.0	U	5.0	U	5.0	UJ	5.0	NT		U	5.0	NT		U	5.0	NT	
Pyrene	U	5.0	U	5.0	U	5.0	UJ	5.0	NT		U	5.0	NT		U	5.0	NT	
Benzo(a)anthracene	U	5.0	U	5.0	U	5.0	UJ	5.0	NT		U	5.0	NT		U	5.0	NT	
Chrysene	U	5.0	U	5.0	U	5.0	UJ	5.0	NT		U	5.0	NT		U	5.0	NT	
Benzo(b)fluoranthene	U	5.0	U	5.0	U	5.0	UJ	5.0	NT		U	5.0	NT		U	5.0	NT	
Benzo(k)fluoranthene	U	5.0	U	5.0	U	5.0	UJ	5.0	NT		U	5.0	NT		U	5.0	NT	
Benzo(a)pyrene	U	5.0	U	5.0	U	5.0	UJ	5.0	NT		U	5.0	NT		U	5.0	NT	
Indeno(1,2,3-cd)pyrene	U	5.0	U	5.0	U	5.0	UJ	5.0	NT		U	5.0	NT		U	5.0	NT	
Dibenzo(a,h)anthracene	U	5.0	U	5.0	U	5.0	UJ	5.0	NT		U	5.0	NT		U	5.0	NT	
Benzo(ghi)perylene	U	5.0	U	5.0	U	5.0	UJ	5.0	NT		U	5.0	NT		U	5.0	NT	
Extractable Petroleum Hydrocarbons - EPH																		
C_9-C_{18} Aliphatics	250	100	240	100	710	100	130J	100	NT		1300J	100	NT		1400J	100	NT	
C_{11}-C_{22} Aromatics	180	100	U	100	170	100	U	100	NT		290	100	NT		250	100	NT	
C_{19}-C_{36} Aliphatics	U	100	U	100	U	100	UJ	100	NT		UJ	100	NT		UJ	100	NT	
Acenaphthene	U	10	U	10	U	10	U	10	NT		U	10	NT		U	10	NT	
Acenaphthylene	U	10	U	10	U	10	U	10	NT		U	10	NT		U	10	NT	
Anthracene	U	10	U	10	U	10	U	10	NT		U	10	NT		U	10	NT	
Benzo(a)anthracene	U	10	U	10	U	10	U	10	NT		U	10	NT		U	10	NT	
Benzo(a)pyrene	U	10	U	10	U	10	U	10	NT		U	10	NT		U	10	NT	
Benzo(b)fluoranthene	U	10	U	10	U	10	U	10	NT		U	10	NT		U	10	NT	
Benzo(ghi)perylene	U	10	U	10	U	10	U	10	NT		U	10	NT		U	10	NT	
Benzo(k)fluoranthene	U	10	U	10	U	10	U	10	NT		U	10	NT		U	10	NT	
Chrysene	U	10	U	10	U	10	U	10	NT		U	10	NT		U	10	NT	
Dibenzo(a,h)anthracene	U	10	U	10	U	10	U	10	NT		U	10	NT		U	10	NT	
Fluoranthene	U	10	U	10	U	10	U	10	NT		U	10	NT		U	10	NT	
Fluorene	U	10	U	10	U	10	U	10	NT		U	10	NT		U	10	NT	
Indeno(1,2,3-cd)pyrene	U	10	U	10	U	10	U	10	NT		U	10	NT		U	10	NT	
2-Methylnaphthalene	U	10	U	10	U	10	U	10	NT		U	10	NT		U	10	NT	
Naphthalene	U	10	U	10	U	10	U	10	NT		U	10	NT		U	10	NT	
Phenanthrene	U	10	U	10	U	10	U	10	NT		U	10	NT		U	10	NT	
Pyrene	U	10	U	10	U	10	U	10	NT		U	10	NT		U	10	NT	

All concentrations and quantitation limits expressed in µg/L
U = Not Detected
J = Quantitation is approximate due to limitations identified in the quality control review
UJ = Sample-specific detection limit is approximate due to limitations identified in the quality control review
BOLD = Exceeds GW-3 MCP Method 1 Clean-up Standards (PCBs = 0.3 µg/L)
PCB samples for MW-10, MW-11, and MW-11 DUP were also pre-filtered for companson to Total concentrations

TABLE 5-3 - LFR South Side Concrete, Building Debris, Sediment, and Soil Analytical Data Summary

	Building No. 1 - First Floor Sediments				Building No. 1 - Basement Floor Concrete Sampling																								
Sample ID	NW-1	NW-2	NE-1	NE-2	B1-(5,7)	B1-(73,26)	B1-(23,4)	B1-(23,24)	B1-(30,13)	B1-(50,4)	B1-(52,13)	B1-(53,25)	B1-(60,4)	B1-(76,2)	B1-(77,13)	B1-(79,25)	B1-(93,3)	B1-(90,13)	B1-(100,24)	B1-(123,13)	B1-(110,24)	B1-(125,24)	B1-(145,4)	B1-(150,13)	B1-(169,20)	B1-(185,4)	B1-(179,14)	B1-(197,2)	DUP 1
	(0-0.5')	(0-0.5')	(0-0.5')	(0-0.5')	Base Floor	Base Floor	Base Floor	Base Floor	Base Floor	Base Floor	Base Floor	Base Floor	Base Floor	Base Floor	Base Floor	Base Floor	Base Floor	Base Floor	Base Floor	Base Floor	Base Floor	Base Floor	Base Floor	Base Floor	Base Floor	Base Floor	Base Floor	Base Floor	Base Floor
Date Sampled	4/17/01	4/17/01	4/17/01	4/17/01	7/26/01	7/26/01	7/26/01	7/26/01	7/26/01	7/26/01	7/26/01	7/26/01	7/26/01	7/26/01	7/26/01	7/26/01	7/26/01	7/26/01	7/26/01	7/26/01	7/26/01	7/26/01	7/26/01	7/26/01	7/26/01	7/26/01	7/26/01	7/26/01	7/26/01
Sampling Company	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR
Analytes																													
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Metals																													
Arsenic	2.86	10.1	8.79	1.58	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Barium	500	1110	1390	286	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Cadmium	0.904	1.25	5.0	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Chromium	31.4	100	25.4	21	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Lead	168	466	100	54.5	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Mercury	0.153	0.282	0.106	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Silver	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
TCLP Lead (mg/L)	0.15	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Percent Solid	91	62	91	96	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Corrosivity (pH) (SU)	5.89	6.23	6.12	5.92	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Flashpoint (°F)	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Polychlorinated Biphenyls - PCBs																													
Aroclor-1016	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor-1242	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor-1248	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor-1254	0.222	ND	0.167	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.115	ND	ND	ND	ND
Aroclor-1260	ND	0.114	ND	ND	0.853	0.0879	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds - VOCs																													
1,2,4-Trimethylbenzene	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
4-Isopropyltoluene	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Naphthalene	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Toluene	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Xylenes, Total	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Semi-Volatile Organic Compounds - SVOCs																													
Acenaphthene	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Anthracene	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Benzo(a)anthracene	2.27	30.1	ND	1.49	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Benzo(a)pyrene	3.02	35.4	0.387	1.71	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Benzo(b)fluoranthene	3.58	38.6	0.388	1.62	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Benzo(g,h,i)perylene	1.14	12.9	ND	0.631	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Benzo(k)fluoranthene	2.31	29.3	0.417	1.52	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
bis(2-Ethylhexyl)phthalate	ND	ND	0.618	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Butylbenzylphthalate	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Chrysene	2.33	29.7	ND	1.5	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Di-n-butylphthalate	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Di-n-octylphthalate	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Dibenzo(a,h)anthracene	0.438	5.52	ND	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Dibenzofuran	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Fluoranthene	4.62	51.4	0.749	3.3	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Fluorene	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Indeno(1,2,3-cd)pyrene	1.19	13.5	ND	0.642	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Naphthalene	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Phenanthrene	1.67	19.4	ND	1.09	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Pyrene	3.8	45.1	0.531	2.63	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Extractable Petroleum Hydrocarbons (EPH)																													
C_9-C_{18} Aliphatic Hydrocarbons	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
C_{19}-C_{36} Aliphatic Hydrocarbons	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Total Petroleum Hydrocarbons (TPH)	164	756	90.1	75.2	NT	NT	NT	NT	ND	NT	NT	NT	NT	50	NT	ND	NT	NT	46.4	NT	ND	NT	NT	64.9	NT	NT	42.6	NT	NT
Asbestos	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT

ND = Not Detected
NT = Not Tested

TABLE 5-3 Cont - LFR South Side Concrete, Building Debris, Sediment, and Soil Analytical Data Summary

	Building No. 1 - Basement Floor Concrete Sampling				Building No. 1 - Wall Concrete Sampling													Building No. 2 - Basement Sediment Sampling	Building No. 2 Basement Sludge Sampling	Building No. 2 - Basement Floor Concrete Sampling					
Sample ID	DUP 2	B1-Comp1	B1-Comp2	B1-Comp3	B1-(0,13)	B1-(30,0)	B1-(60,0)	B1-(80,0)	B1-(120,0)	B1-(152,22)	B1-(155,0)	B1-(195,0)	B1-(197,13)	B1-(180,22)	B1-Comp1	B1-Comp2	B1-Comp3	Bldg-2	Bldg-2 (#2A) Floor Sludge	B2-(0,0)	B2-(2,70)	B2-(5,29)	B2-(5,114)	B2-(10,96)	B2-(12,50)
	Base Floor	Base Floor	Base Floor	Base Floor	Wall	Wall	Wall	Wall	Wall	Wall	Wall	Wall	Wall	Wall	E Wall	S Wall (6-10')	S Wall (0-6')	Basement	Basement	Base Floor	Base Floor	Base Floor	Base Floor	Base Floor	Base Floor - Sludge
Date Sampled	7/26/01	7/26/01	7/26/01	7/26/01	7/26/01	7/26/01	7/26/01	7/26/01	7/26/01	7/26/01	7/26/01	7/26/01	7/26/01	7/26/01	7/26/01	7/26/01	7/26/01	8/22/00	8/22/00	5/1/01	5/1/01	5/1/01	5/1/01	5/1/01	5/1/01
Sampling Company	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR
Analytes																									
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Metals																									
Arsenic	NT	ND	ND	15.7	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	33.1	ND	ND	13.1	ND	NT	NT	NT	NT	NT	NT
Barium	NT	ND	49.1	50.8	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	51.2	54.8	104	6560	623	NT	NT	NT	NT	NT	NT
Cadmium	NT	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND	11	10.1	NT	NT	NT	NT	NT	NT
Chromium	NT	21.1	26.9	25	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	31.6	13.4	14.9	94.1	48.1	NT	NT	NT	NT	NT	NT
Lead	NT	59.8	ND	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND	5300	296	NT	NT	NT	NT	NT	NT
Mercury	NT	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND	0.575	7.1	NT	NT	NT	NT	NT	NT
Silver	NT	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT
TCLP Lead (mg/L)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Percent Solid	NT	NA	NA	NA	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	68	77	NT	NT	NT	NT	NT	NT
Corrosivity (pH) (SU)	NT	12.02	11.84	12.22	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	12.34	11.93	11.47	7.10	NT	NT	NT	NT	NT	NT	NT
Flashpoint (°F)	NT	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT
Polychlorinated Biphenyls - PCBs																									
Aroclor-1016	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor-1242	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor-1248	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.051	0.0691	0.0897	0.0648	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor-1254	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.204	2.49
Aroclor-1260	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.341	0.357	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds - VOCs																									
1,2,4-Trimethylbenzene	NT	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT
4-Isopropyltoluene	NT	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT
Naphthalene	NT	ND	0.0314	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND	0.125	ND	NT	NT	NT	NT	NT	NT
Toluene	NT	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT
Xylenes, Total	NT	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT
Semi-Volatile Organic Compounds - SVOCs																									
Acenaphthene	NT	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND	11.1	ND	NT	NT	NT	NT	NT	NT
Anthracene	NT	ND	0.483	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	1.31	32.2	0.454	NT	NT	NT	NT	NT	NT
Benzo(a)anthracene	NT	ND	1.09	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	2.01	97.5	11.6	NT	NT	NT	NT	NT	NT
Benzo(a)pyrene	NT	ND	0.812	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	1.49	83.2	0.671	NT	NT	NT	NT	NT	NT
Benzo(b)fluoranthene	NT	ND	0.686	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	1.24	129	0.785	NT	NT	NT	NT	NT	NT
Benzo(g,h,i)perylene	NT	ND	0.393	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	0.769	35.1	ND	NT	NT	NT	NT	NT	NT
Benzo(k)fluoranthene	NT	ND	0.693	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	1.29	50.6	1.07	NT	NT	NT	NT	NT	NT
bis(2-Ethylhexyl)phthalate	NT	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND	ND	21.059	NT	NT	NT	NT	NT	NT
Butylbenzylphthalate	NT	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT
Chrysene	NT	ND	1.15	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	1.92	104	1.55	NT	NT	NT	NT	NT	NT
Di-n-butylphthalate	NT	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT
Di-n-octylphthalate	NT	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT
Dibenzo(a,h)anthracene	NT	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND	16.8	ND	NT	NT	NT	NT	NT	NT
Dibenzofuran	NT	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	0.346	ND	ND	NT	NT	NT	NT	NT	NT
Fluoranthene	NT	0.537	2.35	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	5.47	211	3.56	NT	NT	NT	NT	NT	NT
Fluorene	NT	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND	10.4	ND	NT	NT	NT	NT	NT	NT
Indeno(1,2,3-cd)pyrene	NT	ND	0.411	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	0.808	36.4	ND	NT	NT	NT	NT	NT	NT
Naphthalene	NT	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT
Phenanthrene	NT	ND	1.77	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	5.74	132	2.05	NT	NT	NT	NT	NT	NT
Pyrene	NT	0.482	2.06	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	4.18	141	2.62	NT	NT	NT	NT	NT	NT
Extractable Petroleum Hydrocarbons (EPH)																									
C_9-C_{18} Aliphatic Hydrocarbons	NT	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	NT	NT	NT	NT	NT	NT	NT	NT
C_{19}-C_{36} Aliphatic Hydrocarbons	NT	58.7	ND	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	NT	NT	NT	NT	NT	NT	NT	NT
Total Petroleum Hydrocarbons (TPH)	NT	ND	51.7	34	ND	NT	ND	NT	NT	NT	174	NT	NT	NT	38.3	ND	53.7	1080	440	NT	3450	139	NT	NT	NT
Asbestos	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	Present	NT	NT	NT	NT	NT	NT	NT

ND = Not Detected
NT = Not Tested

TABLE 5-3 Cont - LFR South Side Concrete, Building Debris, Sediment, and Soil Analytical Data Summary

	Building No. 2 - Basement Floor Concrete Sampling									
Sample ID	B2-(13,49)	B2-(21,112)	B2-(25,25)	B2-(30,90)	B2-(42,65)	B2-(45,112)	B2-(50,25)	B2-Comp1	B2-Comp2	B2-Comp3
	Base Floor	Base Floor	Base Floor	Base Floor	Base Floor	Base Floor	Base Floor	Base Floor	Base Floor	Base Floor
Date Sampled	5/1/01	5/1/01	5/1/01	5/1/01	5/1/01	5/1/01	5/1/01	5/1/01	5/1/01	5/1/01
Sampling Company	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR
Analytes										
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Metals										
Arsenic	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Barium	NT	NT	NT	NT	NT	NT	NT	80.7	89.7	89.8
Cadmium	NT	NT	NT	NT	NT	NT	NT	ND	4.25	ND
Chromium	NT	NT	NT	NT	NT	NT	NT	15.4	72.1	24.5
Lead	NT	NT	NT	NT	NT	NT	NT	22.1	ND	ND
Mercury	NT	NT	NT	NT	NT	NT	NT	4.77	0.136	0.614
Silver	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
TCLP Lead (mg/L)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Percent Solid	NT	NT	NT	NT	NT	NT	NT	NA	NA	NA
Corrosivity (pH) (SU)	NT	NT	NT	NT	NT	NT	NT	9.94	11.8	9.66
Flashpoint (°F)	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Polychlorinated Biphenyls - PCBs										
Aroclor-1016	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor-1242	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor-1248	ND	0.325	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor-1254	0.133	ND	0.1	0.22	ND	0.175	ND	0.256	0.122	0.282
Aroclor-1260	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds - VOCs										
1,2,4-Trimethylbenzene	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
4-Isopropyltoluene	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Naphthalene	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Toluene	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Xylenes, Total	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Semi-Volatile Organic Compounds - SVOCs										
Acenaphthene	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Anthracene	NT	NT	NT	NT	NT	NT	NT	ND	ND	0.543
Benzo(a)anthracene	NT	NT	NT	NT	NT	NT	NT	ND	ND	0.809
Benzo(a)pyrene	NT	NT	NT	NT	NT	NT	NT	ND	ND	0.522
Benzo(b)fluoranthene	NT	NT	NT	NT	NT	NT	NT	ND	ND	0.741
Benzo(g,h,i)perylene	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Benzo(k)fluoranthene	NT	NT	NT	NT	NT	NT	NT	ND	ND	0.527
bis(2-Ethylhexyl)phthalate	NT	NT	NT	NT	NT	NT	NT	0.745	ND	1.8
Butylbenzylphthalate	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Chrysene	NT	NT	NT	NT	NT	NT	NT	ND	ND	0.855
Di-n-butylphthalate	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Di-n-octylphthalate	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Dibenzo(a,h)anthracene	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Dibenzofuran	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Fluoranthene	NT	NT	NT	NT	NT	NT	NT	ND	ND	2.49
Fluorene	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Indeno(1,2,3-cd)pyrene	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Naphthalene	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Phenanthrene	NT	NT	NT	NT	NT	NT	NT	ND	ND	2.33
Pyrene	NT	NT	NT	NT	NT	NT	NT	ND	ND	1.44
Extractable Petroleum Hydrocarbons (EPH)										
C_9-C_{18} Aliphatic Hydrocarbons	NT	NT	NT	NT	NT	NT	NT	62.9	517	ND
C_{19}-C_{36} Aliphatic Hydrocarbons	NT	NT	NT	NT	NT	NT	NT	2450	2080	508
Total Petroleum Hydrocarbons (TPH)	1160	10100	NT	2540	2780	1470	93.5	1280	2080	673
Asbestos	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT

	Building No. 2 - Wall Concrete Sampling									
Sample ID	B2-(0,0)	B2-(0,50)	B2-(0,100)	B2-(25,9)	B2-(25,25)	B2-(25,114)	B2-(50,50)	B2-(50,25)	B2-(90,40)	B2-(100,100)
	Wall	Wall	Wall	Wall	Wall	Wall	Wall	Wall	Wall	Wall
Date Sampled	5/1/01	5/1/01	5/1/01	5/1/01	5/1/01	5/1/01	5/1/01	5/1/01	5/1/01	5/1/01
Sampling Company	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR
Analytes										
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Metals										
Arsenic	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Barium	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Cadmium	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Chromium	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Lead	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Mercury	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Silver	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
TCLP Lead (mg/L)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Percent Solid	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Corrosivity (pH) (SU)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Flashpoint (°F)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Polychlorinated Biphenyls - PCBs										
Aroclor-1016	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor-1242	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor-1248	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor-1254	ND	0.121	ND	ND	ND	ND	ND	ND	0.27	ND
Aroclor-1260	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds - VOCs										
1,2,4-Trimethylbenzene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
4-Isopropyltoluene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Naphthalene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Toluene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Xylenes, Total	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Semi-Volatile Organic Compounds - SVOCs										
Acenaphthene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Anthracene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Benzo(a)anthracene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Benzo(a)pyrene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Benzo(b)fluoranthene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Benzo(g,h,i)perylene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Benzo(k)fluoranthene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
bis(2-Ethylhexyl)phthalate	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Butylbenzylphthalate	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Chrysene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Di-n-butylphthalate	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Di-n-octylphthalate	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Dibenzo(a,h)anthracene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Dibenzofuran	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Fluoranthene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Fluorene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Indeno(1,2,3-cd)pyrene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Naphthalene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Phenanthrene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Pyrene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Extractable Petroleum Hydrocarbons (EPH)										
C_9-C_{18} Aliphatic Hydrocarbons	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
C_{19}-C_{36} Aliphatic Hydrocarbons	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Total Petroleum Hydrocarbons (TPH)	NT	NT	ND	NT	NT	NT	NT	NT	611	NT
Asbestos	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT

	Building No. 2 - Ceiling Concrete Sampling				Building No. 2 - First Floor Slab Concrete Sampling					
Sample ID	B2-(17,75)	B2-(22,27)	B2-(29,62)	B2-(29,102)	B2-(15,66)	B2-(36,102)	B2-(15,41)	B2-Comp1	B2-Comp2	B2-Comp3
	Ceiling	Ceiling	Ceiling	Ceiling	First Floor	First Floor	First Floor	First Floor	First Floor	First Floor
Date Sampled	5/1/01	5/1/01	5/1/01	5/1/01	4/27/01	4/27/01	4/27/01	4/27/01	4/27/01	4/27/01
Sampling Company	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR
Analytes										
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Metals										
Arsenic	NT	NT	NT	NT	NT	NT	NT	9.5	9.0	ND
Barium	NT	NT	NT	NT	NT	NT	NT	166	110	38.4
Cadmium	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Chromium	NT	NT	NT	NT	NT	NT	NT	18.7	22.9	11.5
Lead	NT	NT	NT	NT	NT	NT	NT	12.4	33.1	ND
Mercury	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Silver	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
TCLP Lead (mg/L)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Percent Solid	NT	NT	NT	NT	NT	NT	NT	NA	NA	NA
Corrosivity (pH) (SU)	NT	NT	NT	NT	NT	NT	NT	11.9	11.8	11.9
Flashpoint (°F)	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Polychlorinated Biphenyls - PCBs										
Aroclor-1016	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor-1242	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor-1248	ND	ND	ND	ND	0.485	ND	0.613	0.499	0.989	0.597
Aroclor-1254	ND	ND	0.106	ND	0.580	ND	0.627	0.552	0.585	0.378
Aroclor-1260	ND	ND	ND	ND	ND	1.3	ND	ND	ND	ND
Volatile Organic Compounds - VOCs										
1,2,4-Trimethylbenzene	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
4-Isopropyltoluene	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Naphthalene	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Toluene	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Xylenes, Total	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Semi-Volatile Organic Compounds - SVOCs										
Acenaphthene	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Anthracene	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Benzo(a)anthracene	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Benzo(a)pyrene	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Benzo(b)fluoranthene	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Benzo(g,h,i)perylene	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Benzo(k)fluoranthene	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
bis(2-Ethylhexyl)phthalate	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Butylbenzylphthalate	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Chrysene	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Di-n-butylphthalate	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Di-n-octylphthalate	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Dibenzo(a,h)anthracene	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Dibenzofuran	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Fluoranthene	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Fluorene	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Indeno(1,2,3-cd)pyrene	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Naphthalene	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Phenanthrene	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Pyrene	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Extractable Petroleum Hydrocarbons (EPH)										
C_9-C_{18} Aliphatic Hydrocarbons	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
C_{19}-C_{36} Aliphatic Hydrocarbons	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Total Petroleum Hydrocarbons (TPH)	53	NT	NT	NT	NT	NT	5570	2860	1380	1430
Asbestos	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT

TABLE 5-3 Cont - LFR South Side Concrete, Building Debris, Sediment, and Soil Analytical Data Summary

	Tunnel Sampling				Building No. 3 - Basement Floor Concrete Sampling																									
Sample ID	Tunnel W	Tunnel Mid	Tunnel E	Tunnel Composite	B3-(0,0)	B3-(0,50)	B3-(0,100)	B3-(0,150)	B3-(0,200)	B3-(8,238)	B3-(100,36)	B3-(100,50)	B3-(100,100)	B3-(100,150)	B3-(148,150)	B3-(148,200)	B3-(100,200)	B3-(50,200)	DUP 1	B3-(104,229)	B3-(12,200)	B3-(10,135)	DUP 2	B3-(50,50)	B3-(50,100)	B3-(50,17)	B3-(58,166)	DUP 1	B3-(12,190)	B3-(12,195)
	Tunnel	Tunnel	Tunnel	Tunnel	Base Floor	Base Floor	Base Floor	Base Floor	Base Floor	Base Floor	Base Floor	Base Floor	Base Floor	Base Floor	Base Floor	Base Floor	Base Floor	Base Floor	Base Floor	Base D/Floor	Base D/Floor	Base D/Floor	Base Floor	Base Floor	Base Floor	Base Floor	Base Floor	Base Floor	Base Floor	Base Floor
Date Sampled	5/1/01	5/1/01	5/1/01	5/1/01	3/15/01	3/15/01	3/15/01	3/15/01	3/15/01	3/15/01	3/15/01	3/15/01	3/15/01	3/15/01	3/15/01	3/15/01	3/15/01	3/15/01	3/15/01	3/15/01	3/15/01	3/15/01	3/15/01	3/15/01	3/15/01	3/15/01	4/5/01	4/5/01	4/5/01	4/5/01
Sampling Company	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR
Analytes																														
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Metals																														
Arsenic	NT	NT	NT	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Barium	NT	NT	NT	116	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Cadmium	NT	NT	NT	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Chromium	NT	NT	NT	34	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Lead	NT	NT	NT	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Mercury	NT	NT	NT	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Silver	NT	NT	NT	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
TCLP Lead (mg/L)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Percent Solid	NT	NT	NT	NA	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Corrosivity (pH) (SU)	NT	NT	NT	11.4	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Flashpoint (°F)	NT	NT	NT	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Polychlorinated Biphenyls - PCBs																														
Aroclor-1016	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor-1242	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor-1248	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor-1254	ND	ND	ND	ND	ND	0.08	0.387	0.241	2.18	ND	0.496	0.132	0.262	0.67	0.14	ND	ND	1.37	1.13	0.482	1.27	0.888	1.3	ND	0.444	0.167	0.259	0.199	0.279	0.329
Aroclor-1260	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds - VOCs																														
1,2,4-Trimethylbenzene	NT	NT	NT	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
4-Isopropyltoluene	NT	NT	NT	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Naphthalene	NT	NT	NT	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Toluene	NT	NT	NT	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Xylenes, Total	NT	NT	NT	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Semi-Volatile Organic Compounds - SVOCs																														
Acenaphthene	NT	NT	NT	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Anthracene	NT	NT	NT	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Benzo(a)anthracene	NT	NT	NT	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Benzo(a)pyrene	NT	NT	NT	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Benzo(b)fluoranthene	NT	NT	NT	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Benzo(g,h,i)perylene	NT	NT	NT	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Benzo(k)fluoranthene	NT	NT	NT	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
bis(2-Ethylhexyl)phthalate	NT	NT	NT	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Butylbenzylphthalate	NT	NT	NT	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Chrysene	NT	NT	NT	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Di-n-butylphthalate	NT	NT	NT	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Di-n-octylphthalate	NT	NT	NT	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Dibenzo(a,h)anthracene	NT	NT	NT	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Dibenzofuran	NT	NT	NT	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Fluoranthene	NT	NT	NT	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Fluorene	NT	NT	NT	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Indeno(1,2,3-cd)pyrene	NT	NT	NT	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Naphthalene	NT	NT	NT	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Phenanthrene	NT	NT	NT	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Pyrene	NT	NT	NT	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Extractable Petroleum Hydrocarbons (EPH)																														
C_9-C_{18} Aliphatic Hydrocarbons	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
C_{19}-C_{36} Aliphatic Hydrocarbons	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Total Petroleum Hydrocarbons (TPH)	NT	NT	NT	46.1	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	1320	1230	3750	1180
Asbestos	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT

ND = Not Detected
NT = Not Tested

TABLE 5-3 Cont - LFR South Side Concrete, Building Debris, Sediment, and Soil Analytical Data Summary

	Building No. 3 - Basement Floor Concrete Sampling							Building No. 3 - Basement Wall Concrete Sampling																								
Sample ID	B3-(12,205)	B3-(17,210)	B3-(17,200)	B3-(23,200)	B3-(100,240)	B3-(100,230)	B3-(57,146)	B3-(0,0)	B3-(0,100)	B3-(0,150)	B3-(8,238)	B3-(50,17)	B3-(50,238)	B3-(100,36)	B3-(104,101)	B3-(148,100)	B3-(148,150)	B3-(148,195)	B3-(65,218)	B3-(100,245)	B3-(12,125)	B3-(12,52)	B3-(12,148)	B3-(0,200)	DUP 1	B3-(45,140)	B3-(65,130)	B3-(45,59)	B3-(24,125)	B3-(65,65)	B3-(75,75)	B3-(85,120)
	Base Floor	Base Floor	Base Floor	Base Floor	Base Floor	Base Floor	Base Floor	Base Wall	Base Wall	Base Wall	Base Wall	Base Wall	Base Wall	Base Wall	Base Wall	Base Wall	Base Wall	Base Wall	Base Wall	Base Wall	Base Wall	Base Wall	Base Wall	Base Wall	Base Wall	Base Wall	Base Wall	Base Wall	Base Wall	Base Wall	Base Wall	Base Wall
Date Sampled	4/5/01	4/5/01	4/5/01	4/5/01	4/5/01	4/5/01	4/5/01	3/15/01	3/15/01	3/15/01	3/15/01	3/15/01	3/15/01	3/15/01	3/15/01	3/15/01	3/15/01	3/15/01	3/15/01	3/15/01	3/15/01	4/5/01	4/5/01	4/5/01	4/5/01	4/5/01	4/5/01	4/5/01	4/5/01	4/5/01	4/5/01	4/5/01
Sampling Company	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR
Analytes																																
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Metals																																
Arsenic	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Barium	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Cadmium	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Chromium	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Lead	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Mercury	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Silver	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
TCLP Lead (mg/L)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Percent Solid	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Corrosivity (pH) (SU)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Flashpoint (°F)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Polychlorinated Biphenyls - PCBs																																
Aroclor-1016	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor-1242	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.654	0.759	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor-1248	ND	0.464	0.131	ND	18.1	5.11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.222	ND	ND	0.166	ND	0.237	0.289
Aroclor-1254	0.503	ND	ND	ND	ND	ND	2.26	0.075	ND	ND	ND	ND	ND	0.105	0.99	0.352	ND	ND	ND	ND	0.326	ND	ND	ND	ND	ND	0.111	0.118	ND	0.267	ND	ND
Aroclor-1260	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.14	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds - VOCs																																
1,2,4-Trimethylbenzene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
4-Isopropyltoluene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Naphthalene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Toluene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Xylenes, Total	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Semi-Volatile Organic Compounds - SVOCs																																
Acenaphthene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Anthracene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Benzo(a)anthracene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Benzo(a)pyrene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Benzo(b)fluoranthene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Benzo(g,h,i)perylene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Benzo(k)fluoranthene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
bis(2-Ethylhexyl)phthalate	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Butylbenzylphthalate	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Chrysene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Di-n-butylphthalate	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Di-n-octylphthalate	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Dibenzo(a,h)anthracene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Dibenzofuran	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Fluoranthene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Fluorene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Indeno(1,2,3-cd)pyrene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Naphthalene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Phenanthrene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Pyrene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Extractable Petroleum Hydrocarbons (EPH)																																
C_9-C_{18} Aliphatic Hydrocarbons	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
C_{19}-C_{36} Aliphatic Hydrocarbons	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Total Petroleum Hydrocarbons (TPH)	1020	752	2090	824	1210	537	2670	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	3570	2420	494	82	4720	1370	2450	3400	2890	2730	2050
Asbestos	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT

ND = Not Detected
NT = Not Tested

TABLE 5-3 Cont - LFR South Side Concrete, Building Debris, Sediment, and Soil Analytical Data Summary

Sample ID	Building 3	Building 3	B3-(12,120)	B3-(30,50)	B3-(45,95)	B3-(60,27)	B3-(65,215)	B3-(45,125)	B3-(57,166)	B3-(85,59)	B3-(65,98)	B3-(40,27)	B3-(90,238)	B3-(12,150)	B3-(12,30)	B3-(68,135)
	Building No. 3 - Basement Ceiling Concrete Sampling															
	Base Ceiling	Base Ceiling 2	Base Sediment	Base Ceiling	Base Ceiling	Base Ceiling	Base Ceiling	Base Ceiling	Base Ceiling	Base Ceiling	Base Ceiling	Base Ceiling	Base Ceiling	Base Ceiling	Base Ceiling	Base Ceiling
Date Sampled	3/2/01	3/16/01	3/16/01	3/16/01	3/16/01	3/16/01	4/6/01	4/6/01	4/6/01	4/6/01	4/6/01	4/6/01	4/6/01	4/6/01	4/6/01	4/6/01
Sampling Company	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR
Analytes	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Metals																
Arsenic	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Barium	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Cadmium	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Chromium	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Lead	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Mercury	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Silver	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
TCLP Lead (mg/L)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Percent Solid	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Corrosivity (pH) (SU)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Flashpoint (°F)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Polychlorinated Biphenyls - PCBs																
Aroclor-1016	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor-1242	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor-1248	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor-1254	7.8	2.5	1.81	ND	0.592	ND	0.84	ND	4.94	0.467	ND	ND	0.244	0.222	0.256	0.393
Aroclor-1260	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds - VOCs																
1,2,4-Trimethylbenzene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
4-Isopropyltoluene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Naphthalene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Toluene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Xylenes, Total	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Semi-Volatile Organic Compounds - SVOCs																
Acenaphthene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Anthracene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Benzo(a)anthracene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Benzo(a)pyrene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Benzo(b)fluoranthene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Benzo(g,h,i)perylene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Benzo(k)fluoranthene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
bis(2-Ethylhexyl)phthalate	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Butylbenzylphthalate	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Chrysene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Di-n-butylphthalate	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Di-n-octylphthalate	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Dibenzo(a,h)anthracene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Dibenzofuran	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Fluoranthene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Fluorene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Indeno(1,2,3-cd)pyrene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Naphthalene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Phenanthrene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Pyrene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Extractable Petroleum Hydrocarbons (EPH)																
C_9-C_{18} Aliphatic Hydrocarbons	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
C_{19}-C_{36} Aliphatic Hydrocarbons	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Total Petroleum Hydrocarbons (TPH)	217000	193000	NT	NT	NT	NT	2990	2710	43100	3120	6930	4900	9120	2970	3270	3050
Asbestos	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT

Sample ID	B3-(23.5,39)	B3-(22,105)	B3-(58.5,29)	B3-(48.5,78)	B3-(48.5,117)	B3-(83,122)	DUP 1	B3-(0,0)	B3-(0,50)	B3-(0,100)	B3-(0,150)	DUP 2	B3-(0,200)	B3-(0,242)
	Building No. 3 - First Floor Slab Concrete Sampling													
	Surface	Surface	Surface	Pillar	Pillar	Surface	First Floor	First Floor	First Floor	First Floor	First Floor	First Floor	First Floor	First Floor
Date Sampled	3/19/01	3/19/01	3/19/01	3/19/01	3/19/01	3/19/01	3/19/01	4/6/01	4/6/01	4/6/01	4/6/01	4/6/01	4/6/01	4/6/01
Sampling Company	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR
Analytes	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Metals														
Arsenic	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Barium	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Cadmium	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Chromium	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Lead	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Mercury	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Silver	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
TCLP Lead (mg/L)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Percent Solid	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Corrosivity (pH) (SU)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Flashpoint (°F)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Polychlorinated Biphenyls - PCBs														
Aroclor-1016	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor-1242	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor-1248	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.37	1.33	ND	ND
Aroclor-1254	0.197	0.322	0.369	0.276	0.146	0.114	0.237	ND	0.14	ND	ND	ND	ND	0.286
Aroclor-1260	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds - VOCs														
1,2,4-Trimethylbenzene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
4-Isopropyltoluene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Naphthalene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Toluene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Xylenes, Total	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Semi-Volatile Organic Compounds - SVOCs														
Acenaphthene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Anthracene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Benzo(a)anthracene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Benzo(a)pyrene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Benzo(b)fluoranthene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Benzo(g,h,i)perylene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Benzo(k)fluoranthene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
bis(2-Ethylhexyl)phthalate	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Butylbenzylphthalate	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Chrysene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Di-n-butylphthalate	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Di-n-octylphthalate	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Dibenzo(a,h)anthracene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Dibenzofuran	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Fluoranthene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Fluorene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Indeno(1,2,3-cd)pyrene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Naphthalene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Phenanthrene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Pyrene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Extractable Petroleum Hydrocarbons (EPH)														
C_9-C_{18} Aliphatic Hydrocarbons	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
C_{19}-C_{36} Aliphatic Hydrocarbons	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Total Petroleum Hydrocarbons (TPH)	NT	NT	NT	NT	NT	NT	NT	1520	354	641	1590	2340	507	1820
Asbestos	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT

ND = Not Detected
NT = Not Tested

TABLE 5-3 Cont - LFR South Side Concrete, Building Debris, Sediment, and Soil Analytical Data Summary

	Building No. 3 - First Floor Slab Concrete Sampling																Building No. 3/Transformer #3 - First Floor Concrete Sampling												
Sample ID	B3-(50,17)	B3-(50,50)	B3-(50,100)	B3-(50,150)	B3-(50,200)	B3-(50,242)	B3-(100,36)	B3-(100,50)	DUP 1505	B3-(100,100)	B3-(100,150)	B3-(100,200)	B3-(100,242)	B3-(148,50)	B3-(148,100)	B3-(148,250)	Grid A	Grid B-1	Grid C-1	Grid D	Grid E	Grid F	Grid G	Grid H	Grid I	Grid J	#3-1	#3-2	#3-3
	First Floor	First Floor	First Floor	First Floor	First Floor	First Floor	First Floor	First Floor	First Floor	First Floor	First Floor	First Floor	First Floor	First Floor	First Floor	First Floor	Trans #3	Trans #3	Trans #3	Trans #3	Trans #3	Trans #3	Trans #3	Trans #3	Trans #3	Trans #3	Trans #3	Trans #3	Trans #3
Date Sampled	4/6/01	4/6/01	4/6/01	4/6/01	4/6/01	4/6/01	4/6/01	4/6/01	4/6/01	4/6/01	4/6/01	4/6/01	4/6/01	4/6/01	4/6/01	4/6/01	7/28/00	7/28/00	7/28/00	7/28/00	7/28/00	7/28/00	7/28/00	7/28/00	7/28/00	7/28/00	8/23/00	8/23/00	8/23/00
Sampling Company	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR
Analytes																													
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Metals																													
Arsenic	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Barium	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Cadmium	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Chromium	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Lead	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Mercury	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Silver	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
TCLP Lead (mg/L)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Percent Solid	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Corrosivity (pH) (SU)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Flashpoint (°F)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Polychlorinated Biphenyls - PCBs																													
Aroclor-1016	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor-1242	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor-1248	1.75	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor-1254	ND	ND	0.313	0.291	ND	0.099	1.21	1.58	0.929	0.161	0.156	ND	ND	ND	0.652	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor-1260	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.14	ND	ND	0.472	0.165	0.276	0.574	0.562	0.206	ND	0.007	21.7	ND	0.070	ND	ND
Volatile Organic Compounds - VOCs																													
1,2,4-Trimethylbenzene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
4-Isopropyltoluene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Naphthalene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Toluene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Xylenes, Total	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Semi-Volatile Organic Compounds - SVOCs																													
Acenaphthene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Anthracene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Benzo(a)anthracene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Benzo(a)pyrene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Benzo(b)fluoranthene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Benzo(g,h,i)perylene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Benzo(k)fluoranthene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
bis(2-Ethylhexyl)phthalate	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Butylbenzylphthalate	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Chrysene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Di-n-butylphthalate	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Di-n-octylphthalate	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Dibenzo(a,h)anthracene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Dibenzofuran	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Fluoranthene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Fluorene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Indeno(1,2,3-cd)pyrene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Naphthalene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Phenanthrene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Pyrene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Extractable Petroleum Hydrocarbons (EPH)																													
C_9-C_{18} Aliphatic Hydrocarbons	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
C_{19}-C_{36} Aliphatic Hydrocarbons	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Total Petroleum Hydrocarbons (TPH)	959	3750	2920	2740	1750	1850	1290	2920	2100	1030	3370	5690	689	290	3550	221	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Asbestos	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT

ND = Not Detected
NT = Not Tested

TABLE 5-3 Cont - LFR South Side Concrete, Building Debris, Sediment, and Soil Analytical Data Summary

	Building No. 3/Transformer #3 - First Floor Concrete Sampling																						Building No. 4 - Basement Sediment Sampling
Sample ID	#3-4	#3-5	#3-6	#3-7	#3-8	#3-9	D-1	D-2	D-3	D-4	D-5	D-6	I-1	I-2	I-2 DUP	I-3	I-4	I-6	I-7	I-8	I-9	I-10	B-4 Ground Level
	Trans #3	Trans #3	Trans #3	Trans #3	Trans #3	Trans #3	Trans #3	Trans #3	Trans #3	Trans #3	Trans #3	Trans #3	Trans #3	Trans #3	Trans #3	Trans #3	Trans #3	Trans #3	Trans #3	Trans #3	Trans #3	Trans #3	Basement
Date Sampled	8/23/00	8/23/00	8/23/00	8/23/00	8/23/00	8/23/00	4/7/01	4/7/01	4/7/01	4/7/01	4/7/01	4/7/01	4/7/01	4/7/01	4/7/01	4/7/01	4/7/01	4/7/01	4/7/01	4/7/01	4/7/01	4/7/01	2/20/01
Sampling Company	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR
Analytes																							
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Metals																							
Arsenic	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	15.9
Barium	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	4880
Cadmium	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	38.9
Chromium	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	65.5
Lead	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	2920
Mercury	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	14
Silver	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	6.94
TCLP Lead (mg/L)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Percent Solid	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	68
Corrosivity (pH) (SU)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	9.22
Flashpoint (°F)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND
Polychlorinated Biphenyls - PCBs																							
Aroclor-1016	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor-1242	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	65.3
Aroclor-1248	ND	ND	ND	ND	ND	0.357	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor-1254	ND	ND	ND	ND	ND	ND	ND	0.376	0.15	0.422	ND	0.302	0.081	0.209	0.214	0.397	ND	0.79	0.151	0.256	0.322	0.287	40.9
Aroclor-1260	0.159	ND	ND	1.28	ND	0.456	0.122	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds - VOCs																							
1,2,4-Trimethylbenzene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND
4-Isopropyltoluene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND
Naphthalene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.084
Toluene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND
Xylenes, Total	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND
Semi-Volatile Organic Compounds - SVOCs																							
Acenaphthene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	1.57
Anthracene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	3.44
Benzo(a)anthracene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	7.43
Benzo(a)pyrene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	3.41
Benzo(b)fluoranthene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	3.49
Benzo(g,h,I)perylene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	1.58
Benzo(k)fluoranthene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	3.03
bis(2-Ethylhexyl)phthalate	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	8.18
Butylbenzylphthalate	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND
Chrysene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	7.93
Di-n-butylphthalate	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	46
Di-n-octylphthalate	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND
Dibenzo(a,h)anthracene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.697
Dibenzofuran	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	1.25
Fluoranthene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	16
Fluorene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	1.78
Indeno(1,2,3-cd)pyrene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	1.51
Naphthalene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	1.18
Phenanthrene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	13.4
Pyrene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	11.9
Extractable Petroleum Hydrocarbons (EPH)																							
C_9-C_{18} Aliphatic Hydrocarbons	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
C_{19}-C_{36} Aliphatic Hydrocarbons	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Total Petroleum Hydrocarbons (TPH)	NT	NT	NT	NT	NT	NT	1680	1880	1680	4290	629	4240	1390	1940	1430	3140	1120	5630	1220	1700	2120	2200	1110
Asbestos	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	Present

ND = Not Detected
NT = Not Tested

TABLE 5-3 Cont - LFR South Side Concrete, Building Debris, Sediment, and Soil Analytical Data Summary

	Building No. 4 - Basement Floor Concrete Sampling																	
Sample ID	B4-(40,0)	B4-(29,9)	B4-(13,12)	B4-(8,9)	B4-(2,31)	B4-(7,18)	B4-(19,24)	B4-(28,23)	B4-(39,29)	B4-(13,38)	B4-(16,35)	B4-(20,39)	B4-(35,25)	B4-(32,32)	B4-(37,19)	B4-Comp1	B4-Comp2	B4-Comp3
	Base Floor	Base Floor	Base Floor	Base Floor	Base Floor	Base Floor	Base Floor	Base Floor	Base Floor	Base Floor	Base Floor	Base Floor	Base Floor	Base Floor	Base Floor	Base Floor	Base Floor	Base Floor
Date Sampled	5/3/01	5/3/01	5/3/01	5/3/01	5/3/01	5/3/01	5/3/01	5/3/01	5/3/01	5/3/01	5/3/01	5/3/01	5/3/01	5/3/01	5/3/01	5/3/01	5/3/01	5/3/01
Sampling Company	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR
Analytes																		
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Metals																		
Arsenic	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Barium	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	116	90.5	87.4
Cadmium	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	3.7	ND	ND
Chromium	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	19	26.4	21.5
Lead	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	33	21.4	31
Mercury	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.24	0.7	0.694
Silver	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
TCLP Lead (mg/L)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Percent Solid	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Corrosivity (pH) (SU)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	11.9	11.9	11.9
Flashpoint (°F)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Polychlorinated Biphenyls - PCBs																		
Aroclor-1016	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor-1242	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor-1248	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor-1254	0.236	3.31	0.324	ND	0.804	0.2	ND	0.33	0.268	0.424	ND	0.68	0.534	0.707	ND	ND	0.242	0.385
Aroclor-1260	ND	ND	ND	0.352	ND	ND	0.234	ND	ND	ND	22.6	ND	ND	ND	0.567	0.899	ND	ND
Volatile Organic Compounds - VOCs																		
1,2,4-Trimethylbenzene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
4-Isopropyltoluene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Naphthalene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Toluene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.08	ND	ND
Xylenes, Total	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Semi-Volatile Organic Compounds - SVOCs																		
Acenaphthene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Anthracene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Benzo(a)anthracene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Benzo(a)pyrene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Benzo(b)fluoranthene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Benzo(g,h,I)perylene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Benzo(k)fluoranthene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
bis(2-Ethylhexyl)phthalate	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Butylbenzylphthalate	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Chrysene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Di-n-butylphthalate	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Di-n-octylphthalate	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Dibenzo(a,h)anthracene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Dibenzofuran	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Fluoranthene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Fluorene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Indeno(1,2,3-cd)pyrene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Naphthalene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Phenanthrene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Pyrene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Extractable Petroleum Hydrocarbons (EPH)																		
C_9-C_{18} Aliphatic Hydrocarbons	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
C_{19}-C_{36} Aliphatic Hydrocarbons	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	2970	1320	2830
Total Petroleum Hydrocarbons (TPH)	NT	1680	NT	1170	NT	NT	1610	1310	NT	NT	1510	NT	NT	NT	1170	1740	830	2130
Asbestos	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT

ND = Not Detected
NT = Not Tested

TABLE 5-3 Cont - LFR South Side Concrete, Building Debris, Sediment, and Soil Analytical Data Summary

	Building No. 4 - Basement Wall Concrete Sampling								Building No. 4 - Basement Ceiling Concrete Sampling				Building No. 4 - Sub-Basement Floor Concrete Sampling																	
Sample ID	B4-(0,19)	B4-(40,5)	B4-(0,5)	B4-(0,27)	B4-(40,23)	B4-(37,40)	B4-(10,40)	B4-(22,40)	B4-(26,4)	B4-(9,6)	B4-(21,38)	B4-(9,37)	B4-(2,4)	B4-(2,18)	B4-(2,26)	B4-(3,39)	B4-(5,2)	B4-(12,7)	B4-(12,26)	B4-(13,39)	B4-(22,26)	B4-(24,39)	B4-(29,7)	B4-(32,26)	B4-(32,39)	B4-(35,18)	B4-(36,32)	B4-Comp1	B4-Comp2	B4-Comp3
	Base Wall	Base Wall	Base Wall	Base Wall	Base Wall	Base Wall	Base Wall	Base Wall	Base Ceiling	Base Ceiling	Base Ceiling	Base Ceiling	SubBase Floor	SubBase Floor	SubBase Floor	SubBase Floor	SubBase Floor	SubBase Floor	SubBase Floor	SubBase Floor	SubBase Floor	SubBase Floor	SubBase Floor	SubBase Floor	SubBase Floor	SubBase Floor	SubBase Floor	SubBase Floor	SubBase Floor	SubBase Floor
Date Sampled	5/3/01	5/3/01	5/3/01	5/3/01	5/3/01	5/3/01	5/3/01	5/3/01	5/3/01	5/3/01	5/3/01	5/3/01	5/4/01	5/4/01	5/4/01	5/4/01	5/4/01	5/4/01	5/4/01	5/4/01	5/4/0t	5/4/01	5/4/01	5/4/01	5/4/01	5/4/01	5/4/01	5/4/01	5/4/01	5/4/01
Sampling Company	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR
Analytes																														
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Metals																														
Arsenic	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Barium	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	87	75.5	55.2
Cadmium	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Chromium	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	22	17.6	31.6
Lead	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	109	ND	ND
Mercury	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	1.04	2.03	1.07
Silver	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
TCLP Lead (mg/L)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Percent Solid	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Corrosivity (pH) (SU)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	12	12.1	11.9
Flashpoint (°F)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Polychlorinated Biphenyls - PCBs																														
Aroclor-1016	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor-1242	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor-1248	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor-1254	ND	ND	ND	ND	0.216	0.158	ND	ND	ND	ND	0.076	0.177	0.226	ND	ND	0.074	0.371	0.3	0.1	0.262	0.193	0.18	0.104	0.219	0.273	0.237	0.281	0.149	0.102	0.206
Aroclor-1260	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds - VOCs																														
1,2,4-Trimethylbenzene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	0.07
4-Isopropyltoluene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Naphthalene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	0.04
Toluene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Xylenes, Total	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Semi-Volatile Organic Compounds - SVOCs																														
Acenaphthene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Anthracene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Benzo(a)anthracene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Benzo(a)pyrene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Benzo(b)fluoranthene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Benzo(g,h,i)perylene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Benzo(k)fluoranthene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
bis(2-Ethylhexyl)phthalate	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Butylbenzylphthalate	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Chrysene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Di-n-butylphthalate	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Di-n-octylphthalate	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Dibenzo(a,h)anthracene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Dibenzofuran	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Fluoranthene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Fluorene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Indeno(1,2,3-cd)pyrene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Naphthalene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Phenanthrene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Pyrene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Extractable Petroleum Hydrocarbons (EPH)																														
C_9-C_{18} Aliphatic Hydrocarbons	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
C_{19}-C_{36} Aliphatic Hydrocarbons	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	5350	5880	7270
Total Petroleum Hydrocarbons (TPH)	NT	NT	NT	64	NT	NT	NT	NT	NT	NT	NT	275	NT	NT	2680	1630	2710	NT	NT	5020	NT	NT	3970	2980	3480	NT	3340	3870	3590	3560
Asbestos	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT

ND = Not Detected
NT = Not Tested

TABLE 5-3 Cont - LFR South Side Concrete, Building Debris, Sediment, and Soil Analytical Data Summary

	Building No. 4 - Sub-Basement Wall Concrete Sampling								Building No. 4 - Sub-Basement Ceiling Concrete Sampling				Building No. 6 - Basement Sediment Sampling			Building No. 6 - Vat Sampling	Building No. 8 - First Floor Slab Concrete Sampling									
Sample ID	B4-(0,19)	B4-(5,2)	B4-(7,38)	B4-(12,27)	B4-(31,0)	B4-(31,38)	B4-(39,28)	B4-(40,11)	B4-(12,7)	B4-(33,8)	B4-(39,39)	B4-(12,38)	B5-Basement	Sediments 1	Sediments 2	Bldg#6 Vats (#6B) Vats	B6-(0,0)	B6-(0,50)	B6-(25,25)	B6-(25,50)	B6-(50,0)	B6-(50,25)	B6-(50,50)	B6-(75,50)	B6-(100,0)	B6-(100,25)
	SubBase Wall	SubBase Wall	SubBase Wall	SubBase Wall	SubBase Wall	SubBase Wall	SubBase Wall	SubBase Wall	SubBase Ceiling	SubBase Ceiling	SubBase Ceiling	SubBase Ceiling	Basement	Basement	Basement		First Floor	First Floor	First Floor	First Floor	First Floor	First Floor	First Floor	First Floor	First Floor	First Floor
Date Sampled	5/4/01	5/4/01	5/4/01	5/4/01	5/4/01	5/4/01	5/4/01	5/4/01	5/4/01	5/4/01	5/4/01	5/4/01	4/13/01	2/22/01	2/22/01	8/28/00	4/30/01	4/30/01	4/30/01	4/30/01	4/30/01	4/30/01	4/30/01	4/30/01	4/30/01	4/30/01
Sampling Company	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR
Analytes																										
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Metals																										
Arsenic	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	27.2	33.2	31.6	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Barium	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	5220	1470	122	36.2	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Cadmium	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	11.7	58.2	12.7	3.69	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Chromium	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	146	180	145	55.3	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Lead	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	2810	979	1030	254	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Mercury	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.934	2.39	0.34	0.258	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Silver	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	5.52	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
TCLP Lead (mg/L)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.14	0.13	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Percent Solid	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	65	92	63	62	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Corrosivity (pH) (SU)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	7.39	0.43	6.96	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Flashpoint (°F)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Polychlorinated Biphenyls - PCBs	–																									
Aroclor-1016	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor-1242	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor-1248	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.635	ND	0.65	ND	ND	ND	ND	ND	ND
Aroclor-1254	ND	0.184	ND	0.141	0.174	0.111	ND	ND	0.087	0.152	0.178	ND	ND	46.9	2.69	ND	0.388	ND	0.209	ND	0.251	0.456	0.259	0.59	0.89	ND
Aroclor-1260	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	50.4	ND	ND	0.496	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.94
Volatile Organic Compounds - VOCs																										
1,2,4-Trimethylbenzene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	0.0403	ND	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
4-Isopropyltoluene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.126	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Naphthalene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	0.181	0.0848	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Toluene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Xylenes, Total	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	0.126	ND	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Semi-Volatile Organic Compounds - SVOCs																										
Acenaphthene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Anthracene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	3.89	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Benzo(a)anthracene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	7.28	2.79	9.52	4.94	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Benzo(a)pyrene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	5.26	2.33	11.2	4.94	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Benzo(b)fluoranthene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	6.57	2.82	12.4	4.39	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Benzo(g,h,i)perylene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	5.06	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Benzo(k)fluoranthene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	6.51	2.4	9.83	4.78	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
bis(2-Ethylhexyl)phthalate	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	17.2	29.8	55.6	18.2	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Butylbenzylphthalate	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	19.2	ND	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Chrysene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	7.89	3.36	10.6	5.9	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Di-n-butylphthalate	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Di-n-octylphthalate	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	22	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Dibenzo(a,h)anthracene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Dibenzofuran	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Fluoranthene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	17.5	7.25	25	10.4	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Fluorene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Indeno(1,2,3-cd)pyrene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	4.88	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Naphthalene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Phenanthrene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	13.6	5.22	16.4	9.23	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Pyrene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	22.6	8.13	20	8.23	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Extractable Petroleum Hydrocarbons (EPH)																										
C_9-C_{18} Aliphatic Hydrocarbons	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
C_{19}-C_{36} Aliphatic Hydrocarbons	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Total Petroleum Hydrocarbons (TPH)	NT	445	2650	3770	NT	2890	NT	NT	NT	NT	NT	139	1700	370	244	385	NT	4040	NT	3100	NT	NT	NT	NT	NT	NT
Asbestos	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	Present	Present	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT

ND = Not Detected
NT = Not Tested

TABLE 5-3 Cont - LFR South Side Concrete, Building Debris, Sediment, and Soil Analytical Data Summary

Sample ID	B6-(118,24)	B6-(125,0)	B6-(125,20)	B6-(125,25)	B6-(125,50)	B6-(135,25)	B6-(150,25)	B6-Comp1	B6-Comp2	B6-Comp3
	Building No. 6 - First Floor Slab Concrete Sampling									
	First Floor	First Floor	First Floor	First Floor	First Floor	First Floor	First Floor	First Floor	First Floor	First Floor
Date Sampled	4/30/01	4/30/01	4/30/01	4/30/01	4/30/01	4/30/01	4/30/01	4/30/01	4/30/01	4/30/01
Sampling Company	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR
Analytes										
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Metals										
Arsenic	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Barium	NT	NT	NT	NT	NT	NT	NT	33.9	32	20.8
Cadmium	NT	NT	NT	NT	NT	NT	NT	ND	1.03	ND
Chromium	NT	NT	NT	NT	NT	NT	NT	12.9	9.66	9.9
Lead	NT	NT	NT	NT	NT	NT	NT	12.3	15.3	15.3
Mercury	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Silver	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
TCLP Lead (mg/L)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Percent Solid	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Corrosivity (pH) (SU)	NT	NT	NT	NT	NT	NT	NT	11.2	11.2	11.2
Flashpoint (°F)	NT	NT	NT	NT	NT	NT	NT	>200	>200	>200
Polychlorinated Biphenyls - PCBs										
Aroclor-1016	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor-1242	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor-1248	ND	ND	ND	ND	ND	ND	ND	ND	174	ND
Aroclor-1254	1.14	1.37	ND	2.32	ND	ND	1.66	0.557	ND	0.736
Aroclor-1260	ND	ND	1.15	ND	ND	0.34	ND	ND	ND	ND
Volatile Organic Compounds - VOCs										
1,2,4-Trimethylbenzene	NT	NT	NT	NT	NT	NT	NT	ND	0.241	0.053
4-Isopropyltoluene	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Naphthalene	NT	NT	NT	NT	NT	NT	NT	0.052	ND	ND
Toluene	NT	NT	NT	NT	NT	NT	NT	ND	0.045	ND
Xylenes, Total	NT	NT	NT	NT	NT	NT	NT	ND	0.182	ND
Semi-Volatile Organic Compounds - SVOCs										
Acenaphthene	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Anthracene	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Benzo(a)anthracene	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Benzo(a)pyrene	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Benzo(b)fluoranthene	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Benzo(g,h,I)perylene	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Benzo(k)fluoranthene	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
bis(2-Ethylhexyl)phthalate	NT	NT	NT	NT	NT	NT	NT	ND	0.408	ND
Butylbenzylphthalate	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Chrysene	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Di-n-butylphthalate	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Di-n-octylphthalate	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Dibenzo(a,h)anthracene	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Dibenzofuran	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Fluoranthene	NT	NT	NT	NT	NT	NT	NT	ND	0.444	ND
Fluorene	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Indeno(1,2,3-cd)pyrene	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Naphthalene	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Phenanthrene	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Pyrene	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Extractable Petroleum Hydrocarbons (EPH)										
C_9-C_{18} Aliphatic Hydrocarbons	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
C_{19}-C_{36} Aliphatic Hydrocarbons	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Total Petroleum Hydrocarbons (TPH)	1240	2110	1150	NT	3750	1400	NT	2510	2120	2130
Asbestos	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT

Sample ID	B6-(10,7)	B6-(40,7)	B6-(40,25)	B6-(65,5)	B6-(75,28)	B6-(75,55)	B6-(90,5)	B6-(90,40)	B6-(110,5)	B6-(120,42)	B6-(125,5)	B6-(125,13)	B6-(125,25)	B6-(130,54)	B6-(139,25)	B6-(148,25)	B6-(150,50)	B6-Comp1	B6-Comp2	B6-Comp3
	Building No. 6 - Basement Floor Concrete Sampling																			
	Base Floor	Base Floor	Base Floor	Base Floor	Base Floor	Base Floor	Base Floor	Base Floor	Base Floor	Base Floor	Base Floor	Base Floor	Base Floor	Base Floor	Base Floor	Base Floor	Base Floor	Base Floor	Base Floor	Base Floor
Date Sampled	5/31/01	5/31/01	5/31/01	5/31/01	5/31/01	5/31/01	5/31/01	5/31/01	5/31/01	5/31/01	5/31/01	5/31/01	5/31/01	5/31/01	5/31/01	5/31/01	5/31/01	5/31/01	5/31/01	5/31/01
Sampling Company	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR
Analytes																				
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Metals																				
Arsenic	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Barium	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	65	67	ND
Cadmium	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Chromium	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	23	20	108
Lead	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	20	27	251
Mercury	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.57	0.264	ND
Silver	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
TCLP Lead (mg/L)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Percent Solid	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Corrosivity (pH) (SU)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	11	12	11.2
Flashpoint (°F)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	>200	>200	>200
Polychlorinated Biphenyls - PCBs																				
Aroclor-1016	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor-1242	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor-1248	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor-1254	ND	0.895	6.48	0.829	5.3	0.274	2.71	0.155	0.667	3.44	0.583	1.12	ND	0.117	ND	ND	0.124	3.94	0.634	2.54
Aroclor-1260	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds - VOCs																				
1,2,4-Trimethylbenzene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
4-Isopropyltoluene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Naphthalene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Toluene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Xylenes, Total	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	0.206
Semi-Volatile Organic Compounds - SVOCs																				
Acenaphthene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Anthracene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Benzo(a)anthracene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Benzo(a)pyrene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Benzo(b)fluoranthene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Benzo(g,h,I)perylene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Benzo(k)fluoranthene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
bis(2-Ethylhexyl)phthalate	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	1.99	5.83	1.12
Butylbenzylphthalate	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Chrysene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Di-n-butylphthalate	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Di-n-octylphthalate	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Dibenzo(a,h)anthracene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Dibenzofuran	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Fluoranthene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	0.587	ND
Fluorene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Indeno(1,2,3-cd)pyrene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Naphthalene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Phenanthrene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	0.382	ND
Pyrene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.488	1.02	ND
Extractable Petroleum Hydrocarbons (EPH)																				
C_9-C_{18} Aliphatic Hydrocarbons	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
C_{19}-C_{36} Aliphatic Hydrocarbons	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	908	4160	272
Total Petroleum Hydrocarbons (TPH)	173	NT	563	24700	NT	NT	NT	292	2319	NT	NT	1150	NT	362	ND	NT	NT	951	1970	775
Asbestos	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT

ND = Not Detected
NT = Not Tested

TABLE 5-3 Cont - LFR South Side Concrete, Building Debris, Sediment, and Soil Analytical Data Summary

	Building No. 4 - Basement Floor Concrete Sampling																	
Sample ID	B4-(40,0)	B4-(29,9)	B4-(13,12)	B4-(8,9)	B4-(2,31)	B4-(7,18)	B4-(19,24)	B4-(28,23)	B4-(39,29)	B4-(13,38)	B4-(16,35)	B4-(20,39)	B4-(35,25)	B4-(32,32)	B4-(37,19)	B4-Comp1	B4-Comp2	B4-Comp3
	Base Floor	Base Floor	Base Floor	Base Floor	Base Floor	Base Floor	Base Floor	Base Floor	Base Floor	Base Floor	Base Floor	Base Floor	Base Floor	Base Floor	Base Floor	Base Floor	Base Floor	Base Floor
Date Sampled	5/3/01	5/3/01	5/3/01	5/3/01	5/3/01	5/3/01	5/3/01	5/3/01	5/3/01	5/3/01	5/3/01	5/3/01	5/3/01	5/3/01	5/3/01	5/3/01	5/3/01	5/3/01
Sampling Company	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR
Analytes																		
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Metals																		
Arsenic	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Barium	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	116	90.5	87.4
Cadmium	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	3.7	ND	ND
Chromium	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	19	26.4	21.5
Lead	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	33	21.4	31
Mercury	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.24	0.7	0.694
Silver	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
TCLP Lead (mg/L)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Percent Solid	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Corrosivity (pH) (SU)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	11.9	11.9	11.9
Flashpoint (°F)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Polychlorinated Biphenyls - PCBs																		
Aroclor-1016	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor-1242	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor-1248	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor-1254	0.236	3.31	0.324	ND	0.804	0.2	ND	0.33	0.268	0.424	ND	0.68	0.534	0.707	ND	ND	0.242	0.385
Aroclor-1260	ND	ND	ND	0.352	ND	ND	0.234	ND	ND	ND	22.6	ND	ND	ND	0.567	0.899	ND	ND
Volatile Organic Compounds - VOCs																		
1,2,4-Trimethylbenzene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
4-Isopropyltoluene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Naphthalene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Toluene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.08	ND	ND
Xylenes, Total	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Semi-Volatile Organic Compounds - SVOCs																		
Acenaphthene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Anthracene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Benzo(a)anthracene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Benzo(a)pyrene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Benzo(b)fluoranthene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Benzo(g,h,i)perylene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Benzo(k)fluoranthene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
bis(2-Ethylhexyl)phthalate	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Butylbenzylphthalate	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Chrysene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Di-n-butylphthalate	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Di-n-octylphthalate	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Dibenzo(a,h)anthracene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Dibenzofuran	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Fluoranthene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Fluorene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Indeno(1,2,3-cd)pyrene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Naphthalene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Phenanthrene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Pyrene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Extractable Petroleum Hydrocarbons (EPH)																		
C_9-C_{18} Aliphatic Hydrocarbons	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
C_{19}-C_{36} Aliphatic Hydrocarbons	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	2970	1320	2830
Total Petroleum Hydrocarbons (TPH)	NT	1680	NT	1170	NT	NT	1610	1310	NT	NT	1510	NT	NT	NT	1170	1740	830	2130
Asbestos	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT

ND = Not Detected
NT = Not Tested

TABLE 5-3 Cont - LFR South Side Concrete, Building Debris, Sediment, and Soil Analytical Data Summary

	Building No. 4 - Basement Wall Concrete Sampling								Building No. 4 - Basement Ceiling Concrete Sampling			
Sample ID	B4-(0,19)	B4-(40,5)	B4-(0,5)	B4-(0,27)	B4-(40,23)	B4-(37,40)	B4-(10,40)	B4-(22,40)	B4-(26,4)	B4-(9,6)	B4-(21,38)	B4-(9,37)
	Base Wall	Base Wall	Base Wall	Base Wall	Base Wall	Base Wall	Base Wall	Base Wall	Base Ceiling	Base Ceiling	Base Ceiling	Base Ceiling
Date Sampled	5/3/01	5/3/01	5/3/01	5/3/01	5/3/01	5/3/01	5/3/01	5/3/01	5/3/01	5/3/01	5/3/01	5/3/01
Sampling Company	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR
Analytes												
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Metals												
Arsenic	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Barium	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Cadmium	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Chromium	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Lead	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Mercury	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Silver	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
TCLP Lead (mg/L)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Percent Solid	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Corrosivity (pH) (SU)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Flashpoint (°F)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Polychlorinated Biphenyls - PCBs												
Aroclor-1016	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor-1242	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor-1248	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor-1254	ND	ND	ND	ND	0.216	0.158	ND	ND	ND	ND	0.076	0.177
Aroclor-1260	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds - VOCs												
1,2,4-Trimethylbenzene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
4-Isopropyltoluene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Naphthalene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Toluene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Xylenes, Total	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Semi-Volatile Organic Compounds - SVOCs												
Acenaphthene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Anthracene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Benzo(a)anthracene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Benzo(a)pyrene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Benzo(b)fluoranthene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Benzo(g,h,i)perylene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Benzo(k)fluoranthene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
bis(2-Ethylhexyl)phthalate	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Butylbenzylphthalate	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Chrysene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Di-n-butylphthalate	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Di-n-octylphthalate	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Dibenzo(a,h)anthracene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Dibenzofuran	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Fluoranthene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Fluorene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Indeno(1,2,3-cd)pyrene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Naphthalene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Phenanthrene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Pyrene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Extractable Petroleum Hydrocarbons (EPH)												
C_9-C_{18} Aliphatic Hydrocarbons	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
C_{19}-C_{36} Aliphatic Hydrocarbons	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Total Petroleum Hydrocarbons (TPH)	NT	NT	NT	64	NT	NT	NT	NT	NT	NT	NT	275
Asbestos	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT

	Building No. 4 - Sub-Basement Floor Concrete Sampling																	
Sample ID	B4-(2,4)	B4-(2,16)	B4-(2,26)	B4-(3,39)	B4-(5,2)	B4-(12,7)	B4-(12,26)	B4-(13,39)	B4-(22,26)	B4-(24,39)	B4-(29,7)	B4-(32,26)	B4-(32,39)	B4-(35,18)	B4-(36,32)	B4-Comp1	B4-Comp2	B4-Comp3
	SubBase Floor	SubBase Floor	SubBase Floor	SubBase Floor	SubBase Floor	SubBase Floor	SubBase Floor	SubBase Floor	SubBase Floor	SubBase Floor	SubBase Floor	SubBase Floor	SubBase Floor	SubBase Floor	SubBase Floor	SubBase Floor	SubBase Floor	SubBase Floor
Date Sampled	5/4/01	5/4/01	5/4/01	5/4/01	5/4/01	5/4/01	5/4/01	5/4/01	5/4/01	5/4/01	5/4/01	5/4/01	5/4/01	5/4/01	5/4/01	5/4/01	5/4/01	5/4/01
Sampling Company	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR
Analytes																		
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Metals																		
Arsenic	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Barium	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	67	75.5	55.2
Cadmium	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Chromium	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	22	17.6	31.8
Lead	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	109	ND	ND
Mercury	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	1.04	2.03	1.07
Silver	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
TCLP Lead (mg/L)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Percent Solid	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Corrosivity (pH) (SU)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	12	12.1	11.9
Flashpoint (°F)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Polychlorinated Biphenyls - PCBs																		
Aroclor-1016	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor-1242	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor-1248	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor-1254	0.226	ND	ND	0.074	0.371	0.3	0.1	0.262	0.193	0.18	0.104	0.219	0.273	0.237	0.281	0.149	0.102	0.206
Aroclor-1260	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds - VOCs																		
1,2,4-Trimethylbenzene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	0.07
4-Isopropyltoluene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Naphthalene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	0.04
Toluene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Xylenes, Total	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Semi-Volatile Organic Compounds - SVOCs																		
Acenaphthene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Anthracene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Benzo(a)anthracene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Benzo(a)pyrene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Benzo(b)fluoranthene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Benzo(g,h,i)perylene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Benzo(k)fluoranthene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
bis(2-Ethylhexyl)phthalate	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Butylbenzylphthalate	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Chrysene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Di-n-butylphthalate	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Di-n-octylphthalate	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Dibenzo(a,h)anthracene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Dibenzofuran	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Fluoranthene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Fluorene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Indeno(1,2,3-cd)pyrene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Naphthalene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Phenanthrene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Pyrene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Extractable Petroleum Hydrocarbons (EPH)																		
C_9-C_{18} Aliphatic Hydrocarbons	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
C_{19}-C_{36} Aliphatic Hydrocarbons	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	5350	5880	7270
Total Petroleum Hydrocarbons (TPH)	NT	NT	2680	1630	2710	NT	NT	5020	NT	NT	3970	2980	3480	NT	3340	3870	3590	3560
Asbestos	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT

ND = Not Detected
NT = Not Tested

TABLE 5-3 Cont - LFR South Side Concrete, Building Debris, Sediment, and Soil Analytical Data Summary

	Building No. 4 - Sub-Basement Wall Concrete Sampling								Building No. 4 - Sub-Basement Ceiling Concrete Sampling				Building No. 8 - Basement Sediment Sampling			Building No. 8 - Vat Sampling	Building No. 6 - First Floor Slab Concrete Sampling									
Sample ID	B4-(0,19)	B4-(5,2)	B4-(7,38)	B4-(12,27)	B4-(31,0)	B4-(31,38)	B4-(39,28)	B4-(40,11)	B4-(12,7)	B4-(33,8)	B4-(39,39)	B4-(12,38)	B5-Basement	Sediments 1	Sediments 2	Bldg#6 Vats (#6B) Vats	B6-(0,0)	B6-(0,50)	B6-(25,25)	B6-(25,50)	B6-(50,0)	B6-(50,25)	B6-(50,50)	B6-(75,50)	B6-(100,0)	B6-(100,25)
	SubBase Wall	SubBase Wall	SubBase Wall	SubBase Wall	SubBase Wall	SubBase Wall	SubBase Wall	SubBase Wall	SubBase Ceiling	SubBase Ceiling	SubBase Ceiling	SubBase Ceiling	Basement	Basement	Basement		First Floor	First Floor	First Floor	First Floor	First Floor	First Floor	First Floor	First Floor	First Floor	First Floor
Date Sampled	5/4/01	5/4/01	5/4/01	5/4/01	5/4/01	5/4/01	5/4/01	5/4/01	5/4/01	5/4/01	5/4/01	5/4/01	4/13/01	2/22/01	2/22/01	8/28/00	4/30/01	4/30/01	4/30/01	4/30/01	4/30/01	4/30/01	4/30/01	4/30/01	4/30/01	4/30/01
Sampling Company	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR
Analytes																										
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Metals																										
Arsenic	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	27.2	33.2	31.8	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Barium	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	5220	1470	122	36.2	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Cadmium	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	11.7	58.2	12.7	3.69	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Chromium	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	146	160	145	55.3	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Lead	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	2810	979	1030	254	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Mercury	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.934	2.39	0.34	0.258	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Silver	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	5.52	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
TCLP Lead (mg/L)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.14	0.13	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Percent Solid	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	65	92	63	62	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Corrosivity (pH) (SU)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	7.39	0.43	8.96	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Flashpoint (°F)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Polychlorinated Biphenyls - PCBs																										
Aroclor-1016	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor-1242	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor-1248	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.635	ND	0.65	ND	ND	ND	ND	ND	ND
Aroclor-1254	ND	0.184	ND	0.141	0.174	0.111	ND	ND	0.087	0.152	0.178	ND	ND	46.9	2.69	ND	0.388	ND	0.209	ND	0.251	0.456	0.259	0.59	0.89	ND
Aroclor-1260	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	50.4	ND	ND	0.496	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.94
Volatile Organic Compounds - VOCs																										
1,2,4-Trimethylbenzene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	0.0403	ND	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
4-Isopropyltoluene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.126	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Naphthalene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	0.181	0.0848	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Toluene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Xylenes, Total	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	0.128	ND	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Semi-Volatile Organic Compounds - SVOCs																										
Acenaphthene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Anthracene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	3.89	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Benzo(a)anthracene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	7.28	2.79	9.52	4.94	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Benzo(a)pyrene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	5.26	2.33	11.2	4.94	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Benzo(b)fluoranthene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	6.57	2.82	12.4	4.39	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Benzo(g,h,i)perylene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	5.06	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Benzo(k)fluoranthene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	6.51	2.4	9.83	4.78	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
bis(2-Ethylhexyl)phthalate	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	17.2	29.8	55.8	18.2	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Butylbenzylphthalate	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	19.2	ND	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Chrysene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	7.89	3.36	10.6	5.9	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Di-n-butylphthalate	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Di-n-octylphthalate	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	22	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Dibenzo(a,h)anthracene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Dibenzofuran	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Fluoranthene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	17.5	7.25	25	10.4	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Fluorene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Indeno(1,2,3-cd)pyrene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	4.88	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Naphthalene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Phenanthrene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	13.8	5.22	16.4	9.23	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Pyrene	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	22.6	8.13	20	8.23	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Extractable Petroleum Hydrocarbons (EPH)																										
C_9-C_{18} Aliphatic Hydrocarbons	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
C_{19}-C_{36} Aliphatic Hydrocarbons	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Total Petroleum Hydrocarbons (TPH)	NT	445	2650	3770	NT	2890	NT	NT	NT	NT	NT	139	1700	370	244	385	NT	4040	NT	3100	NT	NT	NT	NT	NT	NT
Asbestos	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	Present	Present	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT

ND = Not Detected
NT = Not Tested

TABLE 5-3 Cont - LFR South Side Concrete, Building Debris, Sediment, and Soil Analytical Data Summary

	Building No. 6 - First Floor Slab Concrete Sampling										Building No. 6 - Basement Floor Concrete Sampling																			
Sample ID	B6-(118,24)	B6-(125,0)	B6-(125,20)	B6-(125,25)	B6-(125,50)	B6-(135,25)	B6-(150,25)	B6-Comp1	B6-Comp2	B6-Comp3	B6-(10,7)	B6-(40,7)	B6-(40,25)	B6-(65,5)	B6-(75,28)	B6-(75,55)	B6-(90,5)	B6-(90,40)	B6-(110,5)	B6-(120,42)	B6-(125,5)	B6-(125,13)	B6-(125,25)	B6-(130,54)	B6-(139,25)	B6-(148,25)	B6-(150,50)	B6-Comp1	B6-Comp2	B6-Comp3
	First Floor	First Floor	First Floor	First Floor	First Floor	First Floor	First Floor	First Floor	First Floor	First Floor	Base Floor	Base Floor	Base Floor	Base Floor	Base Floor	Base Floor	Base Floor	Base Floor	Base Floor	Base Floor	Base Floor	Base Floor	Base Floor	Base Floor	Base Floor	Base Floor	Base Floor	Base Floor	Base Floor	Base Floor
Date Sampled	4/30/01	4/30/01	4/30/01	4/30/01	4/30/01	4/30/01	4/30/01	4/30/01	4/30/01	4/30/01	5/31/01	5/31/01	5/31/01	5/31/01	5/31/01	5/31/01	5/31/01	5/31/01	5/31/01	5/31/01	5/31/01	5/31/01	5/31/01	5/31/01	5/31/01	5/31/01	5/31/01	5/31/01	5/31/01	5/31/01
Sampling Company	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR	LFR
Analytes																														
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Metals																														
Arsenic	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Barium	NT	NT	NT	NT	NT	NT	NT	33.9	32	20.8	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	65	67	ND
Cadmium	NT	NT	NT	NT	NT	NT	NT	ND	1.03	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Chromium	NT	NT	NT	NT	NT	NT	NT	12.9	9.66	9.9	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	23	20	108
Lead	NT	NT	NT	NT	NT	NT	NT	12.3	15.3	15.3	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	20	27	251
Mercury	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.57	0.264	ND
Silver	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
TCLP Lead (mg/L)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Percent Solid	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Corrosivity (pH) (SU)	NT	NT	NT	NT	NT	NT	NT	11.2	11.2	11.2	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	11	12	11.2
Flashpoint (°F)	NT	NT	NT	NT	NT	NT	NT	>200	>200	>200	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	>200	>200	>200
Polychlorinated Biphenyls - PCBs																														
Aroclor-1016	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor-1242	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor-1248	ND	ND	ND	ND	ND	ND	ND	ND	174	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor-1254	1.14	1.37	ND	2.32	ND	ND	1.66	0.557	ND	0.736	ND	0.895	6.48	0.829	5.3	0.274	2.71	0.155	0.667	3.44	0.583	1.12	ND	0.117	ND	ND	0.124	3.94	0.634	2.54
Aroclor-1260	ND	ND	1.15	ND	ND	0.34	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds - VOCs																														
1,2,4-Trimethylbenzene	NT	NT	NT	NT	NT	NT	NT	ND	0.241	0.053	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
4-Isopropyltoluene	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Naphthalene	NT	NT	NT	NT	NT	NT	NT	0.052	ND	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Toluene	NT	NT	NT	NT	NT	NT	NT	ND	0.045	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Xylenes, Total	NT	NT	NT	NT	NT	NT	NT	ND	0.182	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	0.206
Semi-Volatile Organic Compounds - SVOCs																														
Acenaphthene	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Anthracene	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Benzo(a)anthracene	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Benzo(a)pyrene	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Benzo(b)fluoranthene	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Benzo(g,h,i)perylene	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Benzo(k)fluoranthene	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
bis(2-Ethylhexyl)phthalate	NT	NT	NT	NT	NT	NT	NT	ND	0.408	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	1.99	5.83	1.12
Butylbenzylphthalate	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Chrysene	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Di-n-butylphthalate	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Di-n-octylphthalate	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Dibenzo(a,h)anthracene	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Dibenzofuran	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Fluoranthene	NT	NT	NT	NT	NT	NT	NT	ND	0.444	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	0.587	ND
Fluorene	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Indeno(1,2,3-cd)pyrene	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Naphthalene	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
Phenanthrene	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	0.382	ND
Pyrene	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.488	1.02	ND
Extractable Petroleum Hydrocarbons (EPH)																														
C_9-C_{18} Aliphatic Hydrocarbons	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND
C_{19}-C_{36} Aliphatic Hydrocarbons	NT	NT	NT	NT	NT	NT	NT	ND	ND	ND	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	908	4160	272
Total Petroleum Hydrocarbons (TPH)	1240	2110	1150	NT	3750	1400	NT	2510	2120	2130	173	NT	563	24700	NT	NT	NT	292	2319	NT	NT	1150	NT	362	ND	NT	NT	951	1970	775
Asbestos	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT

ND = Not Detected
NT = Not Tested

Table 5-4 - Building No. 3 Mobile (On-Site) Laboratory Data Summary

5/7/2001 Oxford Mills, PCB Investigation, Lawrence, MA

Client Sample ID	DATE COLL.	PCB 1248 Mg/kg	PCB 1254 Mg/kg	PCB 1260 Mg/kg	Total PCB Mg/Kg	Surr. % Rec. TCMX	Surr. % Rec. DCB	% SOL	DILUTION
B1 0-.5	5/7/01	<0.5	<0.5	<0.5	<0.5	97	99	98	
B1 .5-2	5/7/01	<0.5	<0.5	<0.5	<0.5	101	100	90	
B1 2-4	5/7/01	<0.5	<0.5	<0.5	<0.5	101	97	86	
B1 4-6	5/7/01	<0.5	<0.5	<0.5	<0.5	103	96	80	
B2 0-.5	5/7/01	<0.5	<0.5	<0.5	<0.5	101	91	90	
B2 .5-2	5/7/01	<0.5	<0.5	<0.5	<0.5	115	82	81	
B3 0-.5	5/7/01	<0.5	<0.5	<0.5	<0.5	85	77	82	
B3 .5-2	5/7/01	<0.5	<0.5	<0.5	<0.5	90	82	84	
B3 2-4	5/7/01	<0.5	<0.5	<0.5	<0.5	100	91	86	
B3 4-6	5/7/01	<0.5	<0.5	<0.5	<0.5	93	84	85	
B4 2-4	5/7/01	<0.5	<0.5	<0.5	<0.5	96	89	91	
B5 0-.5	5/7/01	<0.5	<0.5	<0.5	<0.5	99	84	78	
B5 .5-2	5/7/01	<0.5	<0.5	<0.5	<0.5	96	88	85	
B5 2-4	5/7/01	<0.5	<0.5	<0.5	<0.5	92	87	79	
B5 4-6	5/7/01	<0.5	<0.5	<0.5	<0.5	92	85	95	

Table 5-4 Cont - Building No. 3 Mobile (On-Site) Laboratory Data Summary

5/7/01 Oxford Mills, PCB Investigation, Lawrence, MA

Date	QC Sample ID	QC Type	QC Results	%REC	Sample Result	RPD	Surrogate % Rec. TCMX	DCB
5/7/01	Aroclor 1254 Std	CC Standard	4.261 ng/uL	85%			108	106
5/7/01	Aroclor 1260 Std	CC Standard	4.127 ng/uL	82%			101	105
5/7/01	M.Blank #1 5/7	Inst. Blank	<0.5 mg/kg				117	122
5/7/01	1260 PE 10X	P.E. Std	68.80 ng/uL	81%			D	D
5/7/01	Aroclor 1254 Std	CC Standard	3.994 ng/uL	80%			103	104
5/7/01	Aroclor 1260 Std	CC Standard	4.259 ng/uL	85%			101	98
5/7/01	LCS	Lab Control Sample	4.193 ng/uL	84%			96	96
5/7/01	LCSD	Lab Control Sample Dup.	3.744 ng/uL	75%		11%	98	104
5/7/01	B1 4-6 MS	Matrix Spike	4.293 ng/uL	86%	ND		100	99
5/7/01	B1 4-6 MSD	Matrix Spike Dup.	4.206 ng/uL	84%	ND	2%	96	93
5/7/01	Aroclor 1242 Std	CC Standard	4.903 ng/uL	98%			118	111
5/7/01	Aroclor 1248 Std	CC Standard	5.174 ng/uL	103%			110	74
5/7/01	M.Blank #2 5/7	Inst. Blank	<0.5 mg/kg				115	110

D - Diluted out

Table 5-4 Cont. - Building No. 3 Mobile (On-Site) Laboratory Data Summary

5/8/2001 Oxford Mills, PCB Investigation, Lawrence, MA

Client Sample ID	DATE COLL.	PCB 1248 Mg/kg	PCB 1254 Mg/kg	PCB 1260 Mg/kg	Total PCB Mg/Kg	Surr. % Rec. TCMX	Surr. % Rec. DCB	% SOL	DILUTION
B8 0-.5	5/8/01	<0.5	<0.5	<0.5	<0.5	96	105	82	
B8 .5-2	5/8/01	<0.5	<0.5	<0.5	<0.5	95	101	85	
B8 2-4	5/8/01	<0.5	<0.5	<0.5	<0.5	96	103	85	
B8 4-6	5/8/01	<0.5	<0.5	<0.5	<0.5	97	104	87	
B9 0-.5	5/8/01	<0.5	<0.5	<0.5	<0.5	106	107	83	
B9 .5-2	5/8/01	<0.5	<0.5	<0.5	<0.5	109	108	93	
B9 2-4	5/8/01	<0.5	<0.5	<0.5	<0.5	108	114	84	
B9 4-6	5/8/01	<0.5	<0.5	<0.5	<0.5	98	105	89	
B11 0-.5	5/8/01	<0.5	<0.5	<0.5	<0.5	97	108	82	
B11 .5-2	5/8/01	<0.5	<0.5	<0.5	<0.5	102	118	85	
B11 2-4	5/8/01	<0.5	<0.5	<0.5	<0.5	98	98	78	
B11 4-6	5/8/01	<0.5	<0.5	<0.5	<0.5	98	101	75	
B12 0-.5	5/8/01	<0.5	<0.5	<0.5	<0.5	101	101	80	
B12 .5-2	5/8/01	<0.5	<0.5	<0.5	<0.5	99	101	83	
B12 2-4	5/8/01	<0.5	<0.5	<0.5	<0.5	101	98	74	
B12 4-6	5/8/01	<0.5	<0.5	<0.5	<0.5	102	102	75	
B13 0-.5	5/8/01	<0.5	<0.5	<0.5	<0.5	103	101	82	
B13 .5-2	5/8/01	<0.5	<0.5	<0.5	<0.5	102	101	89	
B13 2-4	5/8/01	<0.5	<0.5	<0.5	<0.5	103	100	83	
B13 4-6	5/8/01	NA	NA	NA	NA	NA	NA	84	
B14 0-.5	5/8/01	<0.5	<0.5	<0.5	<0.5	104	102	96	
B15 0-.5	5/8/01	<0.5	<0.5	<0.5	<0.5	101	92	82	
B15 .5-2	5/8/01	NA	NA	NA	NA	NA	NA	81	
B15 2-4	5/8/01	NA	NA	NA	NA	NA	NA	95	
B15 4-6	5/8/01	NA	NA	NA	NA	NA	NA	96	
B17 0-.5	5/8/01	<0.5	<0.5	<0.5	<0.5	102	97	90	
B17 .5-2	5/8/01	NA	NA	NA	NA	NA	NA	85	
B17 2-4	5/8/01	NA	NA	NA	NA	NA	NA	80	
B17 4-6	5/8/01	NA	NA	NA	NA	NA	NA	76	
B18 0-.5	5/8/01	<0.5	<0.5	<0.5	<0.5	97	95	88	
B18 .5-2	5/8/01	NA	NA	NA	NA	NA	NA	89	
B18 2-4	5/8/01	NA	NA	NA	NA	NA	NA	90	
B18 4-6	5/8/01	NA	NA	NA	NA	NA	NA	85	

NA - Not Analyzed

5/8/01 Oxford Mills, PCB Investigation, Lawrence, MA

Date	QC Sample ID	QC Type	QC Results	%REC	Sample Result	RPD	Surrogate % Rec. TCMX	DCB
5/8/01	Aroclor 1254 Std	CC Standard	4.123 ng/uL	82%			104	108
5/8/01	Aroclor 1260 Std	CC Standard	4.450 ng/uL	89%			100	104
5/8/01	M.Blank #1 5/8	Inst. Blank	<0.5 mg/kg				112	119
5/8/01	1260 PE 10X	P.E. Std	76.11 ng/uL	85%			D	D
5/8/01	LCS	Lab Control Sample	4.717 ng/uL	94%			101	106
5/8/01	LCSD	Lab Control Sample Dup.	4.761 ng/uL	95%		1%	99	108
5/8/01	Aroclor 1254 Std	CC Standard	4.736 ng/uL	94%			108	109
5/8/01	Aroclor 1260 Std	CC Standard	4.636 ng/uL	93%			105	110
5/8/01	M.Blank #2 5/8	Inst. Blank	<0.5 mg/kg				117	117
5/8/01	B14 0-.5 MS	Matrix Spike	5.325 ng/uL	106%	ND		99	106
5/8/01	B14 0-.5 MSD	Matrix Spike Dup.	5.124 ng/uL	102%	ND	4%	90	96
5/8/01	Aroclor 1254 Std	CC Standard	4.857 ng/uL	97%			114	112
5/8/01	Aroclor 1260 Std	CC Standard	4.397 ng/uL	98%			108	110
5/8/01	M.Blank #3 5/8	Inst. Blank	<0.5 mg/kg				122	118

D - Diluted out

Table 5-4 Cont - Building No. 3 Mobile (On-Site) Laboratory Data Summary

5/9/2001 Oxford Mills, PCB Investigation, Lawrence, MA

Client Sample ID	DATE COLL.	PCB 1248 Mg/kg	PCB 1254 Mg/kg	PCB 1260 Mg/kg	Total PCB Mg/Kg	Surr. % Rec. TCMX	Surr. % Rec. DCB	% SOL	DILUTION
B19 0-.5	5/9/01	<0.5	<0.5	<0.5	<0.5	97	98	85	
B19 .5-2	5/9/01	NA	NA	NA	NA	NA	NA	91	
B19 2-4	5/9/01	NA	NA	NA	NA	NA	NA	83	
B19 4-6	5/9/01	NA	NA	NA	NA	NA	NA	88	
B21 0-.5	5/9/01	<0.5	<0.5	**1.8**	**1.8**	97	94	74	
B21 .5-2	5/9/01	<0.5	<0.5	<0.5	<0.5	98	95	86	
B21 2-4	5/9/01	<0.5	<0.5	**0.9**	**0.9**	105	104	85	
B21 4-6	5/9/01	<0.5	<0.5	<0.5	<0.5	103	94	80	
B22 0-.5	5/9/01	<0.5	<0.5	<0.5	<0.5	96	91	80	
B22 .5-2	5/9/01	NA	NA	NA	NA	NA	NA	83	
B22 2-3.5	5/9/01	NA	NA	NA	NA	NA	NA	86	
B23 0-.5	5/9/01	<0.5	<0.5	<0.5	<0.5	100	97	83	
B23 .5-2	5/9/01	NA	NA	NA	NA	NA	NA	90	
B24 0-.5	5/9/01	<0.5	<0.5	<0.5	<0.5	93	86	91	

NA - Not Analyzed

Table 5-4 Cont - Building No. 3 Mobile (On-Site) Laboratory Data Summary

5/9/01 Oxford Mills, PCB Investigation, Lawrence, MA

Date	QC Sample ID	QC Type	QC Results	%REC	Sample Result	RPD	Surrogate % Rec. TCMX	DCB
5/9/01	Aroclor 1254 Std	CC Standard	4.453 ng/uL	89%			113	112
5/9/01	Aroclor 1260 Std	CC Standard	4.356 ng/uL	87%			107	111
5/9/01	M.Blank #1 5/9	Inst. Blank	<0.5 mg/kg				119	118
5/9/01	1260 PE 10X	P.E. Std	72.18 ng/uL	85%			D	D
5/9/01	LCS	Lab Control Sample	4.822 ng/uL	96%			99	97
5/9/01	LCSD	Lab Control Sample Dup.	4.868 ng/uL	97%		1%	100	100
5/9/01	Aroclor 1254 Std	CC Standard	4.553 ng/uL	91%			118	116
5/9/01	Aroclor 1260 Std	CC Standard	4.439 ng/uL	89%			110	111
5/9/01	M.Blank #2 5/9	Inst. Blank	<0.5 mg/kg				117	117
5/9/01	B24 0-.5 MS	Matrix Spike	4.068 ng/uL	81%	ND		100	85
5/9/01	B24 0-.5 MSD	Matrix Spike Dup.	4.227 ng/uL	84%	ND	4%	92	84
5/9/01	Aroclor 1254 Std	CC Standard	4.221 ng/uL	84%			114	110
5/9/01	Aroclor 1260 Std	CC Standard	4.321 ng/uL	86%			105	100
5/9/01	M.Blank #3 5/7	Inst. Blank	<0.5 mg/kg				123	118

D - Diluted out

Table 5-4 Cont - Building No. 3 Mobile (On-Site) Laboratory Data Summary

5/10/2001 Oxford Mills, PCB Investigation, Lawrence, MA

Client Sample ID	DATE COLL.	PCB 1248 Mg/kg	PCB 1254 Mg/kg	PCB 1260 Mg/kg	Total PCB Mg/Kg	Surr. % Rec. TCMX	Surr. % Rec. DCB	% SOL	DILUTION
B26 0-.5	5/10/01	<0.5	<0.5	<0.5	<0.5	125	87	90	
B26 .5-2	5/10/01	NA	NA	NA	NA	NA	NA	87	
B26 2-4	5/10/01	NA	NA	NA	NA	NA	NA	80	
B26 4-6	5/10/01	NA	NA	NA	NA	NA	NA	85	
B27 0-.5	5/10/01	<0.5	<0.5	<0.5	<0.5	96	88	88	
B27 .5-2	5/10/01	NA	NA	NA	NA	NA	NA	90	
B27 2-4	5/10/01	NA	NA	NA	NA	NA	NA	85	
B27 4-6	5/10/01	NA	NA	NA	NA	NA	NA	83	
B29 0-.5	5/10/01	<0.5	<0.5	<0.5	<0.5	100	88	86	
B29 .5-2	5/10/01	NA	NA	NA	NA	NA	NA	82	
B29 2-4	5/10/01	NA	NA	NA	NA	NA	NA	84	
B29 4-6	5/10/01	NA	NA	NA	NA	NA	NA	90	
B30 0-.5	5/10/01	<0.5	<0.5	<0.5	<0.5	94	86	89	
B30 .5-2	5/10/01	NA	NA	NA	NA	NA	NA	96	
B30 2-4	5/10/01	NA	NA	NA	NA	NA	NA	85	
B30 4-6	5/10/01	NA	NA	NA	NA	NA	NA	88	
B32 0-.5	5/10/01	<0.5	<0.5	<0.5	<0.5	114	86	88	
B32 .5-2	5/10/01	NA	NA	NA	NA	NA	NA	86	
B32 2-4	5/10/01	NA	NA	NA	NA	NA	NA	91	
B32 4-6	5/10/01	NA	NA	NA	NA	NA	NA	85	
B33 0-.5	5/10/01	<0.5	<0.5	<0.5	<0.5	130	86	90	
B33 .5-2	5/10/01	NA	NA	NA	NA	NA	NA	93	
B33 2-4	5/10/01	NA	NA	NA	NA	NA	NA	81	
B33 4-6	5/10/01	NA	NA	NA	NA	NA	NA	87	

NA - Not Analyzed

5/10/01 Oxford Mills, PCB Investigation, Lawrence, MA

Date	QC Sample ID	QC Type	QC Results	%REC	Sample Result	RPD	Surrogate % Rec. TCMX	DCB
5/10/01	Aroclor 1254 Std	CC Standard	5.127 ng/uL	102%			103	96
5/10/01	Aroclor 1260 Std	CC Standard	4.169 ng/uL	83%			102	104
5/10/01	M.Blank #1 5/10	Inst. Blank	<0.5 mg/kg				123	124
5/10/01	1260 PE 10X	P.E. Std	70.31 ng/uL	83%			D	D
5/10/01	LCS	Lab Control Sample	4.001 ng/uL	80%			97	96
5/10/01	LCSD	Lab Control Sample Dup.	3.997 ng/uL	80%		0%	95	99
5/10/01	Aroclor 1254 Std	CC Standard	4.125 ng/uL	82%			108	100
5/10/01	Aroclor 1260 Std	CC Standard	4.113 ng/uL	82%			104	94
5/10/01	M.Blank #2 5/7	Inst. Blank	<0.5 mg/kg				124	124

D - Diluted out

5/11/01 Oxford Mills, PCB Investigation, Lawrence, MA

Date	QC Sample ID	QC Type	QC Results	%REC	Sample Result	RPD	Surrogate % Rec. TCMX	Surrogate % Rec. DCB
5/11/01	Aroclor 1254 Std	CC Standard	4.076 ng/uL	82%			126	91
5/11/01	Aroclor 1260 Std	CC Standard	4.380 ng/uL	88%			101	101
5/11/01	M.Blank #1 5/10	Inst. Blank	<0.5 mg/kg				**169***	123
5/10/01	1260 PE 10X	P.E. Std	70.72 ng/uL	83%			D	D
5/11/01	M.Blank #2 5/10	Inst. Blank	<0.5 mg/kg				120	92
5/10/01	Aroclor 1260 Std	CC Standard	5.076 ng/uL	102%			122	95
5/10/01	M.Blank #3 5/7	Inst. Blank	<0.5 mg/kg				**150***	90

* Outside QC Limits
D - Diluted out

Table 7-1

Solubility of Site Contaminants

PHASE II – COMPREHENSIVE SITE ASSESSMENT
FOR AREAS SOUTH OF THE RACEWAY

OXFORD PAPER MILL
LAWRENCE, MASSACHUSETTS

MADEP RTN 3-2691

Contaminants of Potential Concern	**Maximum Solubility (mg/L)**
Extractable Petroleum Hydrocarbons	
C_{11}-C_{22} Aromatics	5.8
C_{19}-C_{36} Aliphatics	Considered Immobile
Target EPH Parameters/Semi-Volatiles	
Benzo(a)anthracene	0.0140
Benzo(a)pyrene	0.0038
Benzo(b)fluoranthene	0.0140
Chrysene	0.0060
Dibenzo(a,h)anthracene	0.0025
Indeno(1,2,3-cd)pyrene	0.0005
Asbestos	NS
Metals	
Arsenic	Limited Solubility
Lead	Limited Solubility
PCBS	
Arocolor-1016	NA 0.225-0.250 (mg/l)
Aroclor-1248	0.05
Aroclor-1254	0.012
Aroclor-1260	0.0027

Legend -
NA - Not Available
NS - Not Soluble

Sources
EPA 1997 - A One-Dimensional Finite Difference Vadose Zone Leaching Model (VLEACH)
DEP 2002 - Characterizing Risks Posed by Petroleum Contaminated Sites, Policy # WSC-02-411

Table 7-2
COPCs Sorption Capacity

PHASE II – COMPREHENSIVE SITE ASSESSMENT
FOR AREAS SOUTH OF THE RACEWAY

OXFORD PAPER MILL
LAWRENCE, MASSACHUSETTS

MADEP RTN 3-2691

Contaminants of Potential Concern	KOC (mL/g)	foc (dec. %)	Calculated Kd (ml/g)* (Kd=Koc*foc)
EXTRACTABLE PETROLEUM HYDROCARBONS			
C_{19}-C_{36} Aliphatics	Considered Immobile		
C_{11}-C_{22} Aromatics	5,000	0.003	15.00
Target EPH Parameters/Semi-Volatiles			
Benzo(a)anthracene	1.38E+06	0.003	4140.00
Benzo(a)pyrene	5.50E+06	0.003	16500.00
Benzo(b)fluoranthene	5.50E+05	0.003	1650.00
Chrysene	2.00E+05	0.003	600.00
Dibenzo(a,h)anthracene	3.30E+06	0.003	9900.00
Indeno(1,2,3-cd)pyrene	1.59E+06	0.003	4755.00
Metals			
Arsenic	NA	NA	29.00
Lead	NA	NA	270.00
PCBS			
Aroclor-1016 (based on Arocolor 1242)	1.00E+05	0.003	300.00
Aroclor-1248 (based on Arocolor 1242)	1.00E+05	0.003	300.00
Aroclor-1254 (based on Arocolor 1242)	1.00E+05	0.003	300.00
Aroclor-1260 (based on Arocolor 1242)	1.00E+05	0.003	300.00
Asbestos	NA	NA	NA

NA - Not Available

Sources
EPA 1996 - Soil Screening Guidance: Technical Background Document, EPA/540/R95/128, May 1996
EPA 1997 - A One-Dimensional Finite Difference Vadose Zone Leaching Model (VLEACH)
DEP 2002 - Characterizing Risks Posed by Petroleum Contaminated Sites, Policy # WSC-02-411

Sheppard, M.I., and D.H. Thibault, 1990, "Default Soil Solid/Liquid Partition Coefficients, Kds, for Four Major Soil Types: A Compendium," *Health Physics*, Vol. 59, No. 4, pp. 471-482.

Table 7-3
COPCs Retardation and Solute Velocity

PHASE II – COMPREHENSIVE SITE ASSESSMENT
FOR AREAS SOUTH OF THE RACEWAY

OXFORD PAPER MILL
LAWRENCE, MASSACHUSETTS

MADEP RTN 3-2691

Contaminants of Potential Concern	Calculated Kd (ml/g)	Calculated Retardation Value (Rf)	Solute Velocity based on 0.5 ft/day	
	(Kd=Koc*foc)	Rf=1+(ρb/θ)*Kd	(ft/day)	(ft/year)
EXTRACTABLE PETROLEUM HYDROCARBONS				
C_{19}-C_{36} Aliphatics	Considered Immobile			
C_{11}-C_{22} Aromatics	15.00	111.25	4.49E-03	1.64E+00
Target EPH Parameters/Semi-Volatiles				
Benzo(a)anthracene	4140.00	30430.00	1.64E-05	6.00E-03
Benzo(a)pyrene	16500.00	121276.00	4.12E-06	1.50E-03
Benzo(b)fluoranthene	1650.00	12128.50	4.12E-05	1.50E-02
Chrysene	600.00	4411.00	1.13E-04	4.14E-02
Dibenzo(a,h)anthracene	9900.00	72766.00	6.87E-06	2.51E-03
Indeno(1,2,3-cd)pyrene	4755.00	34950.25	1.43E-05	5.22E-03
Metals				
Arsenic	29.00	214.15	2.33E-03	8.52E-01
Lead	270.00	1985.50	2.52E-04	9.19E-02
PCBS				
Aroclor-1016 (based on Arocolor 1242)	300.00	2206.00	2.27E-04	8.27E-02
Aroclor-1248 (based on Arocolor 1242)	300.00	2206.00	2.27E-04	8.27E-02
Aroclor-1254 (based on Arocolor 1242)	300.00	2206.00	2.27E-04	8.27E-02
Aroclor-1254 (based on Arocolor 1242)	300.00	2206.00	2.27E-04	8.27E-02
Asbestos	NA	NA	NA	NA

NA - Not Available

Sources
EPA 1997 - A One-Dimensional Finite Difference Vadose Zone Leaching Model (VLEACH)
DEP 2002 - Characterizing Risks Posed by Petroleum Contaminated Sites, Policy # WSC-02-411

Table 7-4
COPCs Henry's Law Constants (Dimensionless)

PHASE II – COMPREHENSIVE SITE ASSESSMENT
FOR AREAS SOUTH OF THE RACEWAY

OXFORD PAPER MILL
LAWRENCE, MASSACHUSETTS

MADEP RTN 3-2691

Contaminants of Potential Concern	Henry's Constant, H (Dimensionless)
Extractable Petroleum Hydrocarbons	
C_{11}-C_{22} Aromatics	3.00E-02
C_{19}-C_{36} Aliphatics	Considered Immobile
Target EPH Constituents/Semi-Volatiles	
Benzo(a)anthracene	4.05E-05
Benzo(a)pyrene	1.98E-05
Benzo(b)fluoranthene	4.94E-04
Chrysene	4.25E-05
Dibenzo(a,h)anthracene	2.96E-06
Indeno(1,2,3-cd)pyrene	2.81E-06
Metals	
Arsenic	NV
Lead	NV
PCBS	
Aroclor-1248 (based on Arocolor 1242)	1.38E-02
Aroclor-1254	1.14E-02
Aroclor - 1260	2.70E-03
Asbestos	NA

Legend -

NA - Not Applicable
NV - Not Volatile

Sources
EPA 1997 - A One-Dimensional Finite Difference Vadose Zone Leaching Model (VLEACH)
DEP 2002 - Characterizing Risks Posed by Petroleum Contaminated Sites, Policy # WSC-02-411

APPENDICES

Appendix A

South Area Boring Logs/Monitoring Well Construction Logs

Stone & Webster Engineering Corporation	BORING LOG	Boring: B-1-1 Job Number: 813405 Sheet: 1 of 1

Site: **Oxford Paper Mill** **S&W Geologist/Eng.:** Mat Scheller

Comments: Building #1

Elev. (feet)	Depth (feet)	Sample Type	Sample No.	Blows or Recovery RQD	SPT N Value	PID (ppm)	USC Symbol	Sample Description Unified Classification System	Remarks
	12"							Concrete	
	0							Brown to tan, fine to medium sand, 10% gravel, well sorted with fines	
	0.5'								
	1'							Brown to tan, fine to medium sand, 10% gravel, well sorted with fines	
	2'								
	3'							Brown to light brown, fine to coarse sand, with 10% angular gravel	
	4'								
	5'							Brown to light brown, fine to coarse sand, with 10% angular gravel, 15% clay	
	6'								

Remarks:

Note:

Approved	Date

Stone & Webster **Engineering Corporation**	**BORING LOG**	**Boring:** B-1-2 **Job Number:** 813405 **Sheet:** 1 **of** 1

Site: **Oxford Paper Mill** **S&W Geologist/Eng.:** Mat Scheller

Comments: Building #1

Elev. (feet)	Depth (feet)	Sample Type	Sample No.	Blows or Recovery RQD	SPT N Value	PID (ppm)	USC Symbol	Sample Description Unified Classification System	Remarks
	14"							Concrete	
	0							Brown to tan, fine to medium sand, with organics	
	0.5' – 1' – 2'							Brown to tan, fine to medium sand, with some gravel	
	2' – 3' – 4'							Brown to light brown, fine to coarse sand, with gniess fragments	
	4' – 5' – 6'							Brown to tan, fine to coarse sand, 10% sub angular gravel, 15% clay	

Remarks:

Note:

Approved	Date

Stone & Webster Engineering Corporation	BORING LOG	Boring: B-1-3 Job Number: 813405 Sheet: 1 of 1

Site: Oxford Paper Mill **S&W Geologist/Eng.:** Mat Scheller

Comments: Building #1

Elev. (feet)	Depth (feet)	Sample Type	Sample No.	Blows or Recovery RQD	SPT N Value	PID (ppm)	USC Symbol	Sample Description Unified Classification System	Remarks
	14"							Concrete	
	0							Brown to tan, fine to coarse sand	
	0.5'								
	1'							Brown to tan, fine to medium sand, with some gravel	
	2'								
	3'							Brown to light brown, fine to coarse sand, with 10% gravel	
	4'								
	5'							Brown to tan, fine to coarse sand, 15% gravel, with some fines	
	6'								

Remarks:

Note:

Approved	Date

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Stone & Webster Engineering Corporation	BORING LOG	Boring: B-1-4
		Job Number: 813405
		Sheet: 1 of 1

Site: Oxford Paper Mill **S&W Geologist/Eng.:** Mat Scheller

Comments: Building #1

Elev. (feet)	Depth (feet)	Sample Type	Sample No.	Blows or Recovery RQD	SPT N Value	PID (ppm)	USC Symbol	Sample Description Unified Classification System	Remarks
	14"							Concrete	
	0							Brown to tan, fine to medium sand	
	0.5' – 2'							Brown to tan, fine to medium sand, with some gravel	
	2' – 4'							Brown to light brown, fine to coarse sand, with some gravel	
	4' – 6'							Brown to tan, fine to coarse sand, 10% sub angular gravel, 15% clay	

Remarks:

Note:

Approved	Date

Stone & Webster **Engineering Corporation**	# BORING LOG	**Boring:** B-1-5 **Job Number:** 813405 **Sheet:** 1 **of** 1

Site: **Oxford Paper Mill** **S&W Geologist/Eng.:** Mat Scheller

Comments: Building #1

Elev. (feet)	Depth (feet)	Sample Type	Sample No.	Blows or Recovery RQD	SPT N Value	PID (ppm)	USC Symbol	Sample Description Unified Classification System	Remarks
	14"							Concrete	
	0							Fill, Black to Brown, fine to coarse sand with some gravel	
	0.5'								
	1'							Black to Brown, fine to coarse sand with some gravel	
	2'								
	3'							Brown to light brown, fine to coarse sand, with some gravel	
	4'								
	5'							Brown to tan, fine to coarse sand, 10% sub angular gravel, 15% clay	
	6'								

Remarks:

Note:

Approved	Date

Stone & Webster **Engineering Corporation**	**BORING LOG**	**Boring:** B-1-6 **Job Number:** 813405 **Sheet:** 1 **of** 1

Site: **Oxford Paper Mill** **S&W Geologist/Eng.:** Mat Scheller

Comments: Building #1

Elev. (feet)	Depth (feet)	Sample Type	Sample No.	Blows or Recovery RQD	SPT N Value	PID (ppm)	USC Symbol	Sample Description Unified Classification System	Remarks
	12"							Concrete	
	0							Brown to tan, fine to medium sand, 10% gravel, well sorted with fines	
	0.5' – 1'							Brown to tan, fine to medium sand, 10% gravel, well sorted with fines	
	2' – 3'							Brown to light brown, fine to coarse sand, with 10% angular gravel	
	4' – 5' – 6'							Brown to light brown, fine to coarse sand, with 10% angular gravel, 15% clay	

Remarks:

Note:

Approved	Date

Stone & Webster
Engineering Corporation

BORING LOG

Boring: B-1-7
Job Number: 813405
Sheet: 1 **of** 1

Site: **Oxford Paper Mill** **S&W Geologist/Eng.:** Mat Scheller

Comments: Building #1

Elev. (feet)	Depth (feet)	Sample Type	Sample No.	Blows or Recovery RQD	SPT N Value	PID (ppm)	USC Symbol	Sample Description Unified Classification System	Remarks
	28"							Concrete	
	0							Brown to tan, fine to medium sand, 10% gravel, well sorted with fines	
	0.5'							Brown to tan, fine to medium sand, 10% gravel, well sorted with fines	
	1'								
	2'							Brown to light brown, fine to coarse sand, with 10% angular gravel	
	3'								
	4'							Brown to light brown, fine to coarse sand, with 10% angular gravel, 15% clay	
	5'								
	6'								

Remarks:

Note:

Approved	Date

Stone & Webster Engineering Corporation	BORING LOG	Boring: B-2-1
		Job Number: 813405
		Sheet: 1 of 1

Site: Oxford Paper Mill **S&W Geologist/Eng.:** Mat Scheller

Comments: Building #2

Elev. (feet)	Depth (feet)	Sample Type	Sample No.	Blows or Recovery RQD	SPT N Value	PID (ppm)	USC Symbol	Sample Description Unified Classification System	Remarks
	4"							Concrete	
	0							Light Brown to brown, fine to coarse sand, 10% gravel and fines	
	0.5' – 1'							Light brown to tan, fine to medium sand	
	2' – 3'							Light brown to tan, fine to medium sand	
	4' – 5'							Light brown to tan, fine to medium sand	
	6'								

Remarks:

Note:

Approved	Date

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Stone & Webster **Engineering Corporation**	**BORING LOG**	**Boring:** B-2-2 **Job Number:** 813405 **Sheet:** 1 **of** 1

Site: **Oxford Paper Mill** **S&W Geologist/Eng.:** Mat Scheller

Comments: Building #2

Elev. (feet)	Depth (feet)	Sample Type	Sample No.	Blows or Recovery RQD	SPT N Value	PID (ppm)	USC Symbol	Sample Description Unified Classification System	Remarks
	4"							Concrete	
	0							Slag, fill, ash, black to brown, fine to coase sand and gravel	
	0.5'							Slag, fill, ash, fine to coarse sand, 25% gravel	
	1'								
	2'							Fill, slag, fine to coarse sand, 15% gravel, with some silts and fines	
	3'								
	4'							Damp, black to brown, fill, slag, fine to coarse sand and gravel with some fines	
	5'								
	6'								

Remarks:

Note: See Sheet 1 for Boring Summary and Ledgend Information

Approved	Date

Stone & Webster Engineering Corporation	BORING LOG	Boring: B-2-3 Job Number: 813405 Sheet: 1 of 1

Site: Oxford Paper Mill **S&W Geologist/Eng.:** Mat Scheller

Comments: Building #2

Elev. (feet)	Depth (feet)	Sample Type	Sample No.	Blows or Recovery RQD	SPT N Value	PID (ppm)	USC Symbol	Sample Description Unified Classification System	Remarks
	4"							Concrete	
	0							Slag	
	0.5'								
	1'							Slag, fill, ash, fine to coarse sand, 25% gravel	
	2'								
	3'							Slag, fill, ash, fine to coarse sand, 25% gravel	
	4'								
	5'							Slag, fill, ash, fine to medium sand, 25% gravel and silts	
	6'								

Remarks:

Note: See Sheet 1 for Boring Summary and Ledgend Information

Approved	Date

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Stone & Webster **Engineering Corporation**	**BORING LOG**	**Boring:** B-2-4 **Job Number:** 813405 **Sheet:** 1 **of** 1

Site: Oxford Paper Mill **S&W Geologist/Eng.:** Mat Scheller

Comments: Building #2

Elev. (feet)	Depth (feet)	Sample Type	Sample No.	Blows or Recovery RQD	SPT N Value	PID (ppm)	USC Symbol	Sample Description Unified Classification System	Remarks
	4"							Concrete	
	0							Slag and brick	
	0.5' / 1'							Black, slag, brick fragments, ash, fine to coarse sand	
	2' / 3'							Black to brown,slag, fill, brick, fine to coarse sand, 10% gravel	
	4' / 5' / 6'							Black to brown,slag, fill, brick, fine to coarse sand, 10% gravel	

Remarks:

Note: See Sheet 1 for Boring Summary and Ledgend Information

Approved	Date

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Stone & Webster **Engineering Corporation**	**BORING LOG**	**Boring:** B-2-5 **Job Number:** 813405 **Sheet:** 1 **of** 1

Site: Oxford Paper Mill **S&W Geologist/Eng.:** Mat Scheller

Comments: Building #2

Elev. (feet)	Depth (feet)	Sample Type	Sample No.	Blows or Recovery RQD	SPT N Value	PID (ppm)	USC Symbol	Sample Description Unified Classification System	Remarks
	8"							Concrete	
	0							Slag and brick	
	0.5' – 1'							Slag, fill, black coarse sand	
	2' – 3'							Black to brown, slag and brick, medium to coarse sand and gravel	
	4' – 5' – 6'							Light brown to brown, fine to medium sand with 10% silts	

Remarks:

Note: See Sheet 1 for Boring Summary and Ledgend Information

Approved	Date

Stone & Webster **Engineering Corporation**	**BORING LOG**	**Boring:** B-2-6 **Job Number:** 813405 **Sheet:** 1 **of** 1

Site: Oxford Paper Mill **S&W Geologist/Eng.:** Mat Scheller

Comments: Building #2

Elev. (feet)	Depth (feet)	Sample Type	Sample No.	Blows or Recovery RQD	SPT N Value	PID (ppm)	USC Symbol	Sample Description Unified Classification System	Remarks
	6"							Concrete	
	0							Slag, fill, and brick	
	0.5' – 1'							Black to brown, slag, fill, medium to coarse sand, 25% gravel, with brick fragments	
	2' – 3'							Black to brown, slag, fill, medium to coarse sand, 25% gravel, with brick fragments	
	4'								
	5' – 6'							Refusal @ 4.5'	

Remarks:

Note: See Sheet 1 for Boring Summary and Ledgend Information

Approved	Date

Stone & Webster
Engineering Corporation

BORING LOG

Boring: B-2-7
Job Number: 813405
Sheet: 1 **of** 1

Site: **Oxford Paper Mill** **S&W Geologist/Eng.:** Mat Scheller

Comments: Building #2

Elev. (feet)	Depth (feet)	Sample Type	Sample No.	Blows or Recovery RQD	SPT N Value	PID (ppm)	USC Symbol	Sample Description Unified Classification System	Remarks
	8"							Concrete	
	0							Black, slag, ash, fill	
	0.5' – 1'							Black, slag, ash, fill	
	2' – 3'							Black to brown, fill, fine to coarse sand, 15% subangular gravel with some slag and fines	
	4' – 5' – 6'							Brown to black, fine to coarse sand, 10% gravel with some silts	

Remarks:

Note:

Approved	Date

Stone & Webster
Engineering Corporation

BORING LOG

Boring: B-2-8
Job Number: 813405
Sheet: 1 **of** 1

Site: **Oxford Paper Mill** **S&W Geologist/Eng.:** Mat Scheller

Comments: Building #2

Elev. (feet)	Depth (feet)	Sample Type	Sample No.	Blows or Recovery RQD	SPT N Value	PID (ppm)	USC Symbol	Sample Description Unified Classification System	Remarks
	8"							Concrete	
	0							Black, slag, ash, fill	
	0.5' – 2'							Black, slag, ash, fill	
	2' – 4'							Tan to grey, concrete and brick fragments, fine to coarse sand	
	4' – 6'							Black to brown to black, fine to coarse sand, 15% gravel, some ash and slag	

Remarks:

Note:

Approved	Date

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Stone & Webster Engineering Corporation	BORING LOG	Boring: B-1 Job Number: 813405 Sheet: 1 of 1

Site: Former Oxford Paper Mill
Client: City of Lawrence
Coordinates:
Contractor: New Hampshire Boring
Foreman: Gary Twombley

Date Start: 7-May-01 **Date End:** 7-May-01
S&W Geologist/Eng.: Mat Scheller
Ground Elevation: **Depth to Bedrock:**
Total Depth Drilled: 6.4'
Drill Rig Type: GeoProbe

Methods:
Soil Drilling: Direct Push
Soil Sampling:
Rock Coring:
Casing Size:
Other:

Groundwater Readings

Date	Time	Water at:	Stabilization Time:

Comments:

Elev. (feet)	Depth (feet)	Sample Type	Sample No.	Blows or Recovery RQD	SPT N Value	PID (ppm)	USC Symbol	Sample Description Unified Classification System	Remarks
	5"							Concrete	
	0 – 0.5'							Fill, Black to Brown, Fine-Coarse grained sand	
	0.5' – 2							Black to Brown, fine to coarse grained sand, fine to medium gravel, slag, trace silts	
	2 – 4							Brick fragments, fine to coarse sand	
	4 – 6							Refusal- punched through brick Brick fragments, fine to coarse sand, concrete fragments	

Remarks:

Legend/Notes: Datum:
Indicates location of samples
Blows = number of blows required to drive 2" O.D. sampling spoon 6" or distance shown using 140 pound hammer falling 30".
* indicates use of 300 pound hammer
( ) = inches of sample recovery
Recovery = % rock core recovery
RQD = Rock Quality Designation
SPT N = Standard Penetration Test resistance to driving, blows/ft.
USC= Unified Soil Classification system

Sample Type:
SS = Split Spoon Sample
HQ=HQ Wireline Rock Core
PP= Pocket Penetrometer
Reading (tsf)

Approved	Date

Stone & Webster **Engineering Corporation**	# BORING LOG	**Boring:** B-2 **Job Number:** 813405 **Sheet:** 1 **of** 1

Site: Former Oxford Paper Mill
Client: City of Lawrence
Coordinates:
Contractor: New Hampshire Boring
Foreman: Gary Twombley

Date Start: 7-May-01 **Date End:** 7-May-01
S&W Geologist/Eng.: Mat Scheller
Ground Elevation: **Depth to Bedrock:**
Total Depth Drilled: 2.5'
Drill Rig Type: GeoProbe

Methods:
Soil Drilling: Direct Push
Soil Sampling:
Rock Coring:
Casing Size:
Other:

Groundwater Readings

Date	Time	Water at:	Stabilization Time:

Comments:

Elev. (feet)	Depth (feet)	Sample Type	Sample No.	Blows or Recovery RQD	SPT N Value	PID (ppm)	USC Symbol	Sample Description Unified Classification System	Remarks
	5.5"							Concrete	
	0 – 2							Brick and Brick fragments	
								Refusal @ 2.5'	
	3								
	4								
	5								
	6								

Remarks:

Legend/Notes:
Datum:
Indicates location of samples
Blows = number of blows required to drive 2" O.D. sampling spoon 6" or distance shown using 140 pound hammer falling 30".
* indicates use of 300 pound hammer
( ) = inches of sample recovery
Recovery = % rock core recovery
RQD = Rock Quality Designation
SPT N = Standard Penetration Test resistance to driving, blows/ft.
USC= Unified Soil Classification system

Sample Type:
SS = Split Spoon Sample
HQ=HQ Wireline Rock Core
PP= Pocket Penetrometer
Reading (tsf)

Approved	Date

Stone & Webster **Engineering Corporation**	**BORING LOG**	**Boring:** B-3 **Job Number:** 813405 **Sheet:** 1 **of** 1

Site: Former Oxford Paper Mill
Client: City of Lawrence
Coordinates:
Contractor: New Hampshire Boring
Foreman: Gary Twombley

Date Start: 7-May-01
Date End: 7-May-01
S&W Geologist/Eng.: Mat Scheller
Ground Elevation:
Depth to Bedrock:
Total Depth Drilled: 6.5'
Drill Rig Type: **GeoProbe**

Methods:
Soil Drilling: Direct Push
Soil Sampling:
Rock Coring:
Casing Size:
Other:

Groundwater Readings

Date	Time	Water at:	Stabilization Time:

Comments:

Elev. (feet)	Depth (feet)	Sample Type	Sample No.	Blows or Recovery / RQD	SPT N Value	PID (ppm)	USC Symbol	Sample Description / Unified Classification System	Remarks
	5"							Concrete	
	0 – 0.5'							Fill, slag, fine to coarse sand, brick	
	0.5' – 2							Brown, fill, mainly fine to coarse sand, 25% fine to medium gravel, trace silts	
	2 – 4							Brown, fill, mainly fine to coarse sand, 25% fine to medium gravel, trace silts	
	4 – 6							Brown, fill, mainly fine to coarse sand, 25% fine to medium gravel, trace silts	

Remarks:

Legend/Notes: Datum:
Indicates location of samples
Blows = number of blows required to drive 2" O.D. sampling spoon 6" or distance shown using 140 pound hammer falling 30".
* indicates use of 300 pound hammer
( ) = inches of sample recovery
Recovery = % rock core recovery
RQD = Rock Quality Designation
SPT N = Standard Penetration Test resistance to driving, blows/ft.
USC= Unified Soil Classification system

Sample Type:
SS = Split Spoon Sample
HQ=HQ Wireline Rock Core
PP= Pocket Penetrometer
Reading (tsf)

Approved	Date

Stone & Webster
Engineering Corporation

BORING LOG

Boring: B-4
Job Number: 813405
Sheet: 1 **of** 1

Site: Former Oxford Paper Mill
Client: City of Lawrence
Coordinates:
Contractor: New Hampshire Boring
Foreman: Gary Twombley

Date Start: 7-May-01 **Date End:** 7-May-01
S&W Geologist/Eng.: Mat Scheller
Ground Elevation: **Depth to Bedrock:**
Total Depth Drilled: 6.4'
Drill Rig Type: GeoProbe

Methods:
Soil Drilling: Direct Push
Soil Sampling:
Rock Coring:
Casing Size:
Other:

Groundwater Readings

Date	Time	Water at:	Stabilization Time:

Comments: PCBs detected in the 2-4' interval

Elev. (feet)	Depth (feet)	Sample Type	Sample No.	Blows or Recovery RQD	SPT N Value	PID (ppm)	USC Symbol	Sample Description Unified Classification System	Remarks
	5"							Concrete	
	0 – 0.5'							Fill, brown, fine to coarse sand, 15% fine to medium gravel, trace silts	
	0.5' – 2							Fill, brown, fine to coarse sand, 15% fine to medium gravel, trace silts	
	2 – 4							Fill, brown, fine to coarse sand, 15% fine to medium gravel, trace silts	
	4 – 6							Fill, brown, fine to coarse sand, 15% fine to medium gravel, trace silts	

Remarks:

Legend/Notes: Datum:
▌Indicates location of samples
Blows = number of blows required to drive 2" O.D. sampling spoon 6" or distance shown using 140 pound hammer falling 30".
* indicates use of 300 pound hammer
( ) = inches of sample recovery
Recovery = % rock core recovery
RQD = Rock Quality Designation
SPT N = Standard Penetration Test resistance to driving, blows/ft.
USC= Unified Soil Classification system

Sample Type:
SS = Split Spoon Sample
HQ=HQ Wireline Rock Core
PP= Pocket Penetrometer
Reading (tsf)

Approved	Date

Stone & Webster Engineering Corporation	BORING LOG	Boring: B-5 Job Number: 813405 Sheet: 1 of 1

Site: Former Oxford Paper Mill	**Date Start:** 7-May-01	**Date End:** 7-May-01	
Client: City of Lawrence	**S&W Geologist/Eng.:** Mat Scheller		
Coordinates:	**Ground Elevation:**	**Depth to Bedrock:**	
Contractor: New Hampshire Boring	**Total Depth Drilled:** 6.0'		
Foreman: Gary Twombley	**Drill Rig Type:** GeoProbe		

Methods:
Soil Drilling: Direct Push
Soil Sampling:
Rock Coring:
Casing Size:
Other:

Groundwater Readings

Date	Time	Water at:	Stabilization Time:

Comments:

Elev. (feet)	Depth (feet)	Sample Type	Sample No.	Blows or Recovery RQD	SPT N Value	PID (ppm)	USC Symbol	Sample Description Unified Classification System	Remarks
	5.2"							Concrete	
	0 – 0.5'							Fill, brown, fine to coarse sand	
	0.5' – 2							Fill, brown, fine to coarse sand, fine to medium gravel, trace silts	
	2 – 4							Fill, brown, fine to coarse sand, brick fragments, fine to medium gravel	
	4 – 6							Light tan, fine to coarse sand, fine to medium gravel (angular), trace black sands	

Remarks:

Legend/Notes: Datum:
Indicates location of samples
Blows = number of blows required to drive 2" O.D. sampling spoon 6" or distance shown using 140 pound hammer falling 30".
* indicates use of 300 pound hammer
( ) = inches of sample recovery
Recovery = % rock core recovery
RQD = Rock Quality Designation
SPT N = Standard Penetration Test resistance to driving, blows/ft.
USC= Unified Soil Classification system

Sample Type:
SS = Split Spoon Sample
HQ=HQ Wireline Rock Core
PP= Pocket Penetrometer Reading (tsf)

Approved	Date

Stone & Webster Engineering Corporation	# BORING LOG	Boring: B-6 Job Number: 813405 Sheet: 1 of 1

Site: Former Oxford Paper Mill
Client: City of Lawrence
Coordinates:
Contractor: New Hampshire Boring
Foreman: Gary Twombley

Date Start: 7-May-01 **Date End:** 7-May-01
S&W Geologist/Eng.: Mat Scheller
Ground Elevation: **Depth to Bedrock:**
Total Depth Drilled: 1'
Drill Rig Type: GeoProbe

Methods:
Soil Drilling: Direct Push
Soil Sampling:
Rock Coring:
Casing Size:
Other:

Groundwater Readings

Date	Time	Water at:	Stabilization Time:

Comments:

Elev. (feet)	Depth (feet)	Sample Type	Sample No.	Blows or Recovery RQD	SPT N Value	PID (ppm)	USC Symbol	Sample Description Unified Classification System	Remarks
	5"							Concrete	
	0								
	0.5'							Brick and Brick fragments	
	1							Refusal @ 1'	
	2								
	3								
	4								
	5								
	6								

Remarks:

Legend/Notes:
Datum:
Indicates location of samples
Blows = number of blows required to drive 2" O.D. sampling spoon 6" or distance shown using 140 pound hammer falling 30".
* indicates use of 300 pound hammer
( ) = inches of sample recovery
Recovery = % rock core recovery
RQD = Rock Quality Designation
SPT N = Standard Penetration Test resistance to driving, blows/ft.
USC= Unified Soil Classification system

Sample Type:
SS = Split Spoon Sample
HQ=HQ Wireline Rock Core
PP= Pocket Penetrometer
Reading (tsf)

Approved	Date

Stone & Webster Engineering Corporation	BORING LOG	Boring: B-7 Job Number: 813405 Sheet: 1 of 1

Site: Former Oxford Paper Mill
Client: City of Lawrence
Coordinates:
Contractor: New Hampshire Boring
Foreman: Gary Twombley

Date Start: 7-May-01 **Date End:** 7-May-01
S&W Geologist/Eng.: Mat Scheller
Ground Elevation: **Depth to Bedrock:**
Total Depth Drilled: 6.0'
Drill Rig Type: GeoProbe

Methods:
Soil Drilling: Direct Push
Soil Sampling:
Rock Coring:
Casing Size:
Other:

Groundwater Readings

Date	Time	Water at:	Stabilization Time:

Comments: Located in a wier along side of storage tanks on east side of basement

Elev. (feet)	Depth (feet)	Sample Type	Sample No.	Blows or Recovery RQD	SPT N Value	PID (ppm)	USC Symbol	Sample Description Unified Classification System	Remarks
	4"							Concrete	
	0 – 0.5'							Fill, brown, fine to coarse sand, fine to medium gravel, trace silts and fines	
	0.5' – 2							Fill, brown, fine to coarse sand, 20% silt, trace fine gravel	
	2 – 4							Fill, brown to dark brown, fine to coarse sand, 20% fine gravel, trace to 20% silt	
	4 – 6							Fill, light brown to dark brown, fine to coarse sand, trace to medium gravel and silts	

Remarks:

Legend/Notes: Datum:
▌Indicates location of samples
Blows = number of blows required to drive 2" O.D. sampling spoon 6" or distance shown using 140 pound hammer falling 30".
* indicates use of 300 pound hammer
( ) = inches of sample recovery
Recovery = % rock core recovery
RQD = Rock Quality Designation
SPT N = Standard Penetration Test resistance to driving, blows/ft.
USC= Unified Soil Classification system

Sample Type:
SS = Split Spoon Sample
HQ=HQ Wireline Rock Core
PP= Pocket Penetrometer
Reading (tsf)

Approved	Date

Stone & Webster Engineering Corporation	BORING LOG	Boring: B-8
		Job Number: 813405
		Sheet: 1 of 1

Site: Former Oxford Paper Mill
Client: City of Lawrence
Coordinates:
Contractor: New Hampshire Boring
Foreman: Gary Twombley

Date Start: 7-May-01
Date End: 7-May-01
S&W Geologist/Eng.: Mat Scheller
Ground Elevation:
Depth to Bedrock:
Total Depth Drilled: 6.5'
Drill Rig Type: GeoProbe

Methods:
Soil Drilling: Direct Push
Soil Sampling:
Rock Coring:
Casing Size:
Other:

Groundwater Readings

Date	Time	Water at:	Stabilization Time:

Comments: Located in a wier along side of storage tanks on east side of basement

Elev. (feet)	Depth (feet)	Sample Type	Sample No.	Blows or Recovery RQD	SPT N Value	PID (ppm)	USC Symbol	Sample Description Unified Classification System	Remarks
	5"							Concrete	
	0 – 0.5'							Light brown to dark brownbrown, fine to coarse sand, fill, trace gravel (f-m), and silts	
	0.5' – 2							Fill, brown, fine to coarse sand, 20% fine to medium gravel, 20% silts and fines	
	2 – 4							Fill, brown, fine to coarse sand, 25% fine to medium angular gravel and rock fragments	
	4 – 6							Fill, brown, fine to coarse sand, 25% fine to medium angular gravel and rock fragments	

Remarks:

Legend/Notes: Datum:

Indicates location of samples
Blows = number of blows required to drive 2" O.D. sampling spoon 6" or distance shown using 140 pound hammer falling 30".
* indicates use of 300 pound hammer
( ) = inches of sample recovery
Recovery = % rock core recovery
RQD = Rock Quality Designation
SPT N = Standard Penetration Test resistance to driving, blows/ft.
USC= Unified Soil Classification system

Sample Type:
SS = Split Spoon Sample
HQ=HQ Wireline Rock Core
PP= Pocket Penetrometer
Reading (tsf)

Approved	Date

Stone & Webster Engineering Corporation	BORING LOG	Boring: B-9 Job Number: 813405 Sheet: 1 of 1

Site: Former Oxford Paper Mill
Client: City of Lawrence
Coordinates:
Contractor: New Hampshire Boring
Foreman: Gary Twombley

Date Start: 7-May-01 **Date End:** 7-May-01
S&W Geologist/Eng.: Mat Scheller
Ground Elevation: **Depth to Bedrock:**
Total Depth Drilled: 6.5'
Drill Rig Type: GeoProbe

Methods:
Soil Drilling: Direct Push
Soil Sampling:
Rock Coring:
Casing Size:
Other:

Groundwater Readings

Date	Time	Water at:	Stabilization Time:

Comments:

Elev. (feet)	Depth (feet)	Sample Type	Sample No.	Blows or Recovery RQD	SPT N Value	PID (ppm)	USC Symbol	Sample Description Unified Classification System	Remarks
	5"							Concrete	
	0 – 0.5'							Brown to black, fill, fine to coarse sand, fine to medium gravel, brick, and slag	
	0.5' – 2							Brown to black, fill, fine to coarse sand, fine to medium gravel, brick, and slag	
	2 – 4							Tan to brown, fill, fine to coarse sand, 35% silts and fines from a fluvial source	
	4 – 6							Tan to brown, fine to medium sand, mainly fine sand, trace coarse sand and fine gravel, 25-30% silt and fines	

Remarks:

Legend/Notes: Datum:
Indicates location of samples
Blows = number of blows required to drive 2" O.D. sampling spoon 6" or distance shown using 140 pound hammer falling 30".
* indicates use of 300 pound hammer
( ) = inches of sample recovery
Recovery = % rock core recovery
RQD = Rock Quality Designation
SPT N = Standard Penetration Test resistance to driving, blows/ft.
USC= Unified Soil Classification system

Sample Type:
SS = Split Spoon Sample
HQ=HQ Wireline Rock Core
PP= Pocket Penetrometer
Reading (tsf)

Approved	Date

Stone & Webster
Engineering Corporation

BORING LOG

Boring: B-10
Job Number: 813405
Sheet: 1 **of** 1

Site: Former Oxford Paper Mill
Client: City of Lawrence
Coordinates:
Contractor: New Hampshire Boring
Foreman: Gary Twombley

Date Start: 7-May-01 **Date End:** 7-May-01
S&W Geologist/Eng.: Mat Scheller
Ground Elevation: **Depth to Bedrock:**
Total Depth Drilled: 6.5'
Drill Rig Type: GeoProbe

Methods:
Soil Drilling: Direct Push
Soil Sampling:
Rock Coring:
Casing Size:
Other:

Groundwater Readings

Date	Time	Water at:	Stabilization Time:

Comments: MCP Sample

Elev. (feet)	Depth (feet)	Sample Type	Sample No.	Blows or Recovery RQD	SPT N Value	PID (ppm)	USC Symbol	Sample Description Unified Classification System	Remarks
	5"							Concrete	
	0 – 0.5'							Brown to black, fill, fine to coarse sand, fine to medium gravel, brick, and slag	
	0.5' – 2							Brown to black, fill, fine to coarse sand, fine to medium gravel, brick, and slag	
	2 – 4							Tan to brown, fill, fine to medium sand, 30% silts, trace coarse sand and gravel	
	4 – 6							Brown to black, fill, fine to coarse sand, 25% silt, 20% rock fragments and gravel	

Remarks:

Legend/Notes: Datum:
Indicates location of samples
Blows = number of blows required to drive 2" O.D. sampling spoon 6" or distance shown using 140 pound hammer falling 30".
* indicates use of 300 pound hammer
( ) = inches of sample recovery
Recovery = % rock core recovery
RQD = Rock Quality Designation
SPT N = Standard Penetration Test resistance to driving, blows/ft.
USC= Unified Soil Classification system

Sample Type:
SS = Split Spoon Sample
HQ=HQ Wireline Rock Core
PP= Pocket Penetrometer
Reading (tsf)

Approved	Date

Stone & Webster
Engineering Corporation

BORING LOG

Boring: B-11
Job Number: 813405
Sheet: 1 **of** 1

Site: Former Oxford Paper Mill
Client: City of Lawrence
Coordinates:
Contractor: New Hampshire Boring
Foreman: Gary Twombley

Date Start: 7-May-01
Date End: 7-May-01
S&W Geologist/Eng.: Mat Scheller
Ground Elevation:
Depth to Bedrock:
Total Depth Drilled: 6.5'
Drill Rig Type: GeoProbe

Methods:
Soil Drilling: Direct Push
Soil Sampling:
Rock Coring:
Casing Size:
Other:

Groundwater Readings

Date	Time	Water at:	Stabilization Time:

Comments:

Elev. (feet)	Depth (feet)	Sample Type	Sample No.	Blows or Recovery / RQD	SPT N Value	PID (ppm)	USC Symbol	Sample Description / Unified Classification System	Remarks
	5"							Concrete	
	0 – 0.5'							Fill, brown, fine to coarse sand, trace gravel and silts	
	0.5' – 2							Fill, brown, fine to coarse sand, trace gravel and silts	
	2 – 4							Tan to brown, fine to coarse sand, 25% silt, trace gravel	
	4 – 6							Brown to black, fine to medium sand, 25% silt, trace gravel and cobbles	

Remarks:

Legend/Notes: Datum:
Indicates location of samples
Blows = number of blows required to drive 2" O.D. sampling spoon 6" or distance shown using 140 pound hammer falling 30".
* indicates use of 300 pound hammer
( ) = inches of sample recovery
Recovery = % rock core recovery
RQD = Rock Quality Designation
SPT N = Standard Penetration Test resistance to driving, blows/ft.
USC= Unified Soil Classification system

Sample Type:
SS = Split Spoon Sample
HQ=HQ Wireline Rock Core
PP= Pocket Penetrometer
Reading (tsf)

Approved	Date

Stone & Webster Engineering Corporation	**BORING LOG**	**Boring:** B-12 **Job Number:** 813405 **Sheet:** 1 **of** 1

Site: Former Oxford Paper Mill **Date Start:** 7-May-01 **Date End:** 7-May-01
Client: City of Lawrence **S&W Geologist/Eng.:** Mat Scheller
Coordinates: **Ground Elevation:** **Depth to Bedrock:**
Contractor: New Hampshire Boring **Total Depth Drilled:** 6.5'
Foreman: Gary Twombley **Drill Rig Type:** **GeoProbe**

Methods:
Soil Drilling: Direct Push
Soil Sampling:
Rock Coring:
Casing Size:
Other:

Groundwater Readings

Date	Time	Water at:	Stabilization Time:

Comments:

Elev. (feet)	Depth (feet)	Sample Type	Sample No.	Blows or Recovery RQD	SPT N Value	PID (ppm)	USC Symbol	Sample Description Unified Classification System	Remarks
	5"							Concrete	
	0 – 0.5'							Brown, fine to coarse sand, slag, gravel, 20% silt	
	0.5' – 2							Brown, fine to coarse sand, slag, gravel, 20% silt	
	2 – 4							Brown, fine to medium sand, 35% silt	
	4 – 6							Damp to wet, brown to tan, fine to coarse sand, mainly fines, 30% silt, trace fine to medium gravel and coarse sand	

Remarks:

Legend/Notes: Datum:
Indicates location of samples
Blows = number of blows required to drive 2" O.D. sampling spoon 6" or distance shown using 140 pound hammer falling 30".
* indicates use of 300 pound hammer
( ) = inches of sample recovery
Recovery = % rock core recovery
RQD = Rock Quality Designation
SPT N = Standard Penetration Test resistance to driving, blows/ft.
USC= Unified Soil Classification system

Sample Type:
SS = Split Spoon Sample
HQ=HQ Wireline Rock Core
PP= Pocket Penetrometer
Reading (tsf)

Approved	Date

Stone & Webster
Engineering Corporation

BORING LOG

Boring: B-13
Job Number: 813405
Sheet: 1 **of** 1

Site: Former Oxford Paper Mill
Client: City of Lawrence
Coordinates:
Contractor: New Hampshire Boring
Foreman: Gary Twombley

Date Start: 7-May-01 **Date End:** 7-May-01
S&W Geologist/Eng.: Mat Scheller
Ground Elevation: **Depth to Bedrock:**
Total Depth Drilled: 6.5'
Drill Rig Type: GeoProbe

Methods:
Soil Drilling: Direct Push
Soil Sampling:
Rock Coring:
Casing Size:
Other:

Groundwater Readings

Date	Time	Water at:	Stabilization Time:

Comments:

Elev. (feet)	Depth (feet)	Sample Type	Sample No.	Blows or Recovery RQD	SPT N Value	PID (ppm)	USC Symbol	Sample Description Unified Classification System	Remarks
	5"							Concrete	
	0 – 0.5'							Fine to medium sand, light brown, 25% silt, trace coarse sand and gravel	
	0.5' – 2							Fine to medium sand, light brown, 25% silt, trace coarse sand and gravel	
	2 – 4							Fine to medium sand, light brown, 25% silt, trace coarse sand and gravel	
	4 – 6							Fine to medium sand, light brown, 25% silt, trace coarse sand and gravel	

Remarks:

Legend/Notes: Datum:
Indicates location of samples
Blows = number of blows required to drive 2" O.D. sampling spoon 6" or distance shown using 140 pound hammer falling 30".
* indicates use of 300 pound hammer
( ) = inches of sample recovery
Recovery = % rock core recovery
RQD = Rock Quality Designation
SPT N = Standard Penetration Test resistance to driving, blows/ft.
USC= Unified Soil Classification system

Sample Type:
SS = Split Spoon Sample
HQ=HQ Wireline Rock Core
PP= Pocket Penetrometer
Reading (tsf)

Approved	Date

Stone & Webster Engineering Corporation	BORING LOG	Boring: B-14 Job Number: 813405 Sheet: 1 of 1

Site: Former Oxford Paper Mill
Client: City of Lawrence
Coordinates:
Contractor: New Hampshire Boring
Foreman: Gary Twombley
Date Start: 7-May-01
Date End: 7-May-01
S&W Geologist/Eng.: Mat Scheller
Ground Elevation:
Depth to Bedrock:
Total Depth Drilled: 8'
Drill Rig Type: **GeoProbe**

Methods:
Soil Drilling: Direct Push
Soil Sampling:
Rock Coring:
Casing Size:
Other:

Groundwater Readings

Date	Time	Water at:	Stabilization Time:

Comments:

Elev. (feet)	Depth (feet)	Sample Type	Sample No.	Blows or Recovery RQD	SPT N Value	PID (ppm)	USC Symbol	Sample Description Unified Classification System	Remarks
	5"							Concrete	
	0 – 0.5'							Light brown to brown, fine to medium sand, 30% silt, trace gravel and coarse sand	
	0.5' – 6							No recovery - pushed a rock or cobble to 8'	

Remarks:

Legend/Notes: Datum:
▌Indicates location of samples
Blows = number of blows required to drive 2" O.D. sampling spoon 6" or distance shown using 140 pound hammer falling 30".
* indicates use of 300 pound hammer
( ) = inches of sample recovery
Recovery = % rock core recovery
RQD = Rock Quality Designation
SPT N = Standard Penetration Test resistance to driving, blows/ft.
USC= Unified Soil Classification system

Sample Type:
SS = Split Spoon Sample
HQ=HQ Wireline Rock Core
PP= Pocket Penetrometer
Reading (tsf)

Approved	Date

Stone & Webster Engineering Corporation	BORING LOG	Boring: B-15
		Job Number: 813405
		Sheet: 1 of 1

Site: Former Oxford Paper Mill
Client: City of Lawrence
Coordinates:
Contractor: New Hampshire Boring
Foreman: Gary Twombley

Date Start: 7-May-01 **Date End:** 7-May-01
S&W Geologist/Eng.: Mat Scheller
Ground Elevation: **Depth to Bedrock:**
Total Depth Drilled: 6.5'
Drill Rig Type: GeoProbe

Methods:
Soil Drilling: Direct Push
Soil Sampling:
Rock Coring:
Casing Size:
Other:

Groundwater Readings

Date	Time	Water at:	Stabilization Time:

Comments:

Elev. (feet)	Depth (feet)	Sample Type	Sample No.	Blows or Recovery RQD	SPT N Value	PID (ppm)	USC Symbol	Sample Description Unified Classification System	Remarks
	5"							Concrete	
	0 – 0.5'							Black to brown, fill, fine to coarse sand, brick, slag, 20% fine to medium gravel and fragments	
	0.5' – 2							Black to brown, fill, fine to coarse sand, brick, slag, 20% fine to medium gravel and fragments	
	2 – 4							Brown, fine to medium sand, 30% silt, trace fine to coarse gravel	
	4 – 6							Same as above except rock lodged in tip at 5.0' bgs	

Remarks:

Legend/Notes: Datum:
Indicates location of samples
Blows = number of blows required to drive 2" O.D. sampling spoon 6" or distance shown using 140 pound hammer falling 30".
* indicates use of 300 pound hammer
( ) = inches of sample recovery
Recovery = % rock core recovery
RQD = Rock Quality Designation
SPT N = Standard Penetration Test resistance to driving, blows/ft.
USC= Unified Soil Classification system

Sample Type:
SS = Split Spoon Sample
HQ=HQ Wireline Rock Core
PP= Pocket Penetrometer
Reading (tsf)

Approved	Date

Stone & Webster **Engineering Corporation**	# BORING LOG	**Boring:** B-16 **Job Number:** 813405 **Sheet:** 1 **of** 1

Site: Former Oxford Paper Mill
Client: City of Lawrence
Coordinates:
Contractor: New Hampshire Boring
Foreman: Gary Twombley

Date Start: 7-May-01 **Date End:** 7-May-01
S&W Geologist/Eng.: Mat Scheller
Ground Elevation: **Depth to Bedrock:**
Total Depth Drilled: 2.5'
Drill Rig Type: GeoProbe

Methods:
Soil Drilling: Direct Push
Soil Sampling:
Rock Coring:
Casing Size:
Other:

Groundwater Readings

Date	Time	Water at:	Stabilization Time:

Comments:

Elev. (feet)	Depth (feet)	Sample Type	Sample No.	Blows or Recovery RQD	SPT N Value	PID (ppm)	USC Symbol	Sample Description Unified Classification System	Remarks
	5.0'							Concrete	
	0 – 0.5'							Refusal @ 0.8'. Unable to push through unknown object. Susspected to be another foundation	
	1								
	2								
	3								
	4								
	5								
	6								

Remarks:

Legend/Notes:
Datum:
Indicates location of samples
Blows = number of blows required to drive 2" O.D. sampling spoon 6" or distance shown using 140 pound hammer falling 30".
* indicates use of 300 pound hammer
( ) = inches of sample recovery
Recovery = % rock core recovery
RQD = Rock Quality Designation
SPT N = Standard Penetration Test resistance to driving, blows/ft.
USC= Unified Soil Classification system

Sample Type:
SS = Split Spoon Sample
HQ=HQ Wireline Rock Core
PP= Pocket Penetrometer Reading (tsf)

Approved	Date

Stone & Webster Engineering Corporation	# BORING LOG	**Boring:** B-16A **Job Number:** 813405 **Sheet:** 1 **of** 1

Site: Former Oxford Paper Mill
Client: City of Lawrence
Coordinates:
Contractor: New Hampshire Boring
Foreman: Gary Twombley

Date Start: 7-May-01 **Date End:** 7-May-01
S&W Geologist/Eng.: Mat Scheller
Ground Elevation: **Depth to Bedrock:**
Total Depth Drilled: 6.5'
Drill Rig Type: GeoProbe

Methods:
Soil Drilling: Direct Push
Soil Sampling:
Rock Coring:
Casing Size:
Other:

Groundwater Readings

Date	Time	Water at:	Stabilization Time:

Comments: MCP and Duplicate taken

Elev. (feet)	Depth (feet)	Sample Type	Sample No.	Blows or Recovery RQD	SPT N Value	PID (ppm)	USC Symbol	Sample Description Unified Classification System	Remarks
	5"							Concrete	
	0 – 0.5'							Dry, tan, fill, fine to coarse sand, fine to coarse gravel, and 20% silts	
	0.5' – 2							Dry, tan, fill, fine to coarse sand, fine to coarse gravel, and 20% silts	
	2 – 4							Dry, tan, fill, fine to coarse sand, fine to coarse gravel, and 20% silts	
	4 – 6							Dry, tan, fill, fine to coarse sand, fine to coarse gravel, and 20% silts	

Remarks:

Legend/Notes: Datum:
Indicates location of samples
Blows = number of blows required to drive 2" O.D. sampling spoon 6" or distance shown using 140 pound hammer falling 30".
* indicates use of 300 pound hammer
( ) = inches of sample recovery
Recovery = % rock core recovery
RQD = Rock Quality Designation
SPT N = Standard Penetration Test resistance to driving, blows/ft.
USC= Unified Soil Classification system

Sample Type:
SS = Split Spoon Sample
HQ=HQ Wireline Rock Core
PP= Pocket Penetrometer
Reading (tsf)

Approved	Date

Stone & Webster Engineering Corporation	**BORING LOG**	**Boring:** B-17 **Job Number:** 813405 **Sheet:** 1 **of** 1

Site: Former Oxford Paper Mill
Client: City of Lawrence
Coordinates:
Contractor: New Hampshire Boring
Foreman: Gary Twombley

Date Start: 7-May-01
Date End: 7-May-01
S&W Geologist/Eng.: Mat Scheller
Ground Elevation:
Depth to Bedrock:
Total Depth Drilled: 6.5'
Drill Rig Type: GeoProbe

Methods:
Soil Drilling: Direct Push
Soil Sampling:
Rock Coring:
Casing Size:
Other:

Groundwater Readings

Date	Time	Water at:	Stabilization Time:

Comments:

Elev. (feet)	Depth (feet)	Sample Type	Sample No.	Blows or Recovery / RQD	SPT N Value	PID (ppm)	USC Symbol	Sample Description / Unified Classification System	Remarks
	5"							Concrete	
	0 – 0.5'							Brown to black, fill, fine to coarse sand, fine to medium gravel, 20% with slag and brick fragments, trace silts	
	1 – 2							Brown to black, fill, fine to coarse sand, fine to medium gravel, 20% with slag and brick fragments, trace silts	
	3 – 4							Tan to brown, fill, fine to coarse sand, 25% silt, trace coarse sand and gravel	
	5 – 6							Tan to brown, fine to coarse sand, 30% fine to medium gravel	

Remarks:

Legend/Notes: Datum:
Indicates location of samples
Blows = number of blows required to drive 2" O.D. sampling spoon 6" or distance shown using 140 pound hammer falling 30".
* indicates use of 300 pound hammer
( ) = inches of sample recovery
Recovery = % rock core recovery
RQD = Rock Quality Designation
SPT N = Standard Penetration Test resistance to driving, blows/ft.
USC= Unified Soil Classification system

Sample Type:
SS = Split Spoon Sample
HQ=HQ Wireline Rock Core
PP= Pocket Penetrometer
Reading (tsf)

Approved	Date

Stone & Webster Engineering Corporation	BORING LOG	Boring: B-18 Job Number: 813405 Sheet: 1 of 1

Site: Former Oxford Paper Mill
Client: City of Lawrence
Coordinates:
Contractor: New Hampshire Boring
Foreman: Gary Twombley

Date Start: 7-May-01 **Date End:** 7-May-01
S&W Geologist/Eng.: Mat Scheller
Ground Elevation: **Depth to Bedrock:**
Total Depth Drilled: 6.5'
Drill Rig Type: **GeoProbe**

Methods:
Soil Drilling: Direct Push
Soil Sampling:
Rock Coring:
Casing Size:
Other:

Groundwater Readings

Date	Time	Water at:	Stabilization Time:

Comments:

Elev. (feet)	Depth (feet)	Sample Type	Sample No.	Blows or Recovery RQD	SPT N Value	PID (ppm)	USC Symbol	Sample Description Unified Classification System	Remarks
	5"							Concrete	
	0 – 0.5'							Brown to black, fill, fine to coarse sand, 20% silts, and trace gravel	
	0.5' – 2							Brown to black, fill, fine to coarse sand, 20% silts, and trace gravel	
	2 – 4							Brown, fine to medium sand, 25% silt, 25% coarse sand and gravel	
	4 – 6							Brown to black, fine to coarsesand, 25% silt, 25% gravel	

Remarks:

Legend/Notes: Datum:
▌Indicates location of samples
Blows = number of blows required to drive 2" O.D. sampling spoon 6" or distance shown using 140 pound hammer falling 30".
* indicates use of 300 pound hammer
( ) = inches of sample recovery
Recovery = % rock core recovery
RQD = Rock Quality Designation
SPT N = Standard Penetration Test resistance to driving, blows/ft.
USC= Unified Soil Classification system

Sample Type:
SS = Split Spoon Sample
HQ=HQ Wireline Rock Core
PP= Pocket Penetrometer Reading (tsf)

Approved	Date

Stone & Webster **Engineering Corporation**	**BORING LOG**	**Boring:** B-19 **Job Number:** 813405 **Sheet:** 1 **of** 1

Site: Former Oxford Paper Mill
Client: City of Lawrence
Coordinates:
Contractor: New Hampshire Boring
Foreman: Gary Twombley

Date Start: 7-May-01 **Date End:** 7-May-01
S&W Geologist/Eng.: Mat Scheller
Ground Elevation: **Depth to Bedrock:**
Total Depth Drilled: 6.5'
Drill Rig Type: GeoProbe

Methods:
Soil Drilling: Direct Push
Soil Sampling:
Rock Coring:
Casing Size:
Other:

Groundwater Readings

Date	Time	Water at:	Stabilization Time:

Comments: Duplicate 2 taken

Elev. (feet)	Depth (feet)	Sample Type	Sample No.	Blows or Recovery RQD	SPT N Value	PID (ppm)	USC Symbol	Sample Description Unified Classification System	Remarks
	5"							Concrete	
	0 – 0.5'							Black to brown, dry, fine to coarse sand, 30% fine to medium gravel, with slag and brick fragments	
	0.5' – 2							Black to brown, dry, fine to coarse sand, 30% fine to medium gravel, with slag and brick fragments	
	2 – 4							Dry, tan, fine to coarse sand, fine to coarse gravel, 20% silts	
	4 – 6							Dry, tan, fine to coarse sand, fine to coarse gravel, 20% silts	

Remarks:

Legend/Notes: Datum:
Indicates location of samples
Blows = number of blows required to drive 2" O.D. sampling spoon 6" or distance shown using 140 pound hammer falling 30".
* indicates use of 300 pound hammer
( ) = inches of sample recovery
Recovery = % rock core recovery
RQD = Rock Quality Designation
SPT N = Standard Penetration Test resistance to driving, blows/ft.
USC= Unified Soil Classification system

Sample Type:
SS = Split Spoon Sample
HQ=HQ Wireline Rock Core
PP= Pocket Penetrometer
Reading (tsf)

Approved	Date

Stone & Webster Engineering Corporation	**BORING LOG**	**Boring:** B-20 **Job Number:** 813405 **Sheet:** 1 **of** 1

Site: Former Oxford Paper Mill
Client: City of Lawrence
Coordinates:
Contractor: New Hampshire Boring
Foreman: Gary Twombley

Date Start: 7-May-01 **Date End:** 7-May-01
S&W Geologist/Eng.: Mat Scheller
Ground Elevation: **Depth to Bedrock:**
Total Depth Drilled: 6.5'
Drill Rig Type: GeoProbe

Methods:
Soil Drilling: Direct Push
Soil Sampling:
Rock Coring:
Casing Size:
Other:

Groundwater Readings

Date	Time	Water at:	Stabilization Time:

Comments: MCP taken

Elev. (feet)	Depth (feet)	Sample Type	Sample No.	Blows or Recovery / RQD	SPT N Value	PID (ppm)	USC Symbol	Sample Description / Unified Classification System	Remarks
	8"							Concrete	
	0 – 0.5'							Black to brown, fine to coarse sand, fine to medium gravel, with trace silts and slag	
	0.5' – 2							Black to brown, fine to coarse sand, fine to medium gravel, with trace silts and slag	
	2 – 4							Brown, fine to coarse sand, 25% gravel, 20% silt and fines	
	4 – 6							Brown, fine to coarse sand, 25% gravel, 20% silt and fines	

Remarks:

Legend/Notes: Datum:
Indicates location of samples
Blows = number of blows required to drive 2" O.D. sampling spoon 6" or distance shown using 140 pound hammer falling 30".
* indicates use of 300 pound hammer
( ) = inches of sample recovery
Recovery = % rock core recovery
RQD = Rock Quality Designation
SPT N = Standard Penetration Test resistance to driving, blows/ft.
USC= Unified Soil Classification system

Sample Type:
SS = Split Spoon Sample
HQ=HQ Wireline Rock Core
PP= Pocket Penetrometer
Reading (tsf)

Approved	Date

Stone & Webster Engineering Corporation	BORING LOG	Boring: B-21 Job Number: 813405 Sheet: 1 of 1

Site: Former Oxford Paper Mill
Client: City of Lawrence
Coordinates:
Contractor: New Hampshire Boring
Foreman: Gary Twombley

Date Start: 7-May-01 **Date End:** 7-May-01
S&W Geologist/Eng.: Mat Scheller
Ground Elevation: **Depth to Bedrock:**
Total Depth Drilled: 6.5'
Drill Rig Type: GeoProbe

Methods:
Soil Drilling: Direct Push
Soil Sampling:
Rock Coring:
Casing Size:
Other:

Groundwater Readings

Date	Time	Water at:	Stabilization Time:

Comments:

Elev. (feet)	Depth (feet)	Sample Type	Sample No.	Blows or Recovery / RQD	SPT N Value	PID (ppm)	USC Symbol	Sample Description / Unified Classification System	Remarks
	7.75"							Concrete	
	0 – 0.5'							Black to brown, fine to coarse sand, 30% fine to medium gravel, with slag fragments and trace silts	
	0.5' – 2							Black to brown, fine to coarse sand, 30% fine to medium gravel, with slag fragments and trace silts	
	2 – 4							Tan to Brown, fine to coarse sand, 35% fine to coarse gravel, slag fragments, trace silts	
	4 – 6							Brown, fine to coarse sand, 40% fine to coarse gravel and slag, trace silt and fines	

Remarks:

Legend/Notes: Datum:
Indicates location of samples
Blows = number of blows required to drive 2" O.D. sampling spoon 6" or distance shown using 140 pound hammer falling 30".
* indicates use of 300 pound hammer
( ) = inches of sample recovery
Recovery = % rock core recovery
RQD = Rock Quality Designation
SPT N = Standard Penetration Test resistance to driving, blows/ft.
USC= Unified Soil Classification system

Sample Type:
SS = Split Spoon Sample
HQ=HQ Wireline Rock Core
PP= Pocket Penetrometer
Reading (tsf)

Approved	Date

Stone & Webster Engineering Corporation	BORING LOG	Boring: B-22 Job Number: 813405 Sheet: 1 of 1

Site: Former Oxford Paper Mill
Client: City of Lawrence
Coordinates:
Contractor: New Hampshire Boring
Foreman: Gary Twombley
Date Start: 7-May-01
Date End: 7-May-01
S&W Geologist/Eng.: Mat Scheller
Ground Elevation:
Depth to Bedrock:
Total Depth Drilled: 3.5'
Drill Rig Type: GeoProbe

Methods:
Soil Drilling: Direct Push
Soil Sampling:
Rock Coring:
Casing Size:
Other:

Groundwater Readings

Date	Time	Water at:	Stabilization Time:

Comments:

Elev. (feet)	Depth (feet)	Sample Type	Sample No.	Blows or Recovery RQD	SPT N Value	PID (ppm)	USC Symbol	Sample Description Unified Classification System	Remarks
	5"							Concrete	
	0 – 0.5'							Brown, fine to coarse sand, 25% fine to medium gravel, slag and brick fragments 15% silt	
	0.5' – 2							Brown, fine to coarse sand, 25% fine to medium gravel, slag and brick fragments 15% silt	
	2 – 3.5							Fill, mainly brick fragments with some fine to coarse sand Refusal @ 3.5'	
	4								
	5								
	6								

Remarks:

Legend/Notes: Datum:
▌Indicates location of samples
Blows = number of blows required to drive 2" O.D. sampling spoon 6" or distance shown using 140 pound hammer falling 30".
* indicates use of 300 pound hammer
( ) = inches of sample recovery
Recovery = % rock core recovery
RQD = Rock Quality Designation
SPT N = Standard Penetration Test resistance to driving, blows/ft.
USC= Unified Soil Classification system

Sample Type:
SS = Split Spoon Sample
HQ=HQ Wireline Rock Core
PP= Pocket Penetrometer
Reading (tsf)

Approved	Date

Stone & Webster Engineering Corporation	BORING LOG	Boring: B-23 Job Number: 813405 Sheet: 1 of 1

Site: Former Oxford Paper Mill
Client: City of Lawrence
Coordinates:
Contractor: New Hampshire Boring
Foreman: Gary Twombley

Date Start: 7-May-01 **Date End:** 7-May-01
S&W Geologist/Eng.: Mat Scheller
Ground Elevation: **Depth to Bedrock:**
Total Depth Drilled: 1.5'
Drill Rig Type: GeoProbe

Methods:
Soil Drilling: Direct Push
Soil Sampling:
Rock Coring:
Casing Size:
Other:

Groundwater Readings

Date	Time	Water at:	Stabilization Time:

Comments:

Elev. (feet)	Depth (feet)	Sample Type	Sample No.	Blows or Recovery RQD	SPT N Value	PID (ppm)	USC Symbol	Sample Description Unified Classification System	Remarks
	5.5"							Concrete	
	0 – 1.5'							Fill, fine to coarse sand, bricks and slag, mainly brick	
								Refusal @ 1.5' Possible old foundation	
	2								
	3								
	4								
	5								
	6								

Remarks:

Legend/Notes:
Datum:
Indicates location of samples
Blows = number of blows required to drive 2" O.D. sampling spoon 6" or distance shown using 140 pound hammer falling 30".
* indicates use of 300 pound hammer
( ) = inches of sample recovery
Recovery = % rock core recovery
RQD = Rock Quality Designation
SPT N = Standard Penetration Test resistance to driving, blows/ft.
USC= Unified Soil Classification system

Sample Type:
SS = Split Spoon Sample
HQ=HQ Wireline Rock Core
PP= Pocket Penetrometer
Reading (tsf)

Approved	Date

Stone & Webster
Engineering Corporation

BORING LOG

Boring: B-24
Job Number: 813405
Sheet: 1 of 1

Site: Former Oxford Paper Mill
Client: City of Lawrence
Coordinates:
Contractor: New Hampshire Boring
Foreman: Gary Twombley

Date Start: 7-May-01 **Date End:** 7-May-01
S&W Geologist/Eng.: Mat Scheller
Ground Elevation: **Depth to Bedrock:**
Total Depth Drilled: 1.0'
Drill Rig Type: GeoProbe

Methods:
Soil Drilling: Direct Push
Soil Sampling:
Rock Coring:
Casing Size:
Other:

Groundwater Readings

Date	Time	Water at:	Stabilization Time:

Comments: PCB Hit

Elev. (feet)	Depth (feet)	Sample Type	Sample No.	Blows or Recovery RQD	SPT N Value	PID (ppm)	USC Symbol	Sample Description Unified Classification System	Remarks
	5.5"							Concrete	
	0								
	0.5'							Fill, fine to coarse sand, bricks and slag, mainly brick	
	1							Refusal @ 1.0' Possible old foundation	
	2								
	3								
	4								
	5								
	6								

Remarks:

Legend/Notes: Datum:
Indicates location of samples
Blows = number of blows required to drive 2" O.D. sampling spoon 6" or distance shown using 140 pound hammer falling 30".
* indicates use of 300 pound hammer
( ) = inches of sample recovery
Recovery = % rock core recovery
RQD = Rock Quality Designation
SPT N = Standard Penetration Test resistance to driving, blows/ft.
USC= Unified Soil Classification system

Sample Type:
SS = Split Spoon Sample
HQ=HQ Wireline Rock Core
PP= Pocket Penetrometer
Reading (tsf)

Approved	Date

BORING LOG

Stone & Webster
Engineering Corporation

Boring:	B-25
Job Number:	813405
Sheet:	1 **of** 1

Site: Former Oxford Paper Mill
Client: City of Lawrence
Coordinates:
Contractor: New Hampshire Boring
Foreman: Gary Twombley

Date Start: 7-May-01 **Date End:** 7-May-01
S&W Geologist/Eng.: Mat Scheller
Ground Elevation: **Depth to Bedrock:**
Total Depth Drilled: 2.6'
Drill Rig Type: GeoProbe

Methods:
Soil Drilling: Direct Push
Soil Sampling:
Rock Coring:
Casing Size:
Other:

Groundwater Readings

Date	Time	Water at:	Stabilization Time:

Comments: PCB Hit

Elev. (feet)	Depth (feet)	Sample Type	Sample No.	Blows or Recovery RQD	SPT N Value	PID (ppm)	USC Symbol	Sample Description Unified Classification System	Remarks
	6"							Concrete	
	0								
	0.5'								
								Fill, brown to tan, fine to coarse sand, bricks and slag, 30% silt and clay, 15% fine to coarse gravel	
	1								
	2							Refusal @ 2.0' Possible old foundation	
	3								
	4								
	5								
	6								

Remarks:

Legend/Notes: Datum:
Indicates location of samples
Blows = number of blows required to drive 2" O.D. sampling spoon 6" or distance shown using 140 pound hammer falling 30".
* indicates use of 300 pound hammer
( ) = inches of sample recovery
Recovery = % rock core recovery
RQD = Rock Quality Designation
SPT N = Standard Penetration Test resistance to driving, blows/ft.
USC= Unified Soil Classification system

Sample Type:
SS = Split Spoon Sample
HQ=HQ Wireline Rock Core
PP= Pocket Penetrometer
Reading (tsf)

Approved	Date

Stone & Webster Engineering Corporation	BORING LOG	Boring: B-26 Job Number: 813405 Sheet: 1 of 1

Site: Former Oxford Paper Mill
Client: City of Lawrence
Coordinates:
Contractor: New Hampshire Boring
Foreman: Gary Twombley

Date Start: 7-May-01 **Date End:** 7-May-01
S&W Geologist/Eng.: Mat Scheller
Ground Elevation: **Depth to Bedrock:**
Total Depth Drilled: 6.6'
Drill Rig Type: GeoProbe

Methods:
Soil Drilling: Direct Push
Soil Sampling:
Rock Coring:
Casing Size:
Other:

Groundwater Readings

Date	Time	Water at:	Stabilization Time:

Comments:

Elev. (feet)	Depth (feet)	Sample Type	Sample No.	Blows or Recovery / RQD	SPT N Value	PID (ppm)	USC Symbol	Sample Description / Unified Classification System	Remarks
	6"							Concrete	
	0 – 0.5'							Black to brown, fine sand and slag	
	0.5' – 2							Fill, brown, fine to coarse sand, 35% fine to coarse gravel, 15% silt and fines	
	2 – 4							Fill, brown, fine to coarse sand, 35% fine to coarse gravel, 15% silt and fines	
	4 – 6							Fill, brown, fine to coarse sand, 35% fine to coarse gravel, 15% silt and fines	

Remarks:

Legend/Notes: Datum:
▌Indicates location of samples
Blows = number of blows required to drive 2" O.D. sampling spoon 6" or distance shown using 140 pound hammer falling 30".
* indicates use of 300 pound hammer
( ) = inches of sample recovery
Recovery = % rock core recovery
RQD = Rock Quality Designation
SPT N = Standard Penetration Test resistance to driving, blows/ft.
USC= Unified Soil Classification system

Sample Type:
SS = Split Spoon Sample
HQ=HQ Wireline Rock Core
PP= Pocket Penetrometer
Reading (tsf)

Approved	Date

Stone & Webster Engineering Corporation	BORING LOG	Boring: B-27
		Job Number: 813405
		Sheet: 1 of 1

Site: Former Oxford Paper Mill
Client: City of Lawrence
Coordinates:
Contractor: New Hampshire Boring
Foreman: Gary Twombley

Date Start: 7-May-01 **Date End:** 7-May-01
S&W Geologist/Eng.: Mat Scheller
Ground Elevation: **Depth to Bedrock:**
Total Depth Drilled: 6.6'
Drill Rig Type: GeoProbe

Methods:
Soil Drilling: Direct Push
Soil Sampling:
Rock Coring:
Casing Size:
Other:

Groundwater Readings

Date	Time	Water at:	Stabilization Time:

Comments:

Elev. (feet)	Depth (feet)	Sample Type	Sample No.	Blows or Recovery RQD	SPT N Value	PID (ppm)	USC Symbol	Sample Description Unified Classification System	Remarks
	5"							Concrete	
	0 – 0.5'							Brown to black, fine to coarse sand, 25% fine to coarse gravel, 20% silt and fines	
	0.5' – 2							Brown to black, fine to coarse sand, 25% fine to coarse gravel, 20% silt and fines	
	2 – 4							Brown to black, fine to coarse sand, 25% fine to coarse gravel, 20% silt and fines with slag	
	4 – 6							Brown to black, fine to coarse sand, 25% fine to coarse gravel, 20% silt and fines with brick	

Remarks:

Legend/Notes: Datum:
Indicates location of samples
Blows = number of blows required to drive 2" O.D. sampling spoon 6" or distance shown using 140 pound hammer falling 30".
* indicates use of 300 pound hammer
( ) = inches of sample recovery
Recovery = % rock core recovery
RQD = Rock Quality Designation
SPT N = Standard Penetration Test resistance to driving, blows/ft.
USC= Unified Soil Classification system

Sample Type:
SS = Split Spoon Sample
HQ=HQ Wireline Rock Core
PP= Pocket Penetrometer
Reading (tsf)

Approved	Date

Stone & Webster Engineering Corporation	BORING LOG	Boring: B-28
		Job Number: 813405
		Sheet: 1 of 1

Site: Former Oxford Paper Mill
Client: City of Lawrence
Coordinates:
Contractor: New Hampshire Boring
Foreman: Gary Twombley

Date Start: 7-May-01 **Date End:** 7-May-01
S&W Geologist/Eng.: Mat Scheller
Ground Elevation: **Depth to Bedrock:**
Total Depth Drilled: 6.6'
Drill Rig Type: GeoProbe

Methods:
Soil Drilling: Direct Push
Soil Sampling:
Rock Coring:
Casing Size:
Other:

Groundwater Readings

Date	Time	Water at:	Stabilization Time:

Comments: MCP taken

Elev. (feet)	Depth (feet)	Sample Type	Sample No.	Blows or Recovery RQD	SPT N Value	PID (ppm)	USC Symbol	Sample Description Unified Classification System	Remarks
	5"							Concrete	
	0 – 0.5'							tan, fine to coarse sand, fill, 30% silt	
	0.5' – 2							tan, fine to coarse sand, fill, 30% silt	
	2 – 4							tan, fine to coarse sand, fill, 30% silt	
	4 – 6							Tan to brown, fine to coarse sand, trace rock fragments and silt	

Remarks:

Legend/Notes: Datum:
Indicates location of samples
Blows = number of blows required to drive 2" O.D. sampling spoon 6" or distance shown using 140 pound hammer falling 30".
* indicates use of 300 pound hammer
( ) = inches of sample recovery
Recovery = % rock core recovery
RQD = Rock Quality Designation
SPT N = Standard Penetration Test resistance to driving, blows/ft.
USC= Unified Soil Classification system

Sample Type:
SS = Split Spoon Sample
HQ=HQ Wireline Rock Core
PP= Pocket Penetrometer
Reading (tsf)

Approved	Date

Stone & Webster **Engineering Corporation**	**BORING LOG**	**Boring:** B-29 **Job Number:** 813405 **Sheet:** 1 **of** 1

Site: Former Oxford Paper Mill
Date Start: 7-May-01
Date End: 7-May-01
Client: City of Lawrence
S&W Geologist/Eng.: Mat Scheller
Coordinates:
Ground Elevation:
Depth to Bedrock:
Contractor: New Hampshire Boring
Total Depth Drilled: 6.5'
Foreman: Gary Twombley
Drill Rig Type: GeoProbe

Methods:
Soil Drilling: Direct Push
Soil Sampling:
Rock Coring:
Casing Size:
Other:

Groundwater Readings

Date	Time	Water at:	Stabilization Time:

Comments:

Elev. (feet)	Depth (feet)	Sample Type	Sample No.	Blows or Recovery RQD	SPT N Value	PID (ppm)	USC Symbol	Sample Description Unified Classification System	Remarks
	5"							Concrete	
	0–0.5'							Fill, fine to coarse sand, tan, 305 silt, trace gravel	
	0.5'–2							Fill, fine to coarse sand, tan, 305 silt, trace gravel	
	2–4							Brown to tan, fill, fine to coarse sand, 20% silt, trace fine to coarse gravel	
	4–6							Fine to medium sand, 35% silt, trace fine to meduim gravel	

Remarks:

Legend/Notes: Datum:
Indicates location of samples
Blows = number of blows required to drive 2" O.D. sampling spoon 6" or distance shown using 140 pound hammer falling 30".
* indicates use of 300 pound hammer
( ) = inches of sample recovery
Recovery = % rock core recovery
RQD = Rock Quality Designation
SPT N = Standard Penetration Test resistance to driving, blows/ft.
USC= Unified Soil Classification system

Sample Type:
SS = Split Spoon Sample
HQ=HQ Wireline Rock Core
PP= Pocket Penetrometer
Reading (tsf)

Approved	Date

Stone & Webster Engineering Corporation	BORING LOG	Boring: B-30
		Job Number: 813405
		Sheet: 1 of 1

Site: Former Oxford Paper Mill
Client: City of Lawrence
Coordinates:
Contractor: New Hampshire Boring
Foreman: Gary Twombley

Date Start: 7-May-01 **Date End:** 7-May-01
S&W Geologist/Eng.: Mat Scheller
Ground Elevation: **Depth to Bedrock:**
Total Depth Drilled: 6.6'
Drill Rig Type: GeoProbe

Methods:
Soil Drilling: Direct Push
Soil Sampling:
Rock Coring:
Casing Size:
Other:

Groundwater Readings

Date	Time	Water at:	Stabilization Time:

Comments:

Elev. (feet)	Depth (feet)	Sample Type	Sample No.	Blows or Recovery / RQD	SPT N Value	PID (ppm)	USC Symbol	Sample Description / Unified Classification System	Remarks
	6"							Concrete	
	0 – 0.5'							Tan, fill, fine to coarse sand, 20% silt, 15% fine to medium gravel	
	0.5' – 2							Tan, fill, fine to coarse sand, 20% silt, 15% fine to medium gravel	
	2 – 4							Tan, fill, fine to coarse sand, 20% silt, 15% fine to medium gravel	
	4 – 6							Tan, fill, fine to coarse sand, 20% silt, 15% fine to medium gravel	

Remarks:

Legend/Notes: Datum:
Indicates location of samples
Blows = number of blows required to drive 2" O.D. sampling spoon 6" or distance shown using 140 pound hammer falling 30".
* indicates use of 300 pound hammer
( ) = inches of sample recovery
Recovery = % rock core recovery
RQD = Rock Quality Designation
SPT N = Standard Penetration Test resistance to driving, blows/ft.
USC= Unified Soil Classification system

Sample Type:
SS = Split Spoon Sample
HQ=HQ Wireline Rock Core
PP= Pocket Penetrometer
Reading (tsf)

Approved	Date

Stone & Webster Engineering Corporation	BORING LOG	Boring: B-31
		Job Number: 813405
		Sheet: 1 of 1

Site: Former Oxford Paper Mill
Client: City of Lawrence
Coordinates:
Contractor: New Hampshire Boring
Foreman: Gary Twombley

Date Start: 7-May-01 **Date End:** 7-May-01
S&W Geologist/Eng.: Mat Scheller
Ground Elevation: **Depth to Bedrock:**
Total Depth Drilled: 6.5'
Drill Rig Type: GeoProbe

Methods:
Soil Drilling: Direct Push
Soil Sampling:
Rock Coring:
Casing Size:
Other:

Groundwater Readings

Date	Time	Water at:	Stabilization Time:

Comments: MCP taken

Elev. (feet)	Depth (feet)	Sample Type	Sample No.	Blows or Recovery / RQD	SPT N Value	PID (ppm)	USC Symbol	Sample Description / Unified Classification System	Remarks
	5"							Concrete	
	0 – 0.5'							Tan, fill, fine to medium sand, 20% silt, trace fine to coarse gravel	
	0.5' – 2							Tan, fill, fine to medium sand, 20% silt, trace fine to coarse gravel	
	2 – 4							Tan, fill, fine to medium sand, 20% silt, fine to coarse gravel	
	4 – 6							Brown, fine to coarse sand, 30% silt, 0% fine to coarse gravel	

Remarks:

Legend/Notes: Datum:
▌Indicates location of samples
Blows = number of blows required to drive 2" O.D. sampling spoon 6" or distance shown using 140 pound hammer falling 30".
* indicates use of 300 pound hammer
( ) = inches of sample recovery
Recovery = % rock core recovery
RQD = Rock Quality Designation
SPT N = Standard Penetration Test resistance to driving, blows/ft.
USC= Unified Soil Classification system

Sample Type:
SS = Split Spoon Sample
HQ=HQ Wireline Rock Core
PP= Pocket Penetrometer Reading (tsf)

Approved	Date

Stone & Webster Engineering Corporation	BORING LOG	Boring: B-32 Job Number: 813405 Sheet: 1 of 1

Site: Former Oxford Paper Mill
Client: City of Lawrence
Coordinates:
Contractor: New Hampshire Boring
Foreman: Gary Twombley

Date Start: 7-May-01 **Date End:** 7-May-01
S&W Geologist/Eng.: Mat Scheller
Ground Elevation: **Depth to Bedrock:**
Total Depth Drilled: 6.5'
Drill Rig Type: **GeoProbe**

Methods:
Soil Drilling: Direct Push
Soil Sampling:
Rock Coring:
Casing Size:
Other:

Groundwater Readings

Date	Time	Water at:	Stabilization Time:

Comments: DUP 3 taken

Elev. (feet)	Depth (feet)	Sample Type	Sample No.	Blows or Recovery RQD	SPT N Value	PID (ppm)	USC Symbol	Sample Description Unified Classification System	Remarks
	8"							Concrete	
	0 – 0.5'							Fill, tan to brown, fine to coarse sand, 20% silt, 15% fine to coarse gravel, trace brick	
	0.5' – 2							Fill, tan to brown, fine to coarse sand, 20% silt, 15% fine to coarse gravel, trace brick	
	2 – 4							Fill, tan to brown, fine to coarse sand, 20% silt, 15% fine to coarse gravel, trace brick	
	4 – 6							Fill, tan to brown, fine to coarse sand, 20% silt, 15% fine to coarse gravel, trace brick	

Remarks:

Legend/Notes: Datum:
Indicates location of samples
Blows = number of blows required to drive 2" O.D. sampling spoon 6" or distance shown using 140 pound hammer falling 30".
* indicates use of 300 pound hammer
( ) = inches of sample recovery
Recovery = % rock core recovery
RQD = Rock Quality Designation
SPT N = Standard Penetration Test resistance to driving, blows/ft.
USC= Unified Soil Classification system

Sample Type:
SS = Split Spoon Sample
HQ=HQ Wireline Rock Core
PP= Pocket Penetrometer
Reading (tsf)

Approved	Date

Stone & Webster Engineering Corporation	# BORING LOG	**Boring:** B-33 **Job Number:** 813405 **Sheet:** 1 **of** 1

Site: Former Oxford Paper Mill
Client: City of Lawrence
Coordinates:
Contractor: New Hampshire Boring
Foreman: Gary Twombley

Date Start: 7-May-01 **Date End:** 7-May-01
S&W Geologist/Eng.: Mat Scheller
Ground Elevation: **Depth to Bedrock:**
Total Depth Drilled: 6.5'
Drill Rig Type: GeoProbe

Methods:
Soil Drilling: Direct Push
Soil Sampling:
Rock Coring:
Casing Size:
Other:

Groundwater Readings

Date	Time	Water at:	Stabilization Time:

Comments: DUP 3 taken

Elev. (feet)	Depth (feet)	Sample Type	Sample No.	Blows or Recovery RQD	SPT N Value	PID (ppm)	USC Symbol	Sample Description Unified Classification System	Remarks
	5"							Concrete	
	0 – 0.5'							Fill, tan to brown, fine to coarse sand, 20% silt, 15% fine to coarse gravel	
	0.5' – 2							Fill, tan to brown, fine to coarse sand, 20% silt, 15% fine to coarse gravel, trace brick	
	2 – 4							Fill, tan to brown, fine to coarse sand, 20% silt, 25% fine to coarse gravel, trace brick	
	4 – 6							Fill, tan to brown, fine to coarse sand, 20% silt, 25% fine to coarse gravel, trace brick	

Remarks:

Legend/Notes: Datum:
Indicates location of samples
Blows = number of blows required to drive 2" O.D. sampling spoon 6" or distance shown using 140 pound hammer falling 30".
* indicates use of 300 pound hammer
( ) = inches of sample recovery
Recovery = % rock core recovery
RQD = Rock Quality Designation
SPT N = Standard Penetration Test resistance to driving, blows/ft.
USC= Unified Soil Classification system

Sample Type:
SS = Split Spoon Sample
HQ=HQ Wireline Rock Core
PP= Pocket Penetrometer
Reading (tsf)

Approved	Date

Stone & Webster **Engineering Corporation**	# BORING LOG	**Boring:** B-34 **Job Number:** 813405 **Sheet:** 1 **of** 1

Site: Former Oxford Paper Mill
Date Start: 7-May-01
Date End: 7-May-01
Client: City of Lawrence
S&W Geologist/Eng.: Mat Scheller
Coordinates:
Ground Elevation:
Depth to Bedrock:
Contractor: New Hampshire Boring
Total Depth Drilled: 6.5'
Foreman: Gary Twombley
Drill Rig Type: GeoProbe

Methods:
Soil Drilling: Direct Push
Soil Sampling:
Rock Coring:
Casing Size:
Other:

Groundwater Readings

Date	Time	Water at:	Stabilization Time:

Comments:

Elev. (feet)	Depth (feet)	Sample Type	Sample No.	Blows or Recovery / RQD	SPT N Value	PID (ppm)	USC Symbol	Sample Description / Unified Classification System	Remarks
	7"							Concrete	
	0 – 0.5'							Black to dark brown, fill, fine to coarse sand, 20% fines, 20% fine to coarse gravel, brick, slag and fly ash	
	0.5' – 2							Black to dark brown, fill, fine to coarse sand, 20% fines, 20% fine to coarse gravel, brick, slag and fly ash	
	2 – 4							Tan to grayish brown, morter, fill, fine to coarse sand, 35% silt and fines, 15% fine to coarse gravel	
	4 – 6							Reddish brown to brown, fill, fine to coarse sand, 25% silt and fines, 20% fine to coarse gravel and brick	

Remarks:

Legend/Notes: Datum:
Indicates location of samples
Blows = number of blows required to drive 2" O.D. sampling spoon 6" or distance shown using 140 pound hammer falling 30".
* indicates use of 300 pound hammer
( ) = inches of sample recovery
Recovery = % rock core recovery
RQD = Rock Quality Designation
SPT N = Standard Penetration Test resistance to driving, blows/ft.
USC= Unified Soil Classification system

Sample Type:
SS = Split Spoon Sample
HQ=HQ Wireline Rock Core
PP= Pocket Penetrometer
Reading (tsf)

Approved	Date

Stone & Webster **Engineering Corporation**	**BORING LOG**	**Boring:** B-35 **Job Number:** 813405 **Sheet:** 1 **of** 1

Site: Former Oxford Paper Mill
Client: City of Lawrence
Coordinates:
Contractor: New Hampshire Boring
Foreman: Gary Twombley

Date Start: 7-May-01 **Date End:** 7-May-01
S&W Geologist/Eng.: Mat Scheller
Ground Elevation: **Depth to Bedrock:**
Total Depth Drilled: 6.5'
Drill Rig Type: **GeoProbe**

Methods:
Soil Drilling: Direct Push
Soil Sampling:
Rock Coring:
Casing Size:
Other:

Groundwater Readings

Date	Time	Water at:	Stabilization Time:

Comments:

Elev. (feet)	Depth (feet)	Sample Type	Sample No.	Blows or Recovery RQD	SPT N Value	PID (ppm)	USC Symbol	Sample Description Unified Classification System	Remarks
	5"							Concrete	
	0 – 0.5'							Black to dark brown, fill, fine to coarse sand, fine to coarse gravel, brick, slag and fly ash	
	0.5' – 1 – 2							Black to dark brown, fill, fine to coarse sand, fine to coarse gravel, brick, slag and fly ash	
	2 – 3 – 4							Reddish-orange-brown, fine to coarse sand, 25% fine to coarse gravel, 20% silt and fines	
	4 – 5 – 6							Reddish brown to brown, fill, fine to coarse sand, 25% fine to coarse gravel, 20% silt and fines	

Remarks:

Legend/Notes: Datum:
Indicates location of samples
Blows = number of blows required to drive 2" O.D. sampling spoon 6" or distance shown using 140 pound hammer falling 30".
* indicates use of 300 pound hammer
( ) = inches of sample recovery
Recovery = % rock core recovery
RQD = Rock Quality Designation
SPT N = Standard Penetration Test resistance to driving, blows/ft.
USC= Unified Soil Classification system

Sample Type:
SS = Split Spoon Sample
HQ=HQ Wireline Rock Core
PP= Pocket Penetrometer
Reading (tsf)

Approved	Date

Stone & Webster Engineering Corporation	**BORING LOG**	**Boring:** B-36 **Job Number:** 813405 **Sheet:** 1 **of** 1

Site: Former Oxford Paper Mill
Client: City of Lawrence
Coordinates:
Contractor: New Hampshire Boring
Foreman: Gary Twombley

Date Start: 7-May-01 **Date End:** 7-May-01
S&W Geologist/Eng.: Mat Scheller
Ground Elevation: **Depth to Bedrock:**
Total Depth Drilled: 6.5'
Drill Rig Type: GeoProbe

Methods:
Soil Drilling: Direct Push
Soil Sampling:
Rock Coring:
Casing Size:
Other:

Groundwater Readings

Date	Time	Water at:	Stabilization Time:

Comments: Arsenic contamination

Elev. (feet)	Depth (feet)	Sample Type	Sample No.	Blows or Recovery RQD	SPT N Value	PID (ppm)	USC Symbol	Sample Description Unified Classification System	Remarks
	5"							Concrete	
	0 – 0.5'							Fill, brown to black, fine to medium sand, fly ash, slag	
	0.5' – 2							Fill, brown to black, fine to medium sand, fly ash, slag	
	2 – 4							Reddish, black, fine to medium sand, 15% gravel	
	4 – 6							Reddish, black, fine to medium sand, 15% gravel	

Remarks:

Legend/Notes: Datum:
Indicates location of samples
Blows = number of blows required to drive 2" O.D. sampling spoon 6" or distance shown using 140 pound hammer falling 30".
* indicates use of 300 pound hammer
( ) = inches of sample recovery
Recovery = % rock core recovery
RQD = Rock Quality Designation
SPT N = Standard Penetration Test resistance to driving, blows/ft.
USC= Unified Soil Classification system

Sample Type:
SS = Split Spoon Sample
HQ=HQ Wireline Rock Core
PP= Pocket Penetrometer
Reading (tsf)

Approved	Date

Stone & Webster **Engineering Corporation**	**BORING LOG**	**Boring:** B-37 **Job Number:** 813405 **Sheet:** 1 **of** 1

Site: Former Oxford Paper Mill **Date Start:** 7-May-01 **Date End:** 7-May-01
Client: City of Lawrence **S&W Geologist/Eng.:** Mat Scheller
Coordinates: **Ground Elevation:** **Depth to Bedrock:**
Contractor: New Hampshire Boring **Total Depth Drilled:** 2'
Foreman: Gary Twombley **Drill Rig Type:** **GeoProbe**

Methods:
Soil Drilling: Direct Push
Soil Sampling:
Rock Coring:
Casing Size:
Other:

Groundwater Readings

Date	Time	Water at:	Stabilization Time:

Comments:

Elev. (feet)	Depth (feet)	Sample Type	Sample No.	Blows or Recovery RQD	SPT N Value	PID (ppm)	USC Symbol	Sample Description Unified Classification System	Remarks
	5"							Concrete	
	0 – 0.5'							Fill, brown to black, fine to medium sand, fly ash, slag, brick, and mortar	
	0.5' – 2							Fill, brown to black, fine to medium sand, fly ash, slag, brick, and mortar	
	2							Refusal 2.0'	
	3								
	4								
	5								
	6								

Remarks:

Legend/Notes: Datum:
Indicates location of samples
Blows = number of blows required to drive 2" O.D. sampling spoon 6" or distance shown using 140 pound hammer falling 30".
* indicates use of 300 pound hammer
( ) = inches of sample recovery
Recovery = % rock core recovery
RQD = Rock Quality Designation
SPT N = Standard Penetration Test resistance to driving, blows/ft.
USC= Unified Soil Classification system

Sample Type:
SS = Split Spoon Sample
HQ=HQ Wireline Rock Core
PP= Pocket Penetrometer
Reading (tsf)

Approved	Date

Stone & Webster Engineering Corporation	BORING LOG	Boring: B-38 Job Number: 813405 Sheet: 1 of 1

Site: Former Oxford Paper Mill
Client: City of Lawrence
Coordinates:
Contractor: New Hampshire Boring
Foreman: Gary Twombley

Date Start: 7-May-01 **Date End:** 7-May-01
S&W Geologist/Eng.: Mat Scheller
Ground Elevation: **Depth to Bedrock:**
Total Depth Drilled: 6.5'
Drill Rig Type: GeoProbe

Methods:
Soil Drilling: Direct Push
Soil Sampling:
Rock Coring:
Casing Size:
Other:

Groundwater Readings

Date	Time	Water at:	Stabilization Time:

Comments: Arsenic contamination

Elev. (feet)	Depth (feet)	Sample Type	Sample No.	Blows or Recovery RQD	SPT N Value	PID (ppm)	USC Symbol	Sample Description Unified Classification System	Remarks
	5"							Concrete	
	0 – 0.5'							Fill, brown to black, fine to medium sand, fly ash, slag	
	0.5' – 2							Fill, brown to black, fine to medium sand, fly ash, slag	
	2 – 4							Reddish, black, fine to medium sand, 15% gravel	
	4 – 6							Reddish, black, fine to medium sand, 15% gravel	

Remarks:

Legend/Notes: Datum:
Indicates location of samples
Blows = number of blows required to drive 2" O.D. sampling spoon 6" or distance shown using 140 pound hammer falling 30".
* indicates use of 300 pound hammer
( ) = inches of sample recovery
Recovery = % rock core recovery
RQD = Rock Quality Designation
SPT N = Standard Penetration Test resistance to driving, blows/ft.
USC= Unified Soil Classification system

Sample Type:
SS = Split Spoon Sample
HQ=HQ Wireline Rock Core
PP= Pocket Penetrometer Reading (tsf)

Approved	Date

Stone & Webster **Engineering Corporation**	**BORING LOG**	**Boring:** **B-39** **Job Number:** 813405 **Sheet:** 1 **of** 1

Site: Former Oxford Paper Mill
Client: City of Lawrence
Coordinates:
Contractor: New Hampshire Boring
Foreman: Gary Twombley

Date Start: 7-May-01 **Date End:** 7-May-01
S&W Geologist/Eng.: Mat Scheller
Ground Elevation: **Depth to Bedrock:**
Total Depth Drilled: 6.2'
Drill Rig Type: **GeoProbe**

Methods:
Soil Drilling: Direct Push
Soil Sampling:
Rock Coring:
Casing Size:
Other:

Groundwater Readings

Date	Time	Water at:	Stabilization Time:

Comments:

Elev. (feet)	Depth (feet)	Sample Type	Sample No.	Blows or Recovery RQD	SPT N Value	PID (ppm)	USC Symbol	Sample Description Unified Classification System	Remarks
	6"							Concrete	
	0–0.5'							Fill, brown to black, fine to coarse sand, fly ash, slag, fine to coarse gravel	
	0.5'–2							Fill, brown to black, fine to coarse sand, fly ash, slag, fine to coarse gravel	
	2–4							Reddish brown, fine to coarse sand, with fly ash and slag	
	4–6							Reddish brown, fine to coarse sand, 25% fine to coarse gravel, with fly ash and slag	

Remarks:

Legend/Notes: Datum:
Indicates location of samples
Blows = number of blows required to drive 2" O.D. sampling spoon 6" or distance shown using 140 pound hammer falling 30".
* indicates use of 300 pound hammer
( ) = inches of sample recovery
Recovery = % rock core recovery
RQD = Rock Quality Designation
SPT N = Standard Penetration Test resistance to driving, blows/ft.
USC= Unified Soil Classification system

Sample Type:
SS = Split Spoon Sample
HQ=HQ Wireline Rock Core
PP= Pocket Penetrometer
Reading (tsf)

Approved	Date

Stone & Webster Engineering Corporation	BORING LOG	Boring: B-40 Job Number: 813405 Sheet: 1 of 1

Site: Former Oxford Paper Mill
Client: City of Lawrence
Coordinates:
Contractor: New Hampshire Boring
Foreman: Gary Twombley
Date Start: 7-May-01
Date End: 7-May-01
S&W Geologist/Eng.: Mat Scheller
Ground Elevation:
Depth to Bedrock:
Total Depth Drilled: 2'
Drill Rig Type: GeoProbe

Methods:
Soil Drilling: Direct Push
Soil Sampling:
Rock Coring:
Casing Size:
Other:

Groundwater Readings

Date	Time	Water at:	Stabilization Time:

Comments:

Elev. (feet)	Depth (feet)	Sample Type	Sample No.	Blows or Recovery RQD	SPT N Value	PID (ppm)	USC Symbol	Sample Description Unified Classification System	Remarks
	6"							Concrete	
	0 – 0.5'							Fill, brown to black, fine to medium sand, fine to coarse gravel, fly ash, slag, brick, and mortar	
	0.5' – 2							Fill, brown to black, fine to medium sand, fine to coarse gravel, fly ash, slag, brick, and mortar Refusal 2.0'	
	3								
	4								
	5								
	6								

Remarks:

Legend/Notes: Datum:
▌Indicates location of samples
Blows = number of blows required to drive 2" O.D. sampling spoon 6" or distance shown using 140 pound hammer falling 30".
* indicates use of 300 pound hammer
( ) = inches of sample recovery
Recovery = % rock core recovery
RQD = Rock Quality Designation
SPT N = Standard Penetration Test resistance to driving, blows/ft.
USC= Unified Soil Classification system

Sample Type:
SS = Split Spoon Sample
HQ=HQ Wireline Rock Core
PP= Pocket Penetrometer
Reading (tsf)

Approved	Date

Stone & Webster
Engineering Corporation

BORING LOG

Boring: B-41
Job Number: 813405
Sheet: 1 **of** 1

Site: Former Oxford Paper Mill
Client: City of Lawrence
Coordinates:
Contractor: New Hampshire Boring
Foreman: Gary Twombley

Date Start: 7-May-01 **Date End:** 7-May-01
S&W Geologist/Eng.: Mat Scheller
Ground Elevation: **Depth to Bedrock:**
Total Depth Drilled: 6.7'
Drill Rig Type: GeoProbe

Methods:
Soil Drilling: Direct Push
Soil Sampling:
Rock Coring:
Casing Size:
Other:

Groundwater Readings

Date	Time	Water at:	Stabilization Time:

Comments:

Elev. (feet)	Depth (feet)	Sample Type	Sample No.	Blows or Recovery RQD	SPT N Value	PID (ppm)	USC Symbol	Sample Description Unified Classification System	Remarks
	7"							Concrete	
	0 – 0.5'							Fill, tan, fine to coarse sand, 20% fine to coarse gravel, trace slag and cinders	
	0.5' – 2							Fill, tan, fine to coarse sand, 20% fine to coarse gravel, trace slag and cinders	
	2 – 4							Fill, brown, fine to coarse sand, fine to coarse gravel. (pushed rock, low recovery)	
	4 – 6							Fill, brown, fine to coarse sand, fine to coarse gravel. (pushed rock, low recovery)	

Remarks:

Legend/Notes: Datum:
Indicates location of samples
Blows = number of blows required to drive 2" O.D. sampling spoon 6" or distance shown using 140 pound hammer falling 30".
* indicates use of 300 pound hammer
( ) = inches of sample recovery
Recovery = % rock core recovery
RQD = Rock Quality Designation
SPT N = Standard Penetration Test resistance to driving, blows/ft.
USC= Unified Soil Classification system

Sample Type:
SS = Split Spoon Sample
HQ=HQ Wireline Rock Core
PP= Pocket Penetrometer
Reading (tsf)

Approved	Date

Stone & Webster **Engineering Corporation**	**BORING LOG**	**Boring:** B-42 **Job Number:** 813405 **Sheet:** 1 **of** 1

Site: Former Oxford Paper Mill
Date Start: 7-May-01 **Date End:** 7-May-01
Client: City of Lawrence
S&W Geologist/Eng.: Mat Scheller
Coordinates:
Ground Elevation:
Depth to Bedrock:
Contractor: New Hampshire Boring
Total Depth Drilled: 2'
Foreman: Gary Twombley
Drill Rig Type: GeoProbe

Methods:
Soil Drilling: Direct Push
Soil Sampling:
Rock Coring:
Casing Size:
Other:

Groundwater Readings

Date	Time	Water at:	Stabilization Time:

Comments:

Elev. (feet)	Depth (feet)	Sample Type	Sample No.	Blows or Recovery RQD	SPT N Value	PID (ppm)	USC Symbol	Sample Description Unified Classification System	Remarks
	6"							Concrete	
	0 – 0.5'							Fill, black, fine to coarse sand, 30% slag, fine to coarse grained gravel, trace silts	
	0.5' – 2							Fill, black, fine to coarse sand, 30% slag, fine to coarse grained gravel, trace silts	
	2							Refusal 2.0'	
	3								
	4								
	5								
	6								

Remarks:

Legend/Notes: Datum:
Indicates location of samples
Blows = number of blows required to drive 2" O.D. sampling spoon 6" or distance shown using 140 pound hammer falling 30".
* indicates use of 300 pound hammer
( ) = inches of sample recovery
Recovery = % rock core recovery
RQD = Rock Quality Designation
SPT N = Standard Penetration Test resistance to driving, blows/ft.
USC= Unified Soil Classification system

Sample Type:
SS = Split Spoon Sample
HQ=HQ Wireline Rock Core
PP= Pocket Penetrometer
Reading (tsf)

Approved	Date

Stone & Webster **Engineering Corporation**	**BORING LOG**	**Boring:** B-43 **Job Number:** 813405 **Sheet:** 1 **of** 1

Site: Former Oxford Paper Mill
Client: City of Lawrence
Coordinates:
Contractor: New Hampshire Boring
Foreman: Gary Twombley

Date Start: 7-May-01 **Date End:** 7-May-01
S&W Geologist/Eng.: Mat Scheller
Ground Elevation: **Depth to Bedrock:**
Total Depth Drilled: 6.6'
Drill Rig Type: GeoProbe

Methods:
Soil Drilling: Direct Push
Soil Sampling:
Rock Coring:
Casing Size:
Other:

Groundwater Readings

Date	Time	Water at:	Stabilization Time:

Comments:

Elev. (feet)	Depth (feet)	Sample Type	Sample No.	Blows or Recovery RQD	SPT N Value	PID (ppm)	USC Symbol	Sample Description Unified Classification System	Remarks
	6"							Concrete	
	0–0.5'							Fill, tan to brown, fine to coarse sand, 20% fine to coarse gravel and slag, 10%silt	
	0.5'–2							Fill, tan to brown, fine to coarse sand, 20% fine to coarse gravel and slag, 10%silt	
	2–4							Fill, tan to brown, fine to coarse sand, 20% fine to coarse gravel and slag, 10%silt	
	4–6							Fill, tan to brown, fine to coarse sand, 20% fine to coarse gravel and slag, 10%silt	

Remarks:

Legend/Notes: Datum:
Indicates location of samples
Blows = number of blows required to drive 2" O.D. sampling spoon 6" or distance shown using 140 pound hammer falling 30".
* indicates use of 300 pound hammer
( ) = inches of sample recovery
Recovery = % rock core recovery
RQD = Rock Quality Designation
SPT N = Standard Penetration Test resistance to driving, blows/ft.
USC= Unified Soil Classification system

Sample Type:
SS = Split Spoon Sample
HQ=HQ Wireline Rock Core
PP= Pocket Penetrometer
Reading (tsf)

Approved	Date

Stone & Webster **Engineering Corporation**	# BORING LOG	**Boring:** B-44 **Job Number:** 813405 **Sheet:** 1 **of** 1

Site: Former Oxford Paper Mill
Date Start: 7-May-01
Date End: 7-May-01
Client: City of Lawrence
S&W Geologist/Eng.: Mat Scheller
Coordinates:
Ground Elevation:
Depth to Bedrock:
Contractor: New Hampshire Boring
Total Depth Drilled: 2'
Foreman: Gary Twombley
Drill Rig Type: **GeoProbe**

Methods:
Soil Drilling: Direct Push
Soil Sampling:
Rock Coring:
Casing Size:
Other:

Groundwater Readings

Date	Time	Water at:	Stabilization Time:

Comments:

Elev. (feet)	Depth (feet)	Sample Type	Sample No.	Blows or Recovery RQD	SPT N Value	PID (ppm)	USC Symbol	Sample Description Unified Classification System	Remarks
	6"							Concrete	
	0 – 0.5'							Brown to tan, medium to coarse sand and gravel, with concrete debris and rock	
	0.5' – 2							Brown to tan, medium to coarse sand and gravel, with concrete debris and rock	
	2							Refusal 2.0'	
	3								
	4								
	5								
	6								

Remarks:

Legend/Notes: Datum:

Indicates location of samples
Blows = number of blows required to drive 2" O.D. sampling spoon 6" or distance shown using 140 pound hammer falling 30".
* indicates use of 300 pound hammer
( ) = inches of sample recovery
Recovery = % rock core recovery
RQD = Rock Quality Designation
SPT N = Standard Penetration Test resistance to driving, blows/ft.
USC= Unified Soil Classification system

Sample Type:
SS = Split Spoon Sample
HQ=HQ Wireline Rock Core
PP= Pocket Penetrometer
Reading (tsf)

Approved	Date

Stone & Webster Engineering Corporation	BORING LOG	Boring: B-45 Job Number: 813405 Sheet: 1 of 1

Site: Former Oxford Paper Mill
Client: City of Lawrence
Coordinates:
Contractor: New Hampshire Boring
Foreman: Gary Twombley

Date Start: 7-May-01 **Date End:** 7-May-01
S&W Geologist/Eng.: Mat Scheller
Ground Elevation: **Depth to Bedrock:**
Total Depth Drilled: 6.6'
Drill Rig Type: GeoProbe

Methods:
Soil Drilling: Direct Push
Soil Sampling:
Rock Coring:
Casing Size:
Other:

Groundwater Readings

Date	Time	Water at:	Stabilization Time:

Comments:

Elev. (feet)	Depth (feet)	Sample Type	Sample No.	Blows or Recovery RQD	SPT N Value	PID (ppm)	USC Symbol	Sample Description Unified Classification System	Remarks
	6"							Concrete	
	0–0.5'							Brown to black, medium to coarse sand and gravel (fill)	
	0.5'–2							Brown to black, medium to coarse sand and gravel (fill)	
	2–4							Fill, tan to brown, fine to coarse sand, 20% fine to coarse gravel	
	4–6							Fill, tan to brown, fine to coarse sand, 20% fine to coarse gravel	

Remarks:

Legend/Notes: Datum:
Indicates location of samples
Blows = number of blows required to drive 2" O.D. sampling spoon 6" or distance shown using 140 pound hammer falling 30".
* indicates use of 300 pound hammer
( ) = inches of sample recovery
Recovery = % rock core recovery
RQD = Rock Quality Designation
SPT N = Standard Penetration Test resistance to driving, blows/ft.
USC= Unified Soil Classification system

Sample Type:
SS = Split Spoon Sample
HQ=HQ Wireline Rock Core
PP= Pocket Penetrometer Reading (tsf)

Approved	Date

Stone & Webster Engineering Corporation	BORING LOG	Boring: B-46 Job Number: 813405 Sheet: 1 of 1

Site: Former Oxford Paper Mill
Client: City of Lawrence
Coordinates:
Contractor: New Hampshire Boring
Foreman: Gary Twombley

Date Start: 7-May-01 **Date End:** 7-May-01
S&W Geologist/Eng.: Mat Scheller
Ground Elevation: **Depth to Bedrock:**
Total Depth Drilled: 3.5'
Drill Rig Type: GeoProbe

Methods:
Soil Drilling: Direct Push
Soil Sampling:
Rock Coring:
Casing Size:
Other:

Groundwater Readings

Date	Time	Water at:	Stabilization Time:

Comments:

Elev. (feet)	Depth (feet)	Sample Type	Sample No.	Blows or Recovery RQD	SPT N Value	PID (ppm)	USC Symbol	Sample Description Unified Classification System	Remarks
	6"							Concrete	
	0 – 0.5'							Brown to black, fine to coarse sand and gravel, slag,	
	0.5' – 2							Brown to black to red, medium to coarse sand and gravel, slag, brick, and sub-angular gravels	
	2 – 3.5'							Brown to black to red, medium to coarse sand and gravel, slag, brick, and sub-angular gravels Refusal 3.5'	
	4								
	5								
	6								

Remarks:

Legend/Notes: Datum:
Indicates location of samples
Blows = number of blows required to drive 2" O.D. sampling spoon 6" or distance shown using 140 pound hammer falling 30".
* indicates use of 300 pound hammer
( ) = inches of sample recovery
Recovery = % rock core recovery
RQD = Rock Quality Designation
SPT N = Standard Penetration Test resistance to driving, blows/ft.
USC= Unified Soil Classification system

Sample Type:
SS = Split Spoon Sample
HQ=HQ Wireline Rock Core
PP= Pocket Penetrometer Reading (tsf)

Approved	Date

Stone & Webster Engineering Corporation	BORING LOG	Boring: B-47 Job Number: 813405 Sheet: 1 of 1

Site: Former Oxford Paper Mill
Client: City of Lawrence
Coordinates:
Contractor: New Hampshire Boring
Foreman: Gary Twombley

Date Start: 7-May-01 **Date End:** 7-May-01
S&W Geologist/Eng.: Mat Scheller
Ground Elevation: **Depth to Bedrock:**
Total Depth Drilled: 4.0'
Drill Rig Type: GeoProbe

Methods:
Soil Drilling: Direct Push
Soil Sampling:
Rock Coring:
Casing Size:
Other:

Groundwater Readings

Date	Time	Water at:	Stabilization Time:

Comments:

Elev. (feet)	Depth (feet)	Sample Type	Sample No.	Blows or Recovery RQD	SPT N Value	PID (ppm)	USC Symbol	Sample Description Unified Classification System	Remarks
	6"							Concrete	
	0 – 0.5'							Brown to tan, fine to coarse sand and gravel, slag,	
	0.5' – 2							Brick and Slag	
	2 – 4							Brick and Slag Refusal 3.5'	
	5								
	6								

Remarks:

Legend/Notes: Datum:
Indicates location of samples
Blows = number of blows required to drive 2" O.D. sampling spoon 6" or distance shown using 140 pound hammer falling 30".
* indicates use of 300 pound hammer
( ) = inches of sample recovery
Recovery = % rock core recovery
RQD = Rock Quality Designation
SPT N = Standard Penetration Test resistance to driving, blows/ft.
USC= Unified Soil Classification system

Sample Type:
SS = Split Spoon Sample
HQ=HQ Wireline Rock Core
PP= Pocket Penetrometer
Reading (tsf)

Approved	Date

Stone & Webster Engineering Corporation	BORING LOG	Boring: B-48 Job Number: 813405 Sheet: 1 of 1

Site: Former Oxford Paper Mill
Client: City of Lawrence
Coordinates:
Contractor: New Hampshire Boring
Foreman: Gary Twombley

Date Start: 7-May-01
Date End: 7-May-01
S&W Geologist/Eng.: Mat Scheller
Ground Elevation:
Depth to Bedrock:
Total Depth Drilled: 6.6'
Drill Rig Type: **GeoProbe**

Methods:
Soil Drilling: Direct Push
Soil Sampling:
Rock Coring:
Casing Size:
Other:

Groundwater Readings

Date	Time	Water at:	Stabilization Time:

Comments: Arsenic Contamination

Elev. (feet)	Depth (feet)	Sample Type	Sample No.	Blows or Recovery / RQD	SPT N Value	PID (ppm)	USC Symbol	Sample Description / Unified Classification System	Remarks
	6"							Concrete	
	0 – 0.5'							Brown to black, fine to coarse sand/fill with 15% gravel and slag	
	0.5' – 2							Brown to light brown, fine to coarse sand and gravel, with slag and ash	
	2 – 4							Brown to light brown, fine to coarse sand and gravel, with slag and ash	
	4 – 6							Light brown to tan, fine to coarse sand and gravel, with slag and ash	

Remarks:

Legend/Notes: Datum:
▌Indicates location of samples
Blows = number of blows required to drive 2" O.D. sampling spoon 6" or distance shown using 140 pound hammer falling 30".
* indicates use of 300 pound hammer
( ) = inches of sample recovery
Recovery = % rock core recovery
RQD = Rock Quality Designation
SPT N = Standard Penetration Test resistance to driving, blows/ft.
USC= Unified Soil Classification system

Sample Type:
SS = Split Spoon Sample
HQ=HQ Wireline Rock Core
PP= Pocket Penetrometer Reading (tsf)

Approved	Date

Stone & Webster Engineering Corporation	BORING LOG	Boring: B-49 Job Number: 813405 Sheet: 1 of 1

Site: Former Oxford Paper Mill
Client: City of Lawrence
Coordinates:
Contractor: New Hampshire Boring
Foreman: Gary Twombley

Date Start: 7-May-01 **Date End:** 7-May-01
S&W Geologist/Eng.: Mat Scheller
Ground Elevation: **Depth to Bedrock:**
Total Depth Drilled: 6.6'
Drill Rig Type: GeoProbe

Methods:
Soil Drilling: Direct Push
Soil Sampling:
Rock Coring:
Casing Size:
Other:

Groundwater Readings

Date	Time	Water at:	Stabilization Time:

Comments: Arsenic Contamination

Elev. (feet)	Depth (feet)	Sample Type	Sample No.	Blows or Recovery RQD	SPT N Value	PID (ppm)	USC Symbol	Sample Description Unified Classification System	Remarks
	8"							Concrete	
	0 – 0.5'							Brown, fine to coarse sand and gravel with slag and ash	
	0.5' – 2							Brick motar and slag	
	2 – 4							Brown to red, fine to coarse sand with brick and gravel	
	4 – 6							Tan to brown, fine to coarse grained sand and gravel with brick	

Remarks:

Legend/Notes: Datum:
Indicates location of samples
Blows = number of blows required to drive 2" O.D. sampling spoon 6" or distance shown using 140 pound hammer falling 30".
* indicates use of 300 pound hammer
( ) = inches of sample recovery
Recovery = % rock core recovery
RQD = Rock Quality Designation
SPT N = Standard Penetration Test resistance to driving, blows/ft.
USC= Unified Soil Classification system

Sample Type:
SS = Split Spoon Sample
HQ=HQ Wireline Rock Core
PP= Pocket Penetrometer
Reading (tsf)

Approved	Date

Stone & Webster **Engineering Corporation**	**BORING LOG**	**Boring:** B-4-1 **Job Number:** 813405 **Sheet:** 1 **of** 1

Site: Oxford Paper Mill **S&W Geologist/Eng.:** Mat Scheller

Comments: Building #4

Elev. (feet)	Depth (feet)	Sample Type	Sample No.	Blows or Recovery RQD	SPT N Value	PID (ppm)	USC Symbol	Sample Description Unified Classification System	Remarks
	14"							Concrete	
	0							Slag, fill, fine to coarse sand, 15% gravel	
	0.5' – 1'							Slag, fill, fine to coarse sand, 15% gravel	
	2' – 3'							Black to brown, fine to coarse sand, 25% gravel, with brick fragments	
	4' – 5' – 6'							Black to brown, fine to coarse sand	

Remarks:

Note: See Sheet 1 for Boring Summary and Ledgend Information

Approved	Date

S:\BOSTON\Highway Engineering\Specifications\MHDCAS98\FY 2010 projects\602299_LAWRENCE_Const_New_Bridge&_Rehab_Exist_Bridge_Canal_St_over_Spickett_River\Verify\Phase II Report\[Bldg #4 - Boring logs.xls]b-4-1

Stone & Webster **Engineering Corporation**	**BORING LOG**	**Boring:** B-4-2 **Job Number:** 813405 **Sheet:** 1 **of** 1

Site: **Oxford Paper Mill** **S&W Geologist/Eng.:** Mat Scheller

Comments: Building #4

Elev. (feet)	Depth (feet)	Sample Type	Sample No.	Blows or Recovery RQD	SPT N Value	PID (ppm)	USC Symbol	Sample Description Unified Classification System	Remarks
	14"							Concrete	
	0							Slag, fill, brown to light brown, fine to medium sand, with 20% silt	
	0.5' – 1'							Slag, fill, brown to light brown, fine to medium sand, with 20% silt	
	2' – 3'							Slag, fill, brown to light brown, fine to medium sand, with 20% silt	
	4' – 5' – 6'							Slag, fill, brown to light brown, fine to medium sand, with 20% silt	

Remarks:

Note: See Sheet 1 for Boring Summary and Ledgend Information

Approved	Date

Stone & Webster **Engineering Corporation**	**BORING LOG**	**Boring:** B-4-3 **Job Number:** 813405 **Sheet:** 1 **of** 1

Site: Oxford Paper Mill **S&W Geologist/Eng.:** Mat Scheller

Comments: Building #4

Elev. (feet)	Depth (feet)	Sample Type	Sample No.	Blows or Recovery RQD	SPT N Value	PID (ppm)	USC Symbol	Sample Description Unified Classification System	Remarks
	14"							Concrete	
	0							Slag, fill, brown to light brown, fine to coarse sand, with 15% gravel	
	0.5' – 1'							Brown to light brown, fine to coarse sand, with 25% gravel	
	2' – 3'							Brown to light brown, fine to coarse sand, with 25% gravel	
	4' – 5' – 6'							Brown to light brown, fine to coarse sand, with 25% gravel	

Remarks:

Note: See Sheet 1 for Boring Summary and Ledgend Information

Approved	Date

Stone & Webster Engineering Corporation	BORING LOG	Boring: B-5-1 Job Number: 813405 Sheet: 1 of 1

Site: Oxford Paper Mill **S&W Geologist/Eng.:** Mat Scheller

Comments: Building #5

Elev. (feet)	Depth (feet)	Sample Type	Sample No.	Blows or Recovery RQD	SPT N Value	PID (ppm)	USC Symbol	Sample Description Unified Classification System	Remarks
	14"							Concrete	
	0							Fill, brown to light brown, fine to coarse sand, with 15% gravel	
	0.5'								
	1'							Brown to light brown, fine to coarse sand, with 25% gravel	
	2'								
	3'							Brown to light brown, fine to coarse sand, with 25% gravel	
	4'								
	5'							Brown to light brown, fine to coarse sand, with 25% gravel	
	6'								

Remarks:

Note: See Sheet 1 for Boring Summary and Ledgend Information

Approved	Date

Stone & Webster
Engineering Corporation

BORING LOG

Boring: **B-6-1**
Job Number: 813405
Sheet: 1 **of** 1

Site: **Oxford Paper Mill** **S&W Geologist/Eng.:** Mat Scheller

Comments: Building #6

Elev. (feet)	Depth (feet)	Sample Type	Sample No.	Blows or Recovery RQD	SPT N Value	PID (ppm)	USC Symbol	Sample Description Unified Classification System	Remarks
	36+"							Concrete	
	0								
	0.5'								
	1'								
	2'								
	3'								
	4'								
	5'								
	6'								

Remarks:

Note:

Approved	Date

Stone & Webster **Engineering Corporation**	**BORING LOG**	**Boring:** B-6-2 **Job Number:** 813405 **Sheet:** 1 **of** 1

Site: **Oxford Paper Mill** **S&W Geologist/Eng.:** Mat Scheller

Comments: Building #6

Elev. (feet)	Depth (feet)	Sample Type	Sample No.	Blows or Recovery RQD	SPT N Value	PID (ppm)	USC Symbol	Sample Description Unified Classification System	Remarks
	4"							Concrete	
	0							Slag, fill, ash, black to brown, fine to coase sand and gravel	
	0.5'								
	1'							Slag, fill, ash, fine to coarse sand, 25% gravel	
	2'								
	3'							Fill, slag, fine to coarse sand, 15% gravel, with some silts and fines	
	4'								
	5'							Damp, black to brown, fill, slag, fine to coarse sand and gravel with some fines	
	6'								

Remarks:

Note: See Sheet 1 for Boring Summary and Ledgend Information

Approved	Date

Stone & Webster
Engineering Corporation

BORING LOG

Boring: B-6-3
Job Number: 813405
Sheet: 1 **of** 1

Site: **Oxford Paper Mill** **S&W Geologist/Eng.:** Mat Scheller

Comments: Building #6

Elev. (feet)	Depth (feet)	Sample Type	Sample No.	Blows or Recovery RQD	SPT N Value	PID (ppm)	USC Symbol	Sample Description Unified Classification System	Remarks
								No Concrete	
								Black to Brown, fine to medium sand, with organics, white substance, brick fragments	
								Refusal @ 12"	

Remarks:

Note: See Sheet 1 for Boring Summary and Ledgend Information

Approved	Date

Stone & Webster **Engineering Corporation**	# BORING LOG	**Boring:** B-6-4 **Job Number:** 813405 **Sheet:** 1 **of** 1

Site: **Oxford Paper Mill** **S&W Geologist/Eng.:** Mat Scheller

Comments: Building #6

Elev. (feet)	Depth (feet)	Sample Type	Sample No.	Blows or Recovery RQD	SPT N Value	PID (ppm)	USC Symbol	Sample Description Unified Classification System	Remarks
								No Concrete	
								Black to Brown, fine to medium sand, with organics and 5% gravel, white clay substance (mortar?), brick fragments	
								Refusal @ 22"	

Remarks:

Note: See Sheet 1 for Boring Summary and Ledgend Information

Approved	Date

Stone & Webster
Engineering Corporation

BORING LOG

Boring: B-6-5
Job Number: 813405
Sheet: 1 **of** 1

Site: **Oxford Paper Mill** **S&W Geologist/Eng.:** Mat Scheller

Comments: Building #2

Elev. (feet)	Depth (feet)	Sample Type	Sample No.	Blows or Recovery RQD	SPT N Value	PID (ppm)	USC Symbol	Sample Description Unified Classification System	Remarks
	4"							Concrete	
	0							Slag and brick	
	0.5' – 1'							Black, slag, brick fragments, ash, fine to coarse sand	
	2' – 3'							Black to brown,slag, fill, brick, fine to coarse sand, 10% gravel	
	4' – 5' – 6'							Black to brown,slag, fill, brick, fine to coarse sand, 10% gravel	

Remarks:

Note: See Sheet 1 for Boring Summary and Ledgend Information

Approved	Date

S:\BOSTON\Highway Engineering\Specifications\MHDCAS98\FY 2010 projects\602299_LAWRENCE_Const_New_Bridge&_Rehab_Exist_Bridge_Canal_St_over_Spickett_River\Verify\Phase II Report\[Bldg #6 Boring logs.xls]b-6-1

Stone & Webster
Engineering Corporation

BORING LOG

Boring: B-6-6
Job Number: 813405
Sheet: 1 **of** 1

Site: **Oxford Paper Mill** **S&W Geologist/Eng.:** Mat Scheller

Comments: Building #2

Elev. (feet)	Depth (feet)	Sample Type	Sample No.	Blows or Recovery RQD	SPT N Value	PID (ppm)	USC Symbol	Sample Description Unified Classification System	Remarks
	8"							Concrete	
	0							Slag and brick	
	0.5' – 1'							Slag, fill, black coarse sand	
	2' – 3'							Black to brown, slag and brick, medium to coarse sand and gravel	
	4' – 5' – 6'							Light brown to brown, fine to medium sand with 10% silts	

Remarks:

Note: See Sheet 1 for Boring Summary and Ledgend Information

Approved	Date

Stone & Webster Engineering Corporation	BORING LOG	Boring: B-6-16 Job Number: 608134.05 Sheet: 1 of 1

Site: Oxford Paper Mill **S&W Geologist/Eng.:** Jason Anderson

Comments: Building #6

Elev. (feet)	Depth (feet)	Sample Type	Sample No.	Blows or Recovery RQD	SPT N V	PID (pp	USC Sym	Sample Description Unified Classification System	Remark
	24+"							Concrete/Brick	
	0			N/A		0 ppm		medium to coarse sand, coal ash, rock and brick fragments	
	0.5'			N/A		0 ppm		medium to coarse sand, coal ash, rock and brick fragments	
	1'								
	2'			N/A		0 ppm		fine sand, coal ash, rock fragments	
	3'								
	4'			N/A		0 ppm		fine wet sand, coal ash, rock fragments	
	5'								
	6'								

Remarks:

Geoprobe was used

Note:

Approved	Date
	7/22/2003

Stone & Webster Engineering Corporation	BORING LOG	Boring: B-6-15 Job Number: 608134.05 Sheet: 1 of 1

Site: Oxford Paper Mill **S&W Geologist/Eng.:** Jason Anderson

Comments: Building #6

Elev. (feet)	Depth (feet)	Sample Type	Sample No.	Blows or Recovery RQD	SPT N V	PID (pp	USC Sy	Sample Description Unified Classification System	Remark
	24+"							Concrete/Brick	
	0			N/A		0 ppm		medium sand, brick, abundant rock fragments	
	0.5'			N/A		0 ppm		fine to medium sand, coal ash, rock and brick fragments	
	1'								
	2'			N/A		0 ppm		fine to medium sand, coal ash, rock and brick fragments	
	3'								
	4'			N/A		0 ppm		fine wet sand, rock layer at 5 feet	
	5'								
	6'								

Remarks:

Geoprobe was used

Note:

Approved	Date
	7/22/2003

Stone & Webster Engineering Corporation	BORING LOG	Boring: B-6-14 Job Number: 608134.05 Sheet: 1 of 1

Site: Oxford Paper Mill **S&W Geologist/Eng.:** Jason Anderson

Comments: Building #6

Elev. (feet)	Depth (feet)	Sample Type	Sample No.	Blows or Recovery RQD	SPT N V	PID (pp	USC Sy	Sample Description Unified Classification System	Remark
	24+"							Concrete/Brick	
	0			N/A		0 ppm		medium to coarse sand, abundant rock and gravel, fill material	
	0.5'			N/A		0 ppm		fine to medium sand, some brick and gravel, lime present	
	1'								
	2'			N/A		0 ppm		fine sand	
	3'								
	4'			N/A		0 ppm		fine wet sand	
	5'								
	6'								

Remarks:

Geoprobe was used

Note:

Approved	Date
	7/22/2003

Stone & Webster
Engineering Corporation

BORING LOG

Boring: B-6-13
Job Number: 608134.05
Sheet: 1 **of** 1

Site: **Oxford Paper Mill** **S&W Geologist/Eng.:** Jason Anderson
Comments: Building #6

Elev. (feet)	Depth (feet)	Sample Type	Sample No.	Blows or Recovery RQD	SPT N V	PID (pp	USC Sym	Sample Description Unified Classification System	Remar
	24+"							Concrete/Brick	
	0			N/A		0 ppm		fine to medium sand, brick fragments, gravel, fill material	
	0.5'			N/A		0 ppm		fine to medium sand, brick fragments, gravel, fill material	
	1'								
	2'			N/A		0 ppm		fine sand, some gravel	
	3'								
	4'			N/A		0 ppm		black fine sand	
	5'								
	6'								

Remarks:

Geoprobe was used

Note:

Approved	Date
	7/21/2003

Stone & Webster
Engineering Corporation

BORING LOG

Boring: B-6-12
Job Number: 608134.05
Sheet: 1 **of** 1

Site: **Oxford Paper Mill** **S&W Geologist/Eng.:** Jason Anderson

Comments: Building #6

Elev. (feet)	Depth (feet)	Sample Type	Sample No.	Blows or Recovery RQD	SPT N V	PID (pp	USC Sy	Sample Description Unified Classification System	Remar
	36+"							Concrete/Brick	
	0			N/A		0 ppm		fine to medium sand, brick fragments, gravel, fill material	
	0.5'			N/A		0 ppm		medium to coarse sand, brick fragments, gravel, fill material	
	1'								
	2'			N/A		0 ppm		fine sand, some gravel	
	3'								
	4'			N/A		0 ppm		fine sand, soil wet	
	5'								
	6'								

Remarks:

Geoprobe was used

Note:

Approved	Date
	7/21/2003

Stone & Webster Engineering Corporation

BORING LOG

Boring: B-6-1A
Job Number: 608134.05
Sheet: 1 **of** 1

Site: **Oxford Paper Mill** **S&W Geologist/Eng.:** Jason Anderson

Comments: Building #6

Elev. (feet)	Depth (feet)	Sample Type	Sample No.	Blows or Recovery RQD	SPT N V	PID (pp	USC Syı	Sample Description Unified Classification System	Remark
24+"								Concrete/Brick	
	0			N/A		0 ppm		fine to medium sand, brick fragments, gravel, fill material	
	0.5'			N/A		0 ppm		medium to coarse sand, brick fragments, gravel, fill material	
	1'								
	2'			N/A		0 ppm		coal ash, brick fragments, gravel	
	3'								
	4'			N/A		0 ppm		medium to coarse sand, brick fragments, gravel	
	5'								
	6'								

Remarks:

Geoprobe was used

Note:

Approved	Date
	7/21/2003

Stone & Webster **Engineering Corporation**	# BORING LOG	**Boring:** B-6-7 **Job Number:** 813405 **Sheet:** 1 **of** 1

Site: **Oxford Paper Mill** **S&W Geologist/Eng.:** Mat Scheller

Comments: Building #2

Elev. (feet)	Depth (feet)	Sample Type	Sample No.	Blows or Recovery RQD	SPT N Value	PID (ppm)	USC Symbol	Sample Description Unified Classification System	Remarks
	6"							Concrete	
	0							Slag, fill, and brick	
	0.5' – 1'							Black to brown, slag, fill, medium to coarse sand, 25% gravel, with brick fragments	
	2' – 3'							Black to brown, slag, fill, medium to coarse sand, 25% gravel, with brick fragments	
	4'								
	5'							Refusal @ 4.5'	
	6'								

Remarks:

Note: See Sheet 1 for Boring Summary and Ledgend Information

Approved	Date

Stone & Webster Engineering Corporation	BORING LOG	Boring: B-28-1 Job Number: 608134 Sheet: 1 of 1

Site: Oxford Paper Mill **S&W Geologist/Eng.:** Jason Anderson

Comments: Building #28

Elev. (feet)	Depth (feet)	Sample Type	Sample No.	Blows or Recovery RQD	SPT N Value	PID (ppm)	USC Symbol	Sample Description Unified Classification System	Remarks
	8"							Concrete	
	0							Light Brown to brown, coarse sand with gravel	
	0.5'								
	1'							Dark brown, coarse sand with gravel	
	2'								
	3'							Dark brown, coarse sand with gravel	
	4'								
	5'							Light brown to tan, fine to medium sand	
	6'								

Remarks:

Note: Geoprobed used

Approved	Date
	7/20/2005

Stone & Webster **Engineering Corporation**	**BORING LOG**	**Boring:** B-28-2 **Job Number:** 608134 **Sheet:** 1 **of** 1

Site: **Oxford Paper Mill** **S&W Geologist/Eng.:** Jason Anderson

Comments: Building #28

Elev. (feet)	Depth (feet)	Sample Type	Sample No.	Blows or Recovery RQD	SPT N Value	PID (ppm)	USC Symbol	Sample Description Unified Classification System	Remarks
	8"							Concrete	
	0							Light Brown to brown, coarse sand with gravel	
	0.5' – 1'							Light Brown to brown, coarse sand with gravel	
	2' – 3'							Dark brown, fine to coarse sand with gravel - Refusal @ 3.5 feet	
	4'								
	5'								
	6'								

Remarks:

Note: Geoprobe used

Approved	Date
	7/20/2005

Stone & Webster **Engineering Corporation**	**BORING LOG**	**Boring:** B-28-3 **Job Number:** 608134 **Sheet:** 1 **of** 1

Site: **Oxford Paper Mill** **S&W Geologist/Eng.:** Jason Anderson

Comments: Building #28

Elev. (feet)	Depth (feet)	Sample Type	Sample No.	Blows or Recovery RQD	SPT N Value	PID (ppm)	USC Symbol	Sample Description Unified Classification System	Remarks
	8"							Concrete	
	0							Light Brown to brown, coarse sand with gravel	
	0.5'								
	1'							Light Brown to brown, coarse sand with gravel	
	2'								
	3'							Dark brown, fine to coarse sand with brick and gravel	
	4'								
	5'							Dark brown, fine to coarse sand with brick and gravel	
	6'								

Remarks:

Note: Geoprobe used

Approved	Date
	7/20/2005

Stone & Webster Engineering Corporation	BORING LOG	Boring: B-28-4 Job Number: 608134 Sheet: 1 of 1

Site: Oxford Paper Mill **S&W Geologist/Eng.:** Jason Anderson

Comments: Building #28

Elev. (feet)	Depth (feet)	Sample Type	Sample No.	Blows or Recovery RQD	SPT N Value	PID (ppm)	USC Symbol	Sample Description Unified Classification System	Remarks
	8"							Concrete	
	0							Light Brown to brown, coarse sand with gravel	
	0.5' – 1' – 2'							Light Brown to brown, coarse sand with gravel	
	2' – 3' – 4'							Dark brown to black, fine to coarse sand	
	4' – 5' – 6'							Dark brown to black, fine to coarse sand	

Remarks:

Note: Geoprobe used

Approved	Date
	7/20/2005

Stone & Webster
Engineering Corporation

BORING LOG

Boring: B-28-5
Job Number: 608134
Sheet: 1 **of** 1

Site: **Oxford Paper Mill** **S&W Geologist/Eng.:** Jason Anderson

Comments: Building #28

Elev. (feet)	Depth (feet)	Sample Type	Sample No.	Blows or Recovery RQD	SPT N Value	PID (ppm)	USC Symbol	Sample Description Unified Classification System	Remarks
	8"							Concrete	
	0							Light Brown to brown, coarse sand with gravel	
	0.5'								
	1'							Light Brown to brown with some white color, fine sand	
	2'								
	3'							Light Brown to brown with some white color, fine sand	
	4'								
	5'							Light Brown to brown with some white color, fine sand	
	6'								

Remarks:

Note: Geoprobe used

Approved	Date
	7/20/2005

Stone & Webster Engineering Corporation	BORING LOG	Boring: B-28-6
		Job Number: 608134
		Sheet: 1 of 1

Site: Oxford Paper Mill **S&W Geologist/Eng.:** Jason Anderson

Comments: Building #28

Elev. (feet)	Depth (feet)	Sample Type	Sample No.	Blows or Recovery RQD	SPT N Value	PID (ppm)	USC Symbol	Sample Description Unified Classification System	Remarks
	8"							Concrete	
	0							Light Brown to brown, coarse sand with gravel	
	0.5' – 1'							Light Brown to brown, coarse sand with gravel	
	2' – 3'							Dark brown, fine to coarse sand with gravel - Refusal @ 3.0 feet	
	4'								
	5'								
	6'								

Remarks:

Note: Geoprobe used

Approved	Date
	7/20/2005

Stone & Webster **Engineering Corporation**	**BORING LOG**	**Boring:** SB-1(1) **Job Number:** 608134 **Sheet:** 1 **of** 1

Site: **Oxford Paper Mill** **S&W Geologist/Eng.:** Jason Anderson

Comments: Transformer No. 6 / Courtyard Area

Elev. (feet)	Depth (feet)	Sample Type	Sample No.	Blows or Recovery / RQD	SPT N Value	PID (ppm)	USC Symbol	Sample Description / Unified Classification System	Remarks
	0 – 5'			5, 2 2, 2 (1' of recovery)				Brown to tan, fine to coarse sand, 10% gravel and fines	
	5' – 15'			2, 2 1, 1 (very little recovery)				Brown to tan, fine to medium sand, rocks present	
	15' – 25'							Refusal at 18'	
	25' – 35'								

Remarks:

SB-1(1) was approximately 3' above the Transformer No. 6 Pit elevation
MW-1 was not set due to sands infiltrating the auger

Note:

Approved	Date
	3/24/2005

Stone & Webster **Engineering Corporation**	**BORING LOG**	**Boring:** SB-1(2) **Job Number:** 608134 **Sheet:** 1 **of** 1

Site: **Oxford Paper Mill** **S&W Geologist/Eng.:** Jason Anderson

Comments: Transformer No. 6 / Courtyard Area

Elev. (feet)	Depth (feet)	Sample Type	Sample No.	Blows or Recovery RQD	SPT N Value	PID (ppm)	USC Symbol	Sample Description Unified Classification System	Remarks
	0							Brown to tan, fine to coarse sand, 10% gravel and fines	
	5'								
	10'							Brown to tan, fine to medium sand, rocks present - Refusal at 11'	
	15'								
	20'								
	25'								
	30'								
	35'								

Remarks:

SB-1(2) was approximately 3' above the Transformer No. 6 Pit elevation

Note:

Approved	Date
	3/24/2005

Stone & Webster **Engineering Corporation**	**BORING LOG**	**Boring:** SB-1(3) **Job Number:** 608134 **Sheet:** 1 **of** 1

Site: **Oxford Paper Mill** **S&W Geologist/Eng.:** Jason Anderson

Comments: Transformer No. 6 / Courtyard Area

Elev. (feet)	Depth (feet)	Sample Type	Sample No.	Blows or Recovery RQD	SPT N Value	PID (ppm)	USC Symbol	Sample Description Unified Classification System	Remarks
	0							Brown to tan, fine to coarse sand, 10% gravel and fines	
	5'								
	10'							Brown to tan, fine to medium sand, rocks present - Refusal at 9'	
	15'								
	20'								
	25'								
	30'								
	35'								

Remarks:

SB-1(3) was approximately 3' above the Transformer No. 6 Pit elevation

Note:

Approved	Date
	3/24/2005

Stone & Webster **Engineering Corporation**	**BORING LOG**	**Boring:** SB-1(4) **Job Number:** 608134 **Sheet:** 1 **of** 1

Site: **Oxford Paper Mill** **S&W Geologist/Eng.:** Jason Anderson

Comments: Transformer No. 6 / Courtyard Area

Elev. (feet)	Depth (feet)	Sample Type	Sample No.	Blows or Recovery / RQD	SPT N Value	PID (ppm)	USC Symbol	Sample Description / Unified Classification System	Remarks
	0							Brown to tan, fine to coarse sand, 10% gravel and fines	
	5'								
	10'							Brown to tan, fine to medium sand, rocks present - Refusal at 13'	
	15'								
	20'								
	25'								
	30'								
	35'								

Remarks:

SB-1(4) was approximately 3' above the Transformer No. 6 Pit elevation

Note:

Approved	Date
	3/24/2005

Stone & Webster
Engineering Corporation

BORING LOG

Boring: SB-2
Job Number: 608134
Sheet: 1 **of** 1

Site: **Oxford Paper Mill** **S&W Geologist/Eng.:** Jason Anderson

Comments: Transformer No. 6 / Courtyard Area

Elev. (feet)	Depth (feet)	Sample Type	Sample No.	Blows or Recovery / RQD	SPT N Value	PID (ppm)	USC Symbol	Sample Description / Unified Classification System	Remarks
	0			9, 32 55, 49 (1.5' of recovery)				Light brown to gray, fine to coarse sand, 10% gravel and fines	
	5' 10'			18, 28 32, 35 (6" of recovery)				Light brown to gray, fine to coarse sand, gravel present	
	15' 20'			80, 85 82, 90 (2' of recovery)				Coarse sand and gravel, silt / clay at approximately 25'	
	25' 30' 35'								

Remarks:

Note:

Approved	Date
	3/23/2005

Stone & Webster **Engineering Corporation**	**BORING LOG**	**Boring:** SB-4(1) **Job Number:** 608134 **Sheet:** 1 **of** 1

Site: **Oxford Paper Mill** **S&W Geologist/Eng.:** Jason Anderson

Comments: Transformer No. 6 / Courtyard Area

Elev. (feet)	Depth (feet)	Sample Type	Sample No.	Blows or Recovery RQD	SPT N Value	PID (ppm)	USC Symbol	Sample Description Unified Classification System	Remarks
	0			9, 6 6, 7 (8" of recovery)				Fine sand with gravel	
	5'								
	10'							Light brown to gray, fine to medium sand, gravel present - Refusal at 11.5'	
	15'								
	20'								
	25'								
	30'								
	35'								

Remarks:

Note:

Approved	Date
	3/22/2005

Stone & Webster
Engineering Corporation

BORING LOG

Boring: SB-4(2)
Job Number: 608134
Sheet: 1 **of** 1

Site: **Oxford Paper Mill** **S&W Geologist/Eng.:** Jason Anderson

Comments: Transformer No. 6 / Courtydard Area

Elev. (feet)	Depth (feet)	Sample Type	Sample No.	Blows or Recovery / RQD	SPT N Value	PID (ppm)	USC Symbol	Sample Description / Unified Classification System	Remarks
	0 – 5'			4, 4 9, 9 (1' of recovery)				Fine sand with gravel	
	5' – 15'							Light brown to gray, fine to medium sand, gravel present - Refusal at 13'	
	15'								
	20'								
	25'								
	30'								
	35'								

Remarks:

Note:

Approved	Date
	3/22/2005

Stone & Webster Engineering Corporation	BORING LOG	Boring: SB-6(1) Job Number: 608134 Sheet: 1 of 1

Site: Oxford Paper Mill **S&W Geologist/Eng.:** Jason Anderson

Comments: Transformer No. 6 / Courtyard Area

Elev. (feet)	Depth (feet)	Sample Type	Sample No.	Blows or Recovery / RQD	SPT N Value	PID (ppm)	USC Symbol	Sample Description / Unified Classification System	Remarks
	0			1, 1 1, 2 (2' of recovery)				Fine sand with gravel	
	5'							Light brown to gray, fine to medium sand, gravel present - Refusal at 11'	
	10'								
	15'								
	20'								
	25'								
	30'								
	35'								

Remarks:

Note:

Approved	Date
	3/22/2005

Stone & Webster Engineering Corporation	BORING LOG	Boring: SB-6(2) Job Number: 608134 Sheet: 1 of 1

Site: **Oxford Paper Mill** **S&W Geologist/Eng.:** Jason Anderson

Comments: Transformer No. 6 / Courtyard Area

Elev. (feet)	Depth (feet)	Sample Type	Sample No.	Blows or Recovery RQD	SPT N Value	PID (ppm)	USC Symbol	Sample Description Unified Classification System	Remarks
	0							Fine sand with gravel	
	5'								
	10'							Light brown to gray, fine to medium sand, gravel present - Refusal at 8'	
	15'								
	20'								
	25'								
	30'								
	35'								

Remarks:

Note:

Approved	Date
	3/22/2005

Stone & Webster Engineering Corporation	BORING LOG	Boring: SB-7 Job Number: 608134 Sheet: 1 of 1

Site: **Oxford Paper Mill** **S&W Geologist/Eng.:** Jason Anderson

Comments: Transformer No. 6 / Courtyard Area

Elev. (feet)	Depth (feet)	Sample Type	Sample No.	Blows or Recovery / RQD	SPT N Value	PID (ppm)	USC Symbol	Sample Description / Unified Classification System	Remarks
	0			1, 2 1, 3 (2' of recovery)				Fine sand with gravel	
	5'								
	10'			51, 22 23, 68 (1.5' of recovery)				Light brown to gray, fine to coarse sand, gravel present - Refusal at 15'	
	15'								
	20'								
	25'								
	30'								
	35'								

Remarks:

Note:

Approved	Date
	3/21/2005

Stone & Webster Engineering Corporation	BORING LOG	Boring: SB-8 Job Number: 608134 Sheet: 1 of 1

Site: Oxford Paper Mill **S&W Geologist/Eng.:** Jason Anderson

Comments: Transformer No. 6 / Courtyard Area

Elev. (feet)	Depth (feet)	Sample Type	Sample No.	Blows or Recovery RQD	SPT N Value	PID (ppm)	USC Symbol	Sample Description Unified Classification System	Remarks
	0			3, 3 4, 5 (2' of recovery)				Fine sand with gravel	
	5'								
	10'			30, 31 30, 28 (1.5' of recovery)				Light brown to gray, fine to coarse sand, gravel present	
	15'								
	20'							Light brown to gray, fine to coarse sand, gravel present - Refusal at 22'	
	25'								
	30'								
	35'								

Remarks:

Note:

Approved	Date
	3/21/2005

Stone & Webster **Engineering Corporation**	**BORING LOG**	**Boring:** SB-9 **Job Number:** 608134 **Sheet:** 1 **of** 1

Site: **Oxford Paper Mill** **S&W Geologist/Eng.:** Jason Anderson

Comments: Transformer No. 6 / Courtyard Area

Elev. (feet)	Depth (feet)	Sample Type	Sample No.	Blows or Recovery RQD	SPT N Value	PID (ppm)	USC Symbol	Sample Description Unified Classification System	Remarks
	0							Fine sand with gravel	
				1, 1 1, 2 (2' of recovery)					
	5'							Light brown to gray, fine to coarse sand, gravel present	
	10'								
				30, 32 41, 75 (4" of recovery)					
	15'			31, 70 44, 55 (8" of recovery)				Light brown to gray, small to medium sized gravel with some sand	
	20'								
				72, 87 89, 85 (2' of recovery)					
	25'								
	30'								
	35'								

Remarks:

Note:

Approved	Date
	3/21/2005

Stone & Webster **Engineering Corporation**	**BORING LOG**	**Boring:** SB-10 **Job Number:** 608134 **Sheet:** 1 **of** 1

Site: **Oxford Paper Mill** **S&W Geologist/Eng.:** Jason Anderson

Comments: Transformer No. 6 / Courtyard Area

Elev. (feet)	Depth (feet)	Sample Type	Sample No.	Blows or Recovery RQD	SPT N Value	PID (ppm)	USC Symbol	Sample Description Unified Classification System	Remarks
	0							Fine to medium sand	
				3' of recovery					
	5'							Light brown to gray, fine to coarse sand, gravel present	
	10'								
				3' of recovery					
	15'							Gray, fine to coarse sand with gravel present	
	20'								
				3' of recovery					
	25'								
	30'								
	35'								

Remarks:
Depths above are in reference to feet below Transformer No. 6 grade (SB -10 grade is approximately 6 feet above Transformer No. 6 grade)

Note:

Approved	Date
	5/11/2005

Stone & Webster
Engineering Corporation

BORING LOG

Boring: SB-11
Job Number: 608134
Sheet: 1 **of** 1

Site: **Oxford Paper Mill** **S&W Geologist/Eng.:** Jason Anderson

Comments: Transformer No. 6 / Courtyard Area

Elev. (feet)	Depth (feet)	Sample Type	Sample No.	Blows or Recovery / RQD	SPT N Value	PID (ppm)	USC Symbol	Sample Description / Unified Classification System	Remarks
	0			3.5' of recovery				Light brown, fine to medium sand with no gravel	
	5'			3' of recovery				Light brown to gray, coarse sand with gravel	
	10'								
	15'			3' of recovery				Gray, coarse sand with gravel present	
	20'								
	25'								
	30'								
	35'								

Remarks:
Depths above are in reference to feet below Transformer No. 6 grade (SB -11 grade is approximately 2 feet above Transformer No. 6 grade)

Note:

Approved	Date
	5/10/2005

Stone & Webster
Engineering Corporation

BORING LOG

Boring: SB-12
Job Number: 608134
Sheet: 1 **of** 1

Site: **Oxford Paper Mill** **S&W Geologist/Eng.:** Jason Anderson

Comments: Transformer No. 6 / Courtyard Area

Elev. (feet)	Depth (feet)	Sample Type	Sample No.	Blows or Recovery RQD	SPT N Value	PID (ppm)	USC Symbol	Sample Description Unified Classification System	Remarks
	0			3' of recovery				Light brown, fine to medium sand with gravel present	
	5'								
	10'			2' of recovery				Light brown to gray, coarse sand with gravel present	
	15'								
	20'			3' of recovery				Gray, coarse sand with gravel present	
	25'								
	30'								
	35'								

Remarks:
Depths above are in reference to feet below Transformer No. 6 grade (SB -12 grade is approximately 2 feet above Transformer No. 6 grade)

Note:

Approved	Date
	5/11/2005

Stone & Webster **Engineering Corporation**	**BORING LOG**	**Boring:** SB-13 **Job Number:** 608134 **Sheet:** 1 **of** 1

Site: **Oxford Paper Mill** **S&W Geologist/Eng.:** Jason Anderson

Comments: Transformer No. 6 / Courtyard Area

Elev. (feet)	Depth (feet)	Sample Type	Sample No.	Blows or Recovery / RQD	SPT N Value	PID (ppm)	USC Symbol	Sample Description — Unified Classification System	Remarks
	0							Light brown, fine to medium sand with gravel present	
				2' of recovery					
	5'							Light brown to gray, coarse sand with gravel present	
	10'								
				1' of recovery					
	15'							Gray, coarse sand with gravel present	
	20'								
				2.5' of recovery					
	25'								
	30'								
	35'								

Remarks:
Depths above are in reference to feet below Transformer No. 6 grade (SB -13 grade is approximately 2 feet above Transformer No. 6 grade)

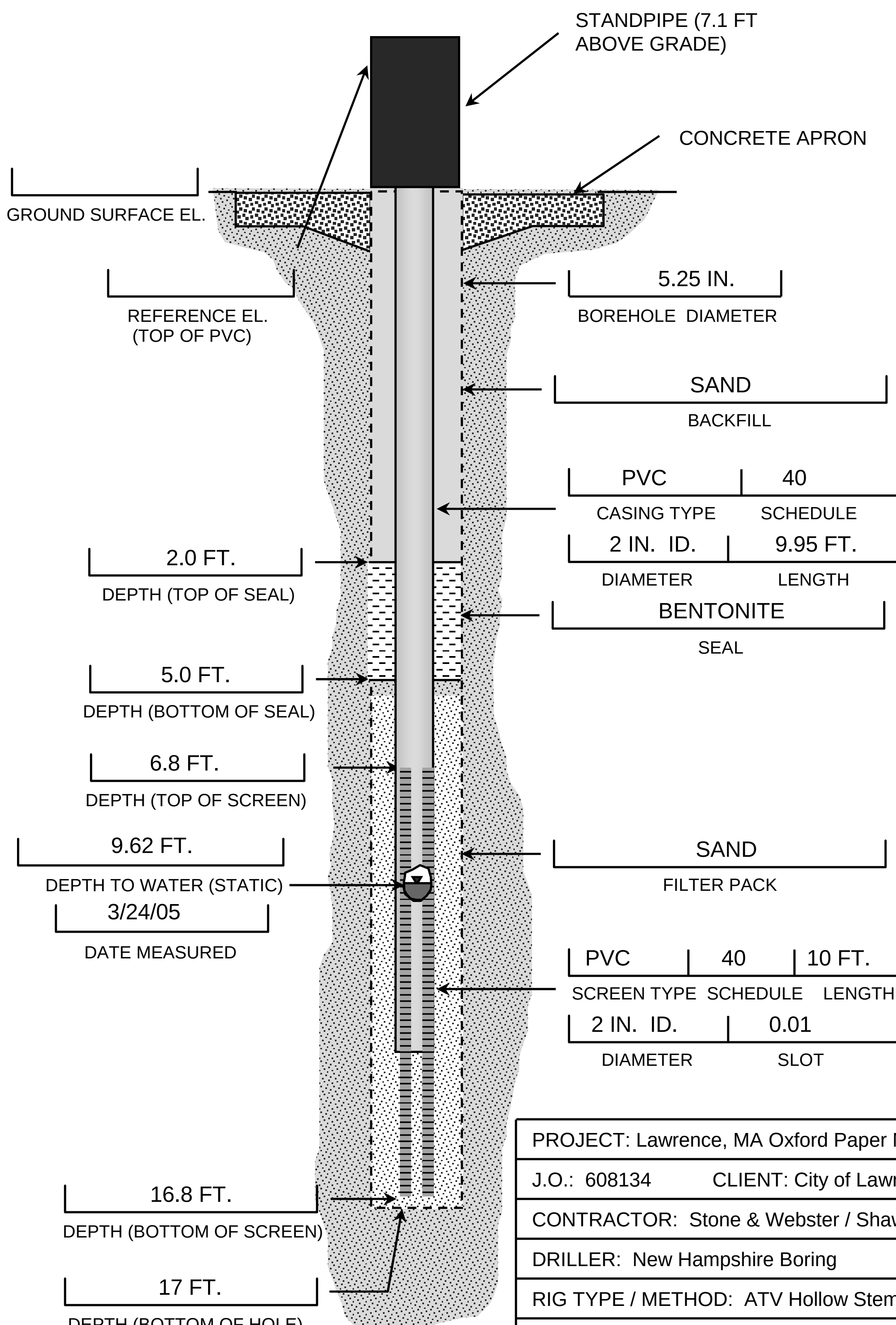
Note:

Approved	Date
	5/10/2005

NOTES:

1. ALL DEPTHS MEASURED AS BGS. UNLESS OTHERWISE NOTED.
2. DRAWING NOT TO SCALE.

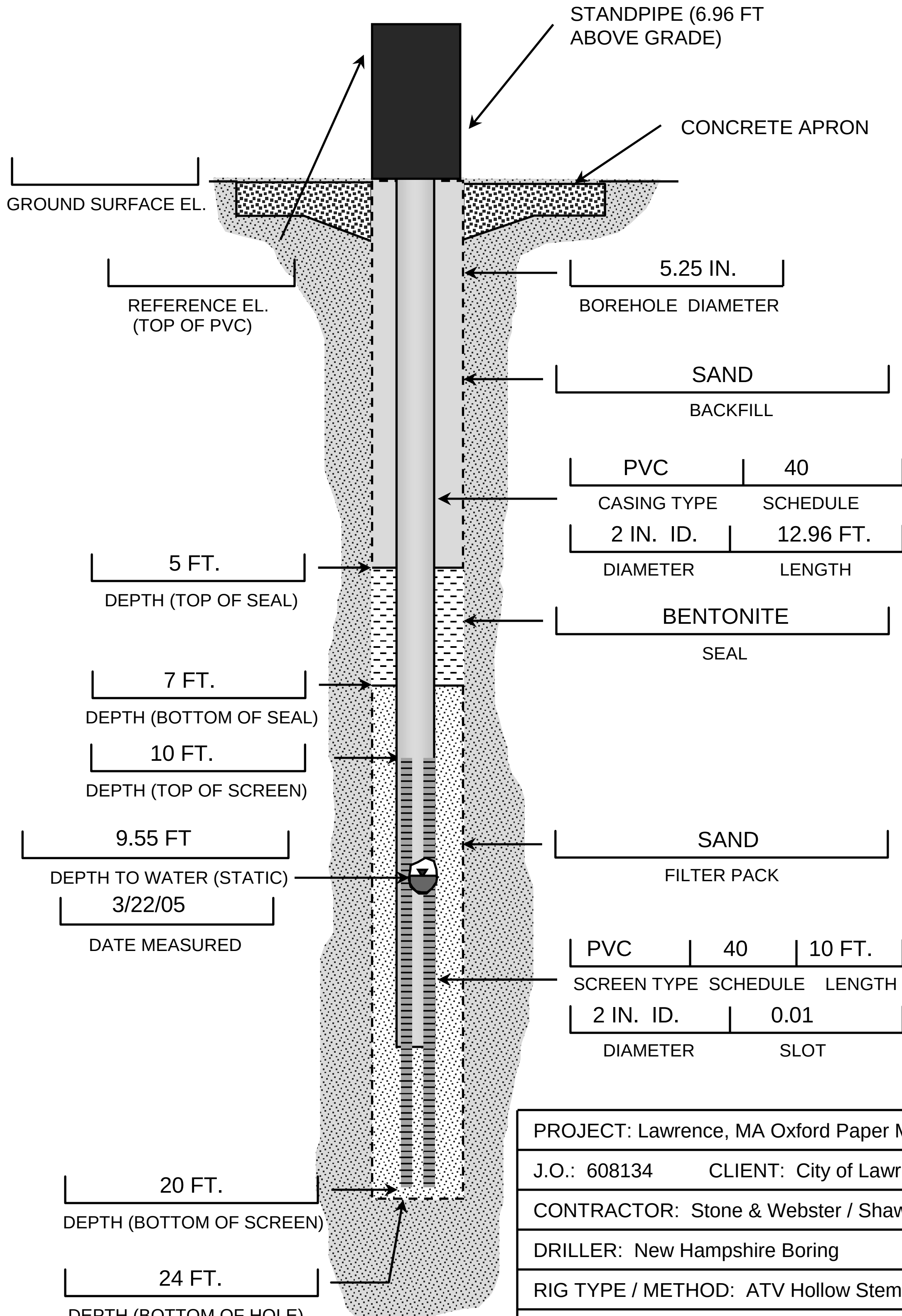
MONITORING WELL LOG
MW - 2



PROJECT: Lawrence, MA Oxford Paper Mill
J.O.: 608134 CLIENT: City of Lawrence
CONTRACTOR: Stone & Webster / Shaw
DRILLER: New Hampshire Boring
RIG TYPE / METHOD: ATV Hollow Stemmed Auger
STARTED: 3/24/05 COMPLETED: 3/24/05

NOTES:
1. ALL DEPTHS MEASURED AS BGS. UNLESS OTHERWISE NOTED.
2. DRAWING NOT TO SCALE.

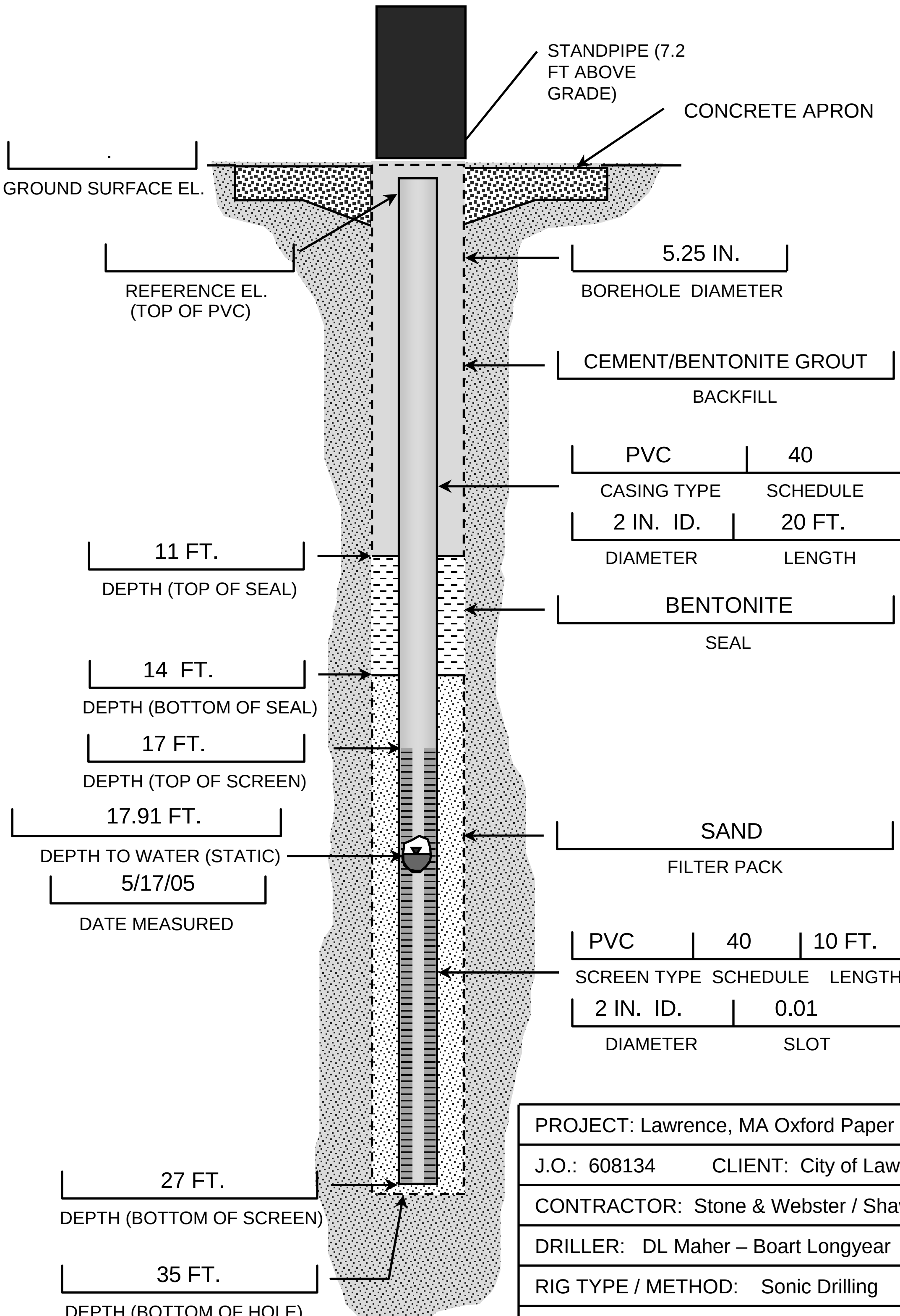
MONITORING WELL LOG
MW - 9



PROJECT: Lawrence, MA Oxford Paper Mill	
J.O.: 608134	CLIENT: City of Lawrence
CONTRACTOR: Stone & Webster / Shaw	
DRILLER: New Hampshire Boring	
RIG TYPE / METHOD: ATV Hollow Stemmed Auger	
STARTED: 3/2205	COMPLETED: 3/22/05

NOTES:
1. ALL DEPTHS MEASURED AS BGS. UNLESS OTHERWISE NOTED.
2. DRAWING NOT TO SCALE.

MONITORING WELL LOG
MW - 10



PROJECT: Lawrence, MA Oxford Paper Mill

J.O.: 608134 CLIENT: City of Lawrence

CONTRACTOR: Stone & Webster / Shaw

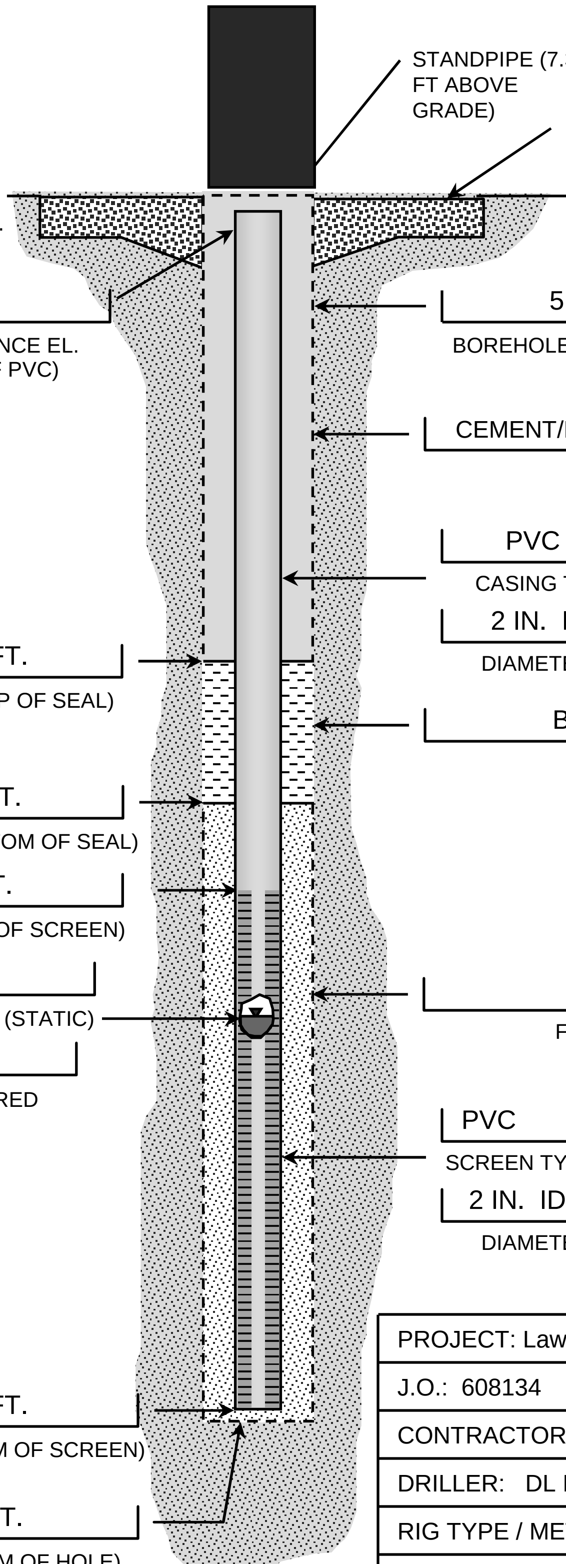
DRILLER: DL Maher – Boart Longyear

RIG TYPE / METHOD: Sonic Drilling

STARTED: 5/11/05 COMPLETED: 5/11/05

MONITORING WELL LOG
MW - 11

NOTES:
1. ALL DEPTHS MEASURED AS BGS. UNLESS OTHERWISE NOTED.
2. DRAWING NOT TO SCALE.



STANDPIPE (7.3 FT ABOVE GRADE)

CONCRETE APRON

.
GROUND SURFACE EL.

REFERENCE EL. (TOP OF PVC)

5.25 IN.
BOREHOLE DIAMETER

CEMENT/BENTONITE GROUT
BACKFILL

PVC	40
CASING TYPE	SCHEDULE
2 IN. ID.	12 FT.
DIAMETER	LENGTH

5.0 FT.
DEPTH (TOP OF SEAL)

BENTONITE
SEAL

7.0 FT.
DEPTH (BOTTOM OF SEAL)

9.0 FT.
DEPTH (TOP OF SCREEN)

9.60 FT.
DEPTH TO WATER (STATIC)

5/10/05
DATE MEASURED

SAND
FILTER PACK

PVC	40	10 FT.
SCREEN TYPE	SCHEDULE	LENGTH
2 IN. ID.	0.01	
DIAMETER	SLOT	

19 FT.
DEPTH (BOTTOM OF SCREEN)

27 FT.
DEPTH (BOTTOM OF HOLE)

PROJECT: Lawrence, MA Oxford Paper Mill	
J.O.: 608134	CLIENT: City of Lawrence
CONTRACTOR: Stone & Webster / Shaw	
DRILLER: DL Maher – Boart Longyear	
RIG TYPE / METHOD: Sonic Drilling	
STARTED: 5/10/05	COMPLETED: 5/10/05

Appendix B

Building No. 1 Laboratory Analytical Report

STL WESTFIELD/BILLERICA
DATA REPORTING QUALIFIERS AND TERMINOLOGY

A number of data qualifiers are widely used within the environmental testing industry and may be utilized in our data reports. The following definitions of these qualifiers are included as a service to our clientele. The majority of the qualifiers have evolved from the EPA contract laboratory program (CLP).

ORGANIC QUALIFIERS

U - Indicates that the compound was analyzed for but not detected. The sample detection limit is corrected for dilution and percent moisture. This detection limit is not necessarily the instrument detection limit.

J - Indicates an estimated value. This qualifier is used when mass spectral data indicates the presence of a compound that meets the identification criteria and the result is less than the specified quantitation limit but no less than one-half the quantitation limit. Common laboratory contaminants are not reported below the quantitation limit.

B - Indicates that the analyte was found in both the sample and its associated laboratory blank. It indicates possible/probable blank contamination and warns the data user to use caution when applying the results of this analyte. Common laboratory contaminants in applicable method blanks are reported with J qualifiers to one-tenth the quantitation limit.

E - This qualifier indicates compounds whose concentrations exceed the calibration range of the instrument for the specific analysis.

D - Indicates all compounds identified in an analysis at a secondary dilution factor.

RE - This suffix indicates a re-analyzed sample and is appended to the sample number on the result form.

RR - This suffix indicates a re-extracted and re-analyzed sample and is appended to the sample number on the result form.

INORGANICS

U - Indicates that the analyte was analyzed for but not detected.

E - Indicates an estimated value because of the presence of interference.

RPQ00101.MA

CASE NARRATIVE FOR REPORT NUMBER 29816

Client Name : Stone & Webster

Project Name : 0813405

Date : August 16, 2001

Sample No.	Sample ID	Comments
(180745)	B-1-1 (0.0-0.5)	
(180746)	B-1-2 (0.0-0.5)	
(180747)	B-1-3 (0.0-0.5)	
(180748)	B-1-4 (0.0-0.5)	
(180749)	B-1-5 (0.0-0.5)	
(180750)	B-1-7 (0.0-0.5)	
(180751)	B-5-1 (0.0-0.5)	
(180752)	B-1-6 (0.0-0.5)	
(180827)	DUP 2	
(180828)	DUP 1	
(180829)	TRIP BLANK	

VPH/EPH CERTIFICATION

Job Number: 29816

The samples in this data set were analyzed by the MADEP VPH and/or EPH Methods (Revision 0 January 1998). The following information is provided relative to sample receipt, QA/QC procedures and method modifications.

Sample Receipt and Analysis:

- Sample containers were received in satisfactory condition.
- Samples were received at 4±2°C or on ice.
- Aqueous samples were preserved properly.
- VPH soil samples were properly preserved with methanol (1:1 ± 25%; covered soil).
- EPH water and soil samples are prepared for analysis by liquid-liquid and sonication extraction, respectively.

Reporting Conventions:

- The Unadjusted C11-C22 aromatic range excludes concentrations of any surrogate(s) and/or internal standards eluting in that range.
- C11-C22 aromatic hydrocarbons exclude the concentration of target PAH analytes.
- Unadjusted VPH ranges exclude the concentrations of any surrogate(s) and/or internal standards eluting in that range.
- C5-C8 aliphatic hydrocarbons exclude the concentrations of target analytes eluting in that range.
- C9-C12 aliphatic hydrocarbons exclude the concentration of target analytes eluting in that range and the concentration of C9-C10 aromatic hydrocarbons.

QA/QC Procedures:

- All QA/QC procedures required by the EPH/VPH Methods were followed. All Method performance/acceptance standards were achieved with the following exception. In the EPH analysis the recovery performance for the lowest molecular weight aliphatic marker, (C9), is considered advisory. The method specified surrogate standard recovery ranges are 40%-140% (EPH) and 70%-130% (VPH).

Method Modifications:

- Sample and standard chromatograms are corrected for column bleed and a single component contaminant from the SPE cartridge.

Certification:

The signature on the report cover page serves as the attestation for the method specified certification:

> *I attest under the pains of perjury that, based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.*

Inorganics Analysis Data Sheet

Client ID :	B-1-1 (0.0-0.5)	Report No :	29816
Client Name :	Stone & Webster	STL Sample Number :	180745
Project Name :	0813405	Date Collected :	8/8/01
Matrix Name :	Soil	Date Received :	8/9/01

CAS NO	Analyte	Result	Units	Method	Date Analyzed	By
	Solids, percent	76.0	%	EPA 160.3	8/13/01	GRB
7440-38-2	Arsenic	5.2	mg/kg dry	SW8466010B	8/15/01	RC
7440-39-3	Barium	19	mg/kg dry	SW8466010B	8/15/01	RC
7440-41-7	Beryllium	0.3U	mg/kg dry	SW8466010B	8/15/01	RC
7440-43-9	Cadmium	0.3U	mg/kg dry	SW8466010B	8/15/01	RC
7440-47-3	Chromium	12	mg/kg dry	SW8466010B	8/15/01	RC
7439-92-1	Lead	5.2	mg/kg dry	SW8466010B	8/15/01	RC
7439-97-6	Mercury	0.06U	mg/kg dry	SW8467471A	8/15/01	RC
7782-49-2	Selenium	1U	mg/kg dry	SW8466010B	8/15/01	RC
7440-22-4	Silver	1U	mg/kg dry	SW8466010B	8/15/01	RC
7440-66-6	Zinc	24	mg/kg dry	SW8466010B	8/15/01	RC

Inorganics Analysis Data Sheet

Client ID :	B-1-2 (0.0-0.5)	Report No :	29816
Client Name :	Stone & Webster	STL Sample Number :	180746
Project Name :	0813405	Date Collected :	8/9/01
Matrix Name :	Soil	Date Received :	8/9/01

CAS NO	Analyte	Result	Units	Method	Date Analyzed	By
	Solids, percent	82.0	%	EPA 160.3	8/13/01	GRB

Inorganics Analysis Data Sheet

Client ID :	B-1-3 (0.0-0.5)	Report No :	29816
Client Name :	Stone & Webster	STL Sample Number :	180747
Project Name :	0813405	Date Collected :	8/9/01
Matrix Name :	Soil	Date Received :	8/9/01

CAS NO	Analyte	Result	Units	Method	Date Analyzed	By
	Solids, percent	89.2	%	EPA 160.3	8/13/01	GRB
7440-38-2	Arsenic	2.3	mg/kg dry	SW8466010B	8/15/01	RC
7440-39-3	Barium	30	mg/kg dry	SW8466010B	8/15/01	RC
7440-41-7	Beryllium	0.2U	mg/kg dry	SW8466010B	8/15/01	RC
7440-43-9	Cadmium	0.2U	mg/kg dry	SW8466010B	8/15/01	RC
7440-47-3	Chromium	21	mg/kg dry	SW8466010B	8/15/01	RC
7439-92-1	Lead	12	mg/kg dry	SW8466010B	8/15/01	RC
7439-97-6	Mercury	0.05U	mg/kg dry	SW8467471A	8/15/01	RC
7782-49-2	Selenium	1U	mg/kg dry	SW8466010B	8/15/01	RC
7440-22-4	Silver	1U	mg/kg dry	SW8466010B	8/15/01	RC
7440-66-6	Zinc	44	mg/kg dry	SW8466010B	8/15/01	RC

Inorganics Analysis Data Sheet

Client ID :	B-1-4 (0.0-0.5)	Report No :	29816
Client Name :	Stone & Webster	STL Sample Number :	180748
Project Name :	0813405	Date Collected :	8/9/01
Matrix Name :	Soil	Date Received :	8/9/01

CAS NO	Analyte	Result	Units	Method	Date Analyzed	By
	Solids, percent	91.2	%	EPA 160.3	8/13/01	GRB
7440-38-2	Arsenic	8.0	mg/kg dry	SW8466010B	8/15/01	RC
7440-39-3	Barium	43	mg/kg dry	SW8466010B	8/15/01	RC
7440-41-7	Beryllium	0.29	mg/kg dry	SW8466010B	8/15/01	RC
7440-43-9	Cadmium	0.2U	mg/kg dry	SW8466010B	8/15/01	RC
7440-47-3	Chromium	12	mg/kg dry	SW8466010B	8/15/01	RC
7439-92-1	Lead	58	mg/kg dry	SW8466010B	8/15/01	RC
7439-97-6	Mercury	0.068	mg/kg dry	SW8467471A	8/15/01	RC
7782-49-2	Selenium	1U	mg/kg dry	SW8466010B	8/15/01	RC
7440-22-4	Silver	1.2	mg/kg dry	SW8466010B	8/15/01	RC
7440-66-6	Zinc	94	mg/kg dry	SW8466010B	8/15/01	RC

Inorganics Analysis Data Sheet

Client ID :	B-1-5 (0.0-0.5)	Report No :	29816
Client Name :	Stone & Webster	STL Sample Number :	180749
Project Name :	0813405	Date Collected :	8/9/01
Matrix Name :	Soil	Date Received :	8/9/01

CAS NO	Analyte	Result	Units	Method	Date Analyzed	By
	Solids, percent	87.7	%	EPA 160.3	8/13/01	GRB
7440-38-2	Arsenic	11	mg/kg dry	SW8466010B	8/15/01	RC
7440-39-3	Barium	67	mg/kg dry	SW8466010B	8/15/01	RC
7440-41-7	Beryllium	0.2U	mg/kg dry	SW8466010B	8/15/01	RC
7440-43-9	Cadmium	0.2U	mg/kg dry	SW8466010B	8/15/01	RC
7440-47-3	Chromium	32	mg/kg dry	SW8466010B	8/15/01	RC
7439-92-1	Lead	11	mg/kg dry	SW8466010B	8/15/01	RC
7439-97-6	Mercury	0.049	mg/kg dry	SW8467471A	8/15/01	RC
7782-49-2	Selenium	1U	mg/kg dry	SW8466010B	8/15/01	RC
7440-22-4	Silver	1U	mg/kg dry	SW8466010B	8/15/01	RC
7440-66-6	Zinc	38	mg/kg dry	SW8466010B	8/15/01	RC

Inorganics Analysis Data Sheet

Client ID :	B-1-7 (0.0-0.5)	Report No :	29816
Client Name :	Stone & Webster	STL Sample Number :	180750
Project Name :	0813405	Date Collected :	8/9/01
Matrix Name :	Soil	Date Received :	8/9/01

CAS NO	Analyte	Result	Units	Method	Date Analyzed	By
	Solids, percent	91.2	%	EPA 160.3	8/13/01	GRB
7440-38-2	Arsenic	6.2	mg/kg dry	SW8466010B	8/15/01	RC
7440-39-3	Barium	120	mg/kg dry	SW8466010B	8/16/01	RC
7440-41-7	Beryllium	0.2U	mg/kg dry	SW8466010B	8/15/01	RC
7440-43-9	Cadmium	0.2U	mg/kg dry	SW8466010B	8/15/01	RC
7440-47-3	Chromium	25	mg/kg dry	SW8466010B	8/15/01	RC
7439-92-1	Lead	30	mg/kg dry	SW8466010B	8/15/01	RC
7439-97-6	Mercury	0.078	mg/kg dry	SW8467471A	8/15/01	RC
7782-49-2	Selenium	1U	mg/kg dry	SW8466010B	8/15/01	RC
7440-22-4	Silver	3.3	mg/kg dry	SW8466010B	8/15/01	RC
7440-66-6	Zinc	45	mg/kg dry	SW8466010B	8/15/01	RC

Client ID :	B-1-6 (0.0-0.5)	Report No :	29816
Client Name :	Stone & Webster	STL Sample Number :	180752
Project Name :	0813405	Date Collected :	8/9/01
Matrix Name :	Soil	Date Received :	8/9/01

CAS NO	Analyte	Result	Units	Method	Date Analyzed	By
	Solids, percent	89.5	%	EPA 160.3	8/13/01	GRB

Inorganics Analysis Data Sheet

Client ID :	DUP 2	Report No :	29816
Client Name :	Stone & Webster	STL Sample Number :	180827
Project Name :	0813405	Date Collected :	8/9/01
Matrix Name :	Soil	Date Received :	8/9/01

CAS NO	Analyte	Result	Units	Method	Date Analyzed	By
	Solids, percent	90.7	%	EPA 160.3	8/13/01	GRB

Pesticides/PCB Organics Analysis Data Sheet
SW8468081A

Client ID :	DUP 1	Report No :	29816
Client Name :	Stone & Webster	STL Sample Number :	180828
Project Name :	0813405	Lab File ID :	H10090
Matrix :	Soil	Date Collected :	8/9/01
Sample Wt/Vol :	10.0g	Date Received :	8/9/01
% Solid :	75.8	Date Extracted :	8/13/01
GPC Clean up :		Date Analyzed :	8/15/01
Sulfur Clean up :		By :	SH
Dilution Factor :	1		

CAS NO	Compound	Reporting Limit ug/kg dry	Concentration ug/kg dry
319-85-7	beta-BHC	13	U

Pesticides/PCB Organics Analysis Data Sheet

SW8468082A

Client ID :	B-1-1 (0.0-0.5)	Report No :	29816
Client Name :	Stone & Webster	STL Sample Number :	180745
Project Name :	0813405	Lab File ID :	H10082
Matrix :	Soil	Date Collected :	8/8/01
Sample Wt/Vol :	10.3g	Date Received :	8/9/01
% Solid :	76.0	Date Extracted :	8/13/01
GPC Clean up :		Date Analyzed :	8/15/01
Sulfur Clean up :		By :	SH
Dilution Factor :	1		

CAS NO	Compound	Reporting Limit ug/kg dry	Concentration ug/kg dry
12674-11-2	Arochlor-1016	130	U
11104-28-2	Arochlor-1221	130	U
11141-16-5	Arochlor-1232	130	U
53469-21-9	Arochlor-1242	130	U
12672-29-6	Arochlor-1248	130	U
11097-69-1	Arochlor-1254	130	U
11096-82-5	Arochlor-1260	130	U

Pesticides/PCB Organics Analysis Data Sheet

SW8468082A

Client ID :	B-1-2 (0.0-0.5)	Report No :	29816
Client Name :	Stone & Webster	STL Sample Number :	180746
Project Name :	0813405	Lab File ID :	H10093
Matrix :	Soil	Date Collected :	8/9/01
Sample Wt/Vol :	10.6g	Date Received :	8/9/01
% Solid :	82.0	Date Extracted :	8/13/01
GPC Clean up :		Date Analyzed :	8/15/01
Sulfur Clean up :		By :	SH
Dilution Factor :	1		

CAS NO	Compound	Reporting Limit ug/kg dry	Concentration ug/kg dry
12674-11-2	Arochlor-1016	110	U
11104-28-2	Arochlor-1221	110	U
11141-16-5	Arochlor-1232	110	U
53469-21-9	Arochlor-1242	110	U
12672-29-6	Arochlor-1248	110	U
11097-69-1	Arochlor-1254	110	U
11096-82-5	Arochlor-1260	110	U

Pesticides/PCB Organics Analysis Data Sheet

SW8468082A

Client ID :	B-1-3 (0.0-0.5)	Report No :	29816
Client Name :	Stone & Webster	STL Sample Number :	180747
Project Name :	0813405	Lab File ID :	H10083
Matrix :	Soil	Date Collected :	8/9/01
Sample Wt/Vol :	10.5g	Date Received :	8/9/01
% Solid :	89.2	Date Extracted :	8/13/01
GPC Clean up :		Date Analyzed :	8/15/01
Sulfur Clean up :		By :	SH
Dilution Factor :	1		

CAS NO	Compound	Reporting Limit ug/kg dry	Concentration ug/kg dry
12674-11-2	Arochlor-1016	110	U
11104-28-2	Arochlor-1221	110	U
11141-16-5	Arochlor-1232	110	U
53469-21-9	Arochlor-1242	110	U
12672-29-6	Arochlor-1248	110	U
11097-69-1	Arochlor-1254	110	U
11096-82-5	Arochlor-1260	110	U

Pesticides/PCB Organics Analysis Data Sheet

SW8468082A

Client ID :	B-1-4 (0.0-0.5)	Report No :	29816
Client Name :	Stone & Webster	STL Sample Number :	180748
Project Name :	0813405	Lab File ID :	H10084
Matrix :	Soil	Date Collected :	8/9/01
Sample Wt/Vol :	10.0g	Date Received :	8/9/01
% Solid :	91.2	Date Extracted :	8/13/01
GPC Clean up :		Date Analyzed :	8/15/01
Sulfur Clean up :		By :	SH
Dilution Factor :	1		

CAS NO	Compound	Reporting Limit ug/kg dry	Concentration ug/kg dry
12674-11-2	Arochlor-1016	110	U
11104-28-2	Arochlor-1221	110	U
11141-16-5	Arochlor-1232	110	U
53469-21-9	Arochlor-1242	110	U
12672-29-6	Arochlor-1248	110	U
11097-69-1	Arochlor-1254	110	U
11096-82-5	Arochlor-1260	110	U

Pesticides/PCB Organics Analysis Data Sheet

SW8468082A

Client ID :	B-1-5 (0.0-0.5)	Report No :	29816
Client Name :	Stone & Webster	STL Sample Number :	180749
Project Name :	0813405	Lab File ID :	H10085
Matrix :	Soil	Date Collected :	8/9/01
Sample Wt/Vol :	10.1g	Date Received :	8/9/01
% Solid :	87.7	Date Extracted :	8/13/01
GPC Clean up :		Date Analyzed :	8/15/01
Sulfur Clean up :		By :	SH
Dilution Factor :	1		

CAS NO	Compound	Reporting Limit ug/kg dry	Concentration ug/kg dry
12674-11-2	Arochlor-1016	110	U
11104-28-2	Arochlor-1221	110	U
11141-16-5	Arochlor-1232	110	U
53469-21-9	Arochlor-1242	110	U
12672-29-6	Arochlor-1248	110	U
11097-69-1	Arochlor-1254	110	U
11096-82-5	Arochlor-1260	110	U

Pesticides/PCB Organics Analysis Data Sheet

SW8468082A

Client ID :	B-1-7 (0.0-0.5)	Report No :	29816
Client Name :	Stone & Webster	STL Sample Number :	180750
Project Name :	0813405	Lab File ID :	H10086
Matrix :	Soil	Date Collected :	8/9/01
Sample Wt/Vol :	10.1g	Date Received :	8/9/01
% Solid :	91.2	Date Extracted :	8/13/01
GPC Clean up :		Date Analyzed :	8/15/01
Sulfur Clean up :		By :	SH
Dilution Factor :	1		

CAS NO	Compound	Reporting Limit ug/kg dry	Concentration ug/kg dry
12674-11-2	Arochlor-1016	110	U
11104-28-2	Arochlor-1221	110	U
11141-16-5	Arochlor-1232	110	U
53469-21-9	Arochlor-1242	110	U
12672-29-6	Arochlor-1248	110	U
11097-69-1	Arochlor-1254	110	U
11096-82-5	Arochlor-1260	110	U

Pesticides/PCB Organics Analysis Data Sheet

SW8468082A

Client ID :	B-1-6 (0.0-0.5)	Report No :	29816
Client Name :	Stone & Webster	STL Sample Number :	180752
Project Name :	0813405	Lab File ID :	H10094
Matrix :	Soil	Date Collected :	8/9/01
Sample Wt/Vol :	10.1g	Date Received :	8/9/01
% Solid :	89.5	Date Extracted :	8/13/01
GPC Clean up :		Date Analyzed :	8/15/01
Sulfur Clean up :		By :	SH
Dilution Factor :	1		

CAS NO	Compound	Reporting Limit ug/kg dry	Concentration ug/kg dry
12674-11-2	Arochlor-1016	110	U
11104-28-2	Arochlor-1221	110	U
11141-16-5	Arochlor-1232	110	U
53469-21-9	Arochlor-1242	110	U
12672-29-6	Arochlor-1248	110	U
11097-69-1	Arochlor-1254	110	U
11096-82-5	Arochlor-1260	110	U

Pesticides/PCB Organics Analysis Data Sheet

SW8468082A

Client ID :	DUP 2	Report No :	29816
Client Name :	Stone & Webster	STL Sample Number :	180827
Project Name :	0813405	Lab File ID :	H10095
Matrix :	Soil	Date Collected :	8/9/01
Sample Wt/Vol :	10.8g	Date Received :	8/9/01
% Solid :	90.7	Date Extracted :	8/13/01
GPC Clean up :		Date Analyzed :	8/15/01
Sulfur Clean up :		By :	SH
Dilution Factor :	1		

CAS NO	Compound	Reporting Limit ug/kg dry	Concentration ug/kg dry
12674-11-2	Arochlor-1016	100	U
11104-28-2	Arochlor-1221	100	U
11141-16-5	Arochlor-1232	100	U
53469-21-9	Arochlor-1242	100	U
12672-29-6	Arochlor-1248	100	U
11097-69-1	Arochlor-1254	100	U
11096-82-5	Arochlor-1260	100	U

Pesticides/PCB Organics Analysis Data Sheet

SW8468082A

Client ID :	DUP 1	Report No :	29816
Client Name :	Stone & Webster	STL Sample Number :	180828
Project Name :	0813405	Lab File ID :	H10090
Matrix :	Soil	Date Collected :	8/9/01
Sample Wt/Vol :	10.0g	Date Received :	8/9/01
% Solid :	75.8	Date Extracted :	8/13/01
GPC Clean up :		Date Analyzed :	8/15/01
Sulfur Clean up :		By :	SH
Dilution Factor :	1		

CAS NO	Compound	Reporting Limit ug/kg dry	Concentration ug/kg dry
12674-11-2	Arochlor-1016	130	U
11104-28-2	Arochlor-1221	130	U
11141-16-5	Arochlor-1232	130	U
53469-21-9	Arochlor-1242	130	U
12672-29-6	Arochlor-1248	130	U
11097-69-1	Arochlor-1254	130	U
11096-82-5	Arochlor-1260	130	U

Volatile Organics Analysis Data Sheet

SW8468260B

Client ID :	B-1-1 (0.0-0.5)	Report No :	29816
Client Name :	Stone & Webster	STL Sample Number :	180745
Project Name :	0813405	Lab File ID :	V37589
Matrix :	Soil	Date Collected :	8/8/01
Sample Wt/Vol :	15.1g	Date Received :	8/9/01
% Solid :	76.0	Date Analyzed :	8/15/01
Dilution Factor :	1	By :	GJB

CAS NO	Compound	Reporting Limit ug/kg dry	Concentration ug/kg dry
67-64-1	Acetone	3,300	U
71-43-2	Benzene	160	U
75-15-0	Carbon Disulfide	160	U
67-66-3	Chloroform	100	U
107-06-2	1,2-Dichloroethane	50	U
100-41-4	Ethylbenzene	160	U
75-01-4	Vinyl chloride	330	U

Volatile Organics Analysis Data Sheet

SW8468260B

Client ID :	B-1-3 (0.0-0.5)	Report No :	29816
Client Name :	Stone & Webster	STL Sample Number :	180747
Project Name :	0813405	Lab File ID :	V37590
Matrix :	Soil	Date Collected :	8/9/01
Sample Wt/Vol :	15.2g	Date Received :	8/9/01
% Solid :	89.2	Date Analyzed :	8/15/01
Dilution Factor :	1	By :	GJB

CAS NO	Compound	Reporting Limit ug/kg dry	Concentration ug/kg dry
67-64-1	Acetone	2,800	U
71-43-2	Benzene	140	U
75-15-0	Carbon Disulfide	140	U
67-66-3	Chloroform	100	U
107-06-2	1,2-Dichloroethane	50	U
100-41-4	Ethylbenzene	140	U
75-01-4	Vinyl chloride	280	U

Volatile Organics Analysis Data Sheet

SW8468260B

Client ID :	B-1-4 (0.0-0.5)	Report No :	29816
Client Name :	Stone & Webster	STL Sample Number :	180748
Project Name :	0813405	Lab File ID :	V37591
Matrix :	Soil	Date Collected :	8/9/01
Sample Wt/Vol :	15.0g	Date Received :	8/9/01
% Solid :	91.2	Date Analyzed :	8/15/01
Dilution Factor :	1	By :	GJB

CAS NO	Compound	Reporting Limit ug/kg dry	Concentration ug/kg dry
67-64-1	Acetone	2,700	U
71-43-2	Benzene	140	U
75-15-0	Carbon Disulfide	140	U
67-66-3	Chloroform	100	U
107-06-2	1,2-Dichloroethane	50	U
100-41-4	Ethylbenzene	140	U
75-01-4	Vinyl chloride	270	U

Volatile Organics Analysis Data Sheet

SW8468260B

Client ID :	B-1-5 (0.0-0.5)	Report No :	29816
Client Name :	Stone & Webster	STL Sample Number :	180749
Project Name :	0813405	Lab File ID :	V37592
Matrix :	Soil	Date Collected :	8/9/01
Sample Wt/Vol :	15.2g	Date Received :	8/9/01
% Solid :	87.7	Date Analyzed :	8/15/01
Dilution Factor :	1	By :	GJB

CAS NO	Compound	Reporting Limit ug/kg dry	Concentration ug/kg dry
67-64-1	Acetone	2,800	U
71-43-2	Benzene	140	U
75-15-0	Carbon Disulfide	140	U
67-66-3	Chloroform	100	U
107-06-2	1,2-Dichloroethane	50	U
100-41-4	Ethylbenzene	140	U
75-01-4	Vinyl chloride	280	U

Volatile Organics Analysis Data Sheet

SW8468260B

Client ID : B-1-7 (0.0-0.5)	Report No : 29816
Client Name : Stone & Webster	STL Sample Number : 180750
Project Name : 0813405	Lab File ID : V37614
Matrix : Soil	Date Collected : 8/9/01
Sample Wt/Vol : 15.3g	Date Received : 8/9/01
% Solid : 91.2	Date Analyzed : 8/15/01
Dilution Factor : 1	By : GJB

CAS NO	Compound	Reporting Limit ug/kg dry	Concentration ug/kg dry
67-64-1	Acetone	2,700	U
71-43-2	Benzene	130	U
75-15-0	Carbon Disulfide	130	U
67-66-3	Chloroform	100	U
107-06-2	1,2-Dichloroethane	50	U
100-41-4	Ethylbenzene	130	U
75-01-4	Vinyl chloride	270	U

Volatile Organics Analysis Data Sheet

SW8468260B

Client ID :	B-5-1 (0.0-0.5)	Report No :	29816
Client Name :	Stone & Webster	STL Sample Number :	180751
Project Name :	0813405	Lab File ID :	V37615
Matrix :	Soil	Date Collected :	8/9/01
Sample Wt/Vol :	15.1g	Date Received :	8/9/01
% Solid :	90.6	Date Analyzed :	8/15/01
Dilution Factor :	1	By :	GJB

CAS NO	Compound	Reporting Limit ug/kg dry	Concentration ug/kg dry
67-64-1	Acetone	2,700	U
71-43-2	Benzene	140	U
75-15-0	Carbon Disulfide	140	U
67-66-3	Chloroform	100	U
107-06-2	1,2-Dichloroethane	50	U
100-41-4	Ethylbenzene	140	U
75-01-4	Vinyl chloride	270	U

Volatile Organics Analysis Data Sheet

SW8468260B

Client ID :	TRIP BLANK	Report No :	29816
Client Name :	Stone & Webster	STL Sample Number :	180829
Project Name :	0813405	Lab File ID :	V37616
Matrix :	Methanol	Date Collected :	8/9/01
Sample Wt/Vol :	15.0g	Date Received :	8/9/01
% Solid :		Date Analyzed :	8/15/01
Dilution Factor :	1	By :	GJB

CAS NO	Compound	Reporting Limit ug/kg dry	Concentration ug/kg dry
67-64-1	Acetone	2,500	U
71-43-2	Benzene	120	U
75-15-0	Carbon Disulfide	120	U
67-66-3	Chloroform	100	U
107-06-2	1,2-Dichloroethane	50	U
100-41-4	Ethylbenzene	120	U
75-01-4	Vinyl chloride	250	U

Semi-Volatile Organics Analysis Data Sheet

SW8468270C

Client ID : B-1-1 (0.0-0.5)	Report No : 29816
Client Name : Stone & Webster	STL Sample Number : 180745
Project Name : 0813405	Lab File ID : B7436
Matrix : Soil	Date Collected : 8/8/01
Sample Wt/Vol : 30.1g	Date Received : 8/9/01
% Solid : 76.0	Date Extracted : 8/10/01
GPC Clean up :	Date Analyzed : 8/14/01
Dilution Factor : 1	By : SM

CAS NO	Compound	Reporting Limit ug/kg dry	Concentration ug/kg dry
83-32-9	Acenaphthene	440	U
208-96-8	Acenaphthylene	440	U
120-12-7	Anthracene	440	U
56-55-3	Benzo(a)anthracene	440	U
205-99-2	Benzo(b)fluoranthene	440	U
207-08-9	Benzo(k)fluoranthene	440	U
191-24-2	Benzo(g,h,i)perylene	440	U
50-32-8	Benzo(a)pyrene	440	U
218-01-9	Chrysene	440	U
53-70-3	Dibenzo(a,h)anthracene	440	U
206-44-0	Fluoranthene	440	U
86-73-7	Fluorene	440	U
193-39-5	Indeno(1,2,3-cd)pyrene	440	U
91-57-6	2-Methylnaphthalene	440	U
91-20-3	Naphthalene	440	U
85-01-8	Phenanthrene	440	U
129-00-0	Pyrene	440	U

Client ID : B-1-3 (0.0-0.5)	Report No : 29816
Client Name : Stone & Webster	STL Sample Number : 180747
Project Name : 0813405	Lab File ID : B7422
Matrix : Soil	Date Collected : 8/9/01
Sample Wt/Vol : 30.0g	Date Received : 8/9/01
% Solid : 89.2	Date Extracted : 8/10/01
GPC Clean up :	Date Analyzed : 8/13/01
Dilution Factor : 1	By : SM

CAS NO	Compound	Reporting Limit ug/kg dry	Concentration ug/kg dry
83-32-9	Acenaphthene	410	U
208-96-8	Acenaphthylene	410	U
120-12-7	Anthracene	410	U
56-55-3	Benzo(a)anthracene	410	U
205-99-2	Benzo(b)fluoranthene	410	U
207-08-9	Benzo(k)fluoranthene	410	U
191-24-2	Benzo(g,h,i)perylene	410	U
50-32-8	Benzo(a)pyrene	410	U
218-01-9	Chrysene	410	U
53-70-3	Dibenzo(a,h)anthracene	410	U
206-44-0	Fluoranthene	410	U
86-73-7	Fluorene	410	U
193-39-5	Indeno(1,2,3-cd)pyrene	410	U
91-57-6	2-Methylnaphthalene	410	U
91-20-3	Naphthalene	410	U
85-01-8	Phenanthrene	410	U
129-00-0	Pyrene	410	U

Semi-Volatile Organics Analysis Data Sheet

SW8468270C

Client ID :	B-1-4 (0.0-0.5)	Report No :	29816
Client Name :	Stone & Webster	STL Sample Number :	180748
Project Name :	0813405	Lab File ID :	B7420
Matrix :	Soil	Date Collected :	8/9/01
Sample Wt/Vol :	30.3g	Date Received :	8/9/01
% Solid :	91.2	Date Extracted :	8/10/01
GPC Clean up :		Date Analyzed :	8/13/01
Dilution Factor :	1	By :	SM

CAS NO	Compound	Reporting Limit ug/kg dry	Concentration ug/kg dry
83-32-9	Acenaphthene	370	U
208-96-8	Acenaphthylene	370	U
120-12-7	Anthracene	370	U
56-55-3	Benzo(a)anthracene	370	U
205-99-2	Benzo(b)fluoranthene	370	U
207-08-9	Benzo(k)fluoranthene	370	U
191-24-2	Benzo(g,h,i)perylene	370	U
50-32-8	Benzo(a)pyrene	370	U
218-01-9	Chrysene	370	U
53-70-3	Dibenzo(a,h)anthracene	370	U
206-44-0	Fluoranthene	370	U
86-73-7	Fluorene	370	U
193-39-5	Indeno(1,2,3-cd)pyrene	370	U
91-57-6	2-Methylnaphthalene	370	U
91-20-3	Naphthalene	370	U
85-01-8	Phenanthrene	370	U
129-00-0	Pyrene	370	U

Semi-Volatile Organics Analysis Data Sheet

SW8468270C

Client ID : DUP 1	Report No : 29816
Client Name : Stone & Webster	STL Sample Number : 180828
Project Name : 0813405	Lab File ID : B7437
Matrix : Soil	Date Collected : 8/9/01
Sample Wt/Vol : 30.1g	Date Received : 8/9/01
% Solid : 75.8	Date Extracted : 8/10/01
GPC Clean up :	Date Analyzed : 8/14/01
Dilution Factor : 1	By : SM

CAS NO	Compound	Reporting Limit ug/kg dry	Concentration ug/kg dry
83-32-9	Acenaphthene	440	U
208-96-8	Acenaphthylene	440	U
120-12-7	Anthracene	440	U
56-55-3	Benzo(a)anthracene	440	U
205-99-2	Benzo(b)fluoranthene	440	U
207-08-9	Benzo(k)fluoranthene	440	U
191-24-2	Benzo(g,h,i)perylene	440	U
50-32-8	Benzo(a)pyrene	440	U
218-01-9	Chrysene	440	U
53-70-3	Dibenzo(a,h)anthracene	440	U
206-44-0	Fluoranthene	440	U
86-73-7	Fluorene	440	U
193-39-5	Indeno(1,2,3-cd)pyrene	440	U
91-57-6	2-Methylnaphthalene	440	U
91-20-3	Naphthalene	440	U
85-01-8	Phenanthrene	440	U
129-00-0	Pyrene	440	U

Semi-Volatile Organics Analysis Data Sheet

MADEP EPH

Client ID : B-1-1 (0.0-0.5)	Report No : 29816
Client Name : Stone & Webster	STL Sample Number : 180745
Project Name : 0813405	Lab File ID : D15070
Matrix : Soil	Date Collected : 8/8/01
Sample Wt/Vol : 30.3g	Date Received : 8/9/01
% Solid : 76.0	Date Extracted : 8/10/01
GPC Clean up :	Date Analyzed : 8/13/01
Dilution Factor : 1	By : SM

CAS NO	Compound	Reporting Limit mg/kg dry	Concentration mg/kg dry
	Unadjusted C11-C22 Aromatics	4.3	U
	C9-C18 Aliphatics	4.3	U
	C19-C36 Aliphatics	4.3	U
	C11-C22 Aromatics	4.3	U
	EPH Concentration (Total)	4.3	U
83-32-9	Acenaphthene	0.4	U
208-96-8	Acenaphthylene	0.4	U
120-12-7	Anthracene	0.4	U
56-55-3	Benzo(a)anthracene	0.4	U
50-32-8	Benzo(a)pyrene	0.4	U
205-99-2	Benzo(b)fluoranthene	0.4	U
191-24-2	Benzo(g,h,i)perylene	0.4	U
207-08-9	Benzo(k)fluoranthene	0.4	U
218-01-9	Chrysene	0.4	U
53-70-3	Dibenzo(a,h)anthracene	0.4	U
206-44-0	Fluoranthene	0.4	U
86-73-7	Fluorene	0.4	U
193-39-5	Indeno(1,2,3-cd)pyrene	0.4	U
91-57-6	2-Methylnaphthalene	0.4	U
91-20-3	Naphthalene	0.4	U
85-01-8	Phenanthrene	0.4	U
129-00-0	Pyrene	0.4	U

Semi-Volatile Organics Analysis Data Sheet

MADEP EPH

Client ID :	B-1-2 (0.0-0.5)	Report No :	29816
Client Name :	Stone & Webster	STL Sample Number :	180746
Project Name :	0813405	Lab File ID :	D15072
Matrix :	Soil	Date Collected :	8/9/01
Sample Wt/Vol :	30.1g	Date Received :	8/9/01
% Solid :	82.0	Date Extracted :	8/10/01
GPC Clean up :		Date Analyzed :	8/13/01
Dilution Factor :	1	By :	SM

CAS NO	Compound	Reporting Limit mg/kg dry	Concentration mg/kg dry
	Unadjusted C11-C22 Aromatics	4.1	77
	C9-C18 Aliphatics	4.1	U
	C19-C36 Aliphatics	4.1	93
	C11-C22 Aromatics	4.1	62
	EPH Concentration (Total)	4.1	150
83-32-9	Acenaphthene	0.4	U
208-96-8	Acenaphthylene	0.4	U
120-12-7	Anthracene	0.4	0.46
56-55-3	Benzo(a)anthracene	0.4	1.3
50-32-8	Benzo(a)pyrene	0.4	1.7
205-99-2	Benzo(b)fluoranthene	0.4	1.9
191-24-2	Benzo(g,h,i)perylene	0.4	1.1
207-08-9	Benzo(k)fluoranthene	0.4	0.79
218-01-9	Chrysene	0.4	1.3
53-70-3	Dibenzo(a,h)anthracene	0.4	U
206-44-0	Fluoranthene	0.4	2.4
86-73-7	Fluorene	0.4	U
193-39-5	Indeno(1,2,3-cd)pyrene	0.4	0.93
91-57-6	2-Methylnaphthalene	0.4	U
91-20-3	Naphthalene	0.4	U
85-01-8	Phenanthrene	0.4	0.44
129-00-0	Pyrene	0.4	2.4

Semi-Volatile Organics Analysis Data Sheet

MADEP EPH

Client ID : B-1-3 (0.0-0.5)	Report No : 29816
Client Name : Stone & Webster	STL Sample Number : 180747
Project Name : 0813405	Lab File ID : D15074
Matrix : Soil	Date Collected : 8/9/01
Sample Wt/Vol : 30.1g	Date Received : 8/9/01
% Solid : 89.2	Date Extracted : 8/10/01
GPC Clean up :	Date Analyzed : 8/13/01
Dilution Factor : 1	By : SM

CAS NO	Compound	Reporting Limit mg/kg dry	Concentration mg/kg dry
	Unadjusted C11-C22 Aromatics	3.7	U
	C9-C18 Aliphatics	3.7	U
	C19-C36 Aliphatics	3.7	U
	C11-C22 Aromatics	3.7	U
	EPH Concentration (Total)	3.7	U
83-32-9	Acenaphthene	0.4	U
208-96-8	Acenaphthylene	0.4	U
120-12-7	Anthracene	0.4	U
56-55-3	Benzo(a)anthracene	0.4	U
50-32-8	Benzo(a)pyrene	0.4	U
205-99-2	Benzo(b)fluoranthene	0.4	U
191-24-2	Benzo(g,h,i)perylene	0.4	U
207-08-9	Benzo(k)fluoranthene	0.4	U
218-01-9	Chrysene	0.4	U
53-70-3	Dibenzo(a,h)anthracene	0.4	U
206-44-0	Fluoranthene	0.4	U
86-73-7	Fluorene	0.4	U
193-39-5	Indeno(1,2,3-cd)pyrene	0.4	U
91-57-6	2-Methylnaphthalene	0.4	U
91-20-3	Naphthalene	0.4	U
85-01-8	Phenanthrene	0.4	U
129-00-0	Pyrene	0.4	U

Semi-Volatile Organics Analysis Data Sheet

MADEP EPH

Client ID : B-1-4 (0.0-0.5)	Report No : 29816
Client Name : Stone & Webster	STL Sample Number : 180748
Project Name : 0813405	Lab File ID : D15076
Matrix : Soil	Date Collected : 8/9/01
Sample Wt/Vol : 30.6g	Date Received : 8/9/01
% Solid : 91.2	Date Extracted : 8/10/01
GPC Clean up :	Date Analyzed : 8/13/01
Dilution Factor : 1	By : SM

CAS NO	Compound	Reporting Limit mg/kg dry	Concentration mg/kg dry
	Unadjusted C11-C22 Aromatics	3.6	9.1
	C9-C18 Aliphatics	3.6	U
	C19-C36 Aliphatics	3.6	U
	C11-C22 Aromatics	3.6	9.1
	EPH Concentration (Total)	3.6	9.1
83-32-9	Acenaphthene	0.4	U
208-96-8	Acenaphthylene	0.4	U
120-12-7	Anthracene	0.4	U
56-55-3	Benzo(a)anthracene	0.4	U
50-32-8	Benzo(a)pyrene	0.4	U
205-99-2	Benzo(b)fluoranthene	0.4	U
191-24-2	Benzo(g,h,i)perylene	0.4	U
207-08-9	Benzo(k)fluoranthene	0.4	U
218-01-9	Chrysene	0.4	U
53-70-3	Dibenzo(a,h)anthracene	0.4	U
206-44-0	Fluoranthene	0.4	U
86-73-7	Fluorene	0.4	U
193-39-5	Indeno(1,2,3-cd)pyrene	0.4	U
91-57-6	2-Methylnaphthalene	0.4	U
91-20-3	Naphthalene	0.4	U
85-01-8	Phenanthrene	0.4	U
129-00-0	Pyrene	0.4	U

Semi-Volatile Organics Analysis Data Sheet

MADEP EPH

Client ID : B-1-5 (0.0-0.5)	Report No : 29816
Client Name : Stone & Webster	STL Sample Number : 180749
Project Name : 0813405	Lab File ID : D15078
Matrix : Soil	Date Collected : 8/9/01
Sample Wt/Vol : 30.0g	Date Received : 8/9/01
% Solid : 87.7	Date Extracted : 8/10/01
GPC Clean up :	Date Analyzed : 8/13/01
Dilution Factor : 1	By : SM

CAS NO	Compound	Reporting Limit mg/kg dry	Concentration mg/kg dry
	Unadjusted C11-C22 Aromatics	3.8	U
	C9-C18 Aliphatics	3.8	U
	C19-C36 Aliphatics	3.8	U
	C11-C22 Aromatics	3.8	U
	EPH Concentration (Total)	3.8	U
83-32-9	Acenaphthene	0.4	U
208-96-8	Acenaphthylene	0.4	U
120-12-7	Anthracene	0.4	U
56-55-3	Benzo(a)anthracene	0.4	U
50-32-8	Benzo(a)pyrene	0.4	U
205-99-2	Benzo(b)fluoranthene	0.4	U
191-24-2	Benzo(g,h,i)perylene	0.4	U
207-08-9	Benzo(k)fluoranthene	0.4	U
218-01-9	Chrysene	0.4	U
53-70-3	Dibenzo(a,h)anthracene	0.4	U
206-44-0	Fluoranthene	0.4	U
86-73-7	Fluorene	0.4	U
193-39-5	Indeno(1,2,3-cd)pyrene	0.4	U
91-57-6	2-Methylnaphthalene	0.4	U
91-20-3	Naphthalene	0.4	U
85-01-8	Phenanthrene	0.4	U
129-00-0	Pyrene	0.4	U

Semi-Volatile Organics Analysis Data Sheet

MADEP EPH

Client ID : B-1-7 (0.0-0.5)	Report No : 29816
Client Name : Stone & Webster	STL Sample Number : 180750
Project Name : 0813405	Lab File ID : D15080
Matrix : Soil	Date Collected : 8/9/01
Sample Wt/Vol : 30.1g	Date Received : 8/9/01
% Solid : 91.2	Date Extracted : 8/10/01
GPC Clean up :	Date Analyzed : 8/13/01
Dilution Factor : 1	By : SM

CAS NO	Compound	Reporting Limit mg/kg dry	Concentration mg/kg dry
	Unadjusted C11-C22 Aromatics	3.6	7.4
	C9-C18 Aliphatics	3.6	U
	C19-C36 Aliphatics	3.6	U
	C11-C22 Aromatics	3.6	7.4
	EPH Concentration (Total)	3.6	7.4
83-32-9	Acenaphthene	0.4	U
208-96-8	Acenaphthylene	0.4	U
120-12-7	Anthracene	0.4	U
56-55-3	Benzo(a)anthracene	0.4	U
50-32-8	Benzo(a)pyrene	0.4	U
205-99-2	Benzo(b)fluoranthene	0.4	U
191-24-2	Benzo(g,h,i)perylene	0.4	U
207-08-9	Benzo(k)fluoranthene	0.4	U
218-01-9	Chrysene	0.4	U
53-70-3	Dibenzo(a,h)anthracene	0.4	U
206-44-0	Fluoranthene	0.4	U
86-73-7	Fluorene	0.4	U
193-39-5	Indeno(1,2,3-cd)pyrene	0.4	U
91-57-6	2-Methylnaphthalene	0.4	U
91-20-3	Naphthalene	0.4	U
85-01-8	Phenanthrene	0.4	U
129-00-0	Pyrene	0.4	U

Semi-Volatile Organics Analysis Data Sheet

MADEP EPH

Client ID :	B-1-6 (0.0-0.5)	Report No :	29816
Client Name :	Stone & Webster	STL Sample Number :	180752
Project Name :	0813405	Lab File ID :	D15084
Matrix :	Soil	Date Collected :	8/9/01
Sample Wt/Vol :	30.0g	Date Received :	8/9/01
% Solid :	89.5	Date Extracted :	8/10/01
GPC Clean up :		Date Analyzed :	8/13/01
Dilution Factor :	1	By :	SM

CAS NO	Compound	Reporting Limit mg/kg dry	Concentration mg/kg dry
	Unadjusted C11-C22 Aromatics	3.7	U
	C9-C18 Aliphatics	3.7	U
	C19-C36 Aliphatics	3.7	U
	C11-C22 Aromatics	3.7	U
	EPH Concentration (Total)	3.7	U
83-32-9	Acenaphthene	0.4	U
208-96-8	Acenaphthylene	0.4	U
120-12-7	Anthracene	0.4	U
56-55-3	Benzo(a)anthracene	0.4	U
50-32-8	Benzo(a)pyrene	0.4	U
205-99-2	Benzo(b)fluoranthene	0.4	U
191-24-2	Benzo(g,h,i)perylene	0.4	U
207-08-9	Benzo(k)fluoranthene	0.4	U
218-01-9	Chrysene	0.4	U
53-70-3	Dibenzo(a,h)anthracene	0.4	U
206-44-0	Fluoranthene	0.4	U
86-73-7	Fluorene	0.4	U
193-39-5	Indeno(1,2,3-cd)pyrene	0.4	U
91-57-6	2-Methylnaphthalene	0.4	U
91-20-3	Naphthalene	0.4	U
85-01-8	Phenanthrene	0.4	U
129-00-0	Pyrene	0.4	U

Semi-Volatile Organics Analysis Data Sheet

MADEP EPH

Client ID : DUP 2	Report No : 29816
Client Name : Stone & Webster	STL Sample Number : 180827
Project Name : 0813405	Lab File ID : D15086
Matrix : Soil	Date Collected : 8/9/01
Sample Wt/Vol : 30.6g	Date Received : 8/9/01
% Solid : 90.7	Date Extracted : 8/10/01
GPC Clean up :	Date Analyzed : 8/13/01
Dilution Factor : 1	By : SM

CAS NO	Compound	Reporting Limit mg/kg dry	Concentration mg/kg dry
	Unadjusted C11-C22 Aromatics	3.6	6.0
	C9-C18 Aliphatics	3.6	U
	C19-C36 Aliphatics	3.6	U
	C11-C22 Aromatics	3.6	6.0
	EPH Concentration (Total)	3.6	6.0
83-32-9	Acenaphthene	0.4	U
208-96-8	Acenaphthylene	0.4	U
120-12-7	Anthracene	0.4	U
56-55-3	Benzo(a)anthracene	0.4	U
50-32-8	Benzo(a)pyrene	0.4	U
205-99-2	Benzo(b)fluoranthene	0.4	U
191-24-2	Benzo(g,h,i)perylene	0.4	U
207-08-9	Benzo(k)fluoranthene	0.4	U
218-01-9	Chrysene	0.4	U
53-70-3	Dibenzo(a,h)anthracene	0.4	U
206-44-0	Fluoranthene	0.4	U
86-73-7	Fluorene	0.4	U
193-39-5	Indeno(1,2,3-cd)pyrene	0.4	U
91-57-6	2-Methylnaphthalene	0.4	U
91-20-3	Naphthalene	0.4	U
85-01-8	Phenanthrene	0.4	U
129-00-0	Pyrene	0.4	U

Semi-Volatile Organics Analysis Data Sheet

MADEP EPH

Client ID : DUP 1	Report No : 29816
Client Name : Stone & Webster	STL Sample Number : 180828
Project Name : 0813405	Lab File ID : D15088
Matrix : Soil	Date Collected : 8/9/01
Sample Wt/Vol : 30.2g	Date Received : 8/9/01
% Solid : 75.8	Date Extracted : 8/10/01
GPC Clean up :	Date Analyzed : 8/13/01
Dilution Factor : 1	By : SM

CAS NO	Compound	Reporting Limit mg/kg dry	Concentration mg/kg dry
	Unadjusted C11-C22 Aromatics	4.4	U
	C9-C18 Aliphatics	4.4	U
	C19-C36 Aliphatics	4.4	U
	C11-C22 Aromatics	4.4	U
	EPH Concentration (Total)	4.4	U
83-32-9	Acenaphthene	0.4	U
208-96-8	Acenaphthylene	0.4	U
120-12-7	Anthracene	0.4	U
56-55-3	Benzo(a)anthracene	0.4	U
50-32-8	Benzo(a)pyrene	0.4	U
205-99-2	Benzo(b)fluoranthene	0.4	U
191-24-2	Benzo(g,h,i)perylene	0.4	U
207-08-9	Benzo(k)fluoranthene	0.4	U
218-01-9	Chrysene	0.4	U
53-70-3	Dibenzo(a,h)anthracene	0.4	U
206-44-0	Fluoranthene	0.4	U
86-73-7	Fluorene	0.4	U
193-39-5	Indeno(1,2,3-cd)pyrene	0.4	U
91-57-6	2-Methylnaphthalene	0.4	U
91-20-3	Naphthalene	0.4	U
85-01-8	Phenanthrene	0.4	U
129-00-0	Pyrene	0.4	U

BLANK RESULTS SUMMARY

JOB NO: 29816
PROJECT NO: 0813405

ANALYSIS	DATE OF EXTRACTION	DATE OF ANALYSIS	MATRIX	ANALYTE DETECTED	CONCENTRATION
8260	None	8/14/01	Soil	None Detected	
PESTICIDES	8/13/01	8/15/01	Soil	None Detected	
PCB	8/13/01	8/15/01	Soil	None Detected	
PAH by 8270	8/10/01	8/13/01	Soil	None Detected	
EPH	8/10/01	8/13/01	Soil	None Detected	

SOIL VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Client Name: Stone & Webster　　Report Number: 29816

Project: 0813405

Matrix Sample Spike: 29816-180850

COMPOUND	SPIKE ADDED (ug/kg)	SAMPLE CONCENTRATION (ug/kg)	MS CONCENTRATION (ug/kg)	MS % REC #	QC. LIMITS REC.
Vinyl chloride	5400	0	4600	85	70-130
1,1 Dichloroethene	5400	0	4300	80	70-130
trans-1,2 Dichloroethene	5400	0	4600	85	70-130
1,1 Dichloroethane	5400	0	4000	74	70-130
cis 1,2 Dichloroethene	5400	0	4000	74	70-130
1,1,1 Trichloroethane	5400	0	4000	74	70-130
1,2 Dichloroethane	5400	0	3800	70	70-130
Benzene	5400	0	4000	74	70-130
Trichloroethene	5400	0	4000	74	70-130
Toluene	5400	0	4300	80	70-130
Tetrachloroethene	5400	0	4300	80	70-130
Chlorobenzene	5400	0	4300	80	70-130
Ethylbenzene	5400	0	4600	85	70-130
m+p-Xylene	10800	0	8600	80	70-130
o-Xylene	5400	0	4300	80	70-130

COMPOUND	SPIKE ADDED (ug/kg)	LCSD CONCENTRATION (ug/kg)	LCSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Vinyl chloride	5400	5700	106	21	30	70-130
1,1 Dichloroethene	5400	5700	106	28	30	70-130
trans-1,2 Dichloroethene	5400	5700	106	21	30	70-130
1,1 Dichloroethane	5400	5100	94	24	30	70-130
cis 1,2 Dichloroethene	5400	4900	91	20	30	70-130
1,1,1 Trichloroethane	5400	4600	85	14	30	70-130
1,2 Dichloroethane	5400	4600	85	19	30	70-130.
Benzene	5400	5400	100	30	30	70-130
Trichloroethene	5400	5100	94	24	30	70-130
Toluene	5400	5400	100	23	30	70-130
Tetrachloroethene	5400	5700	106	28	30	70-130
Chlorobenzene	5400	5700	106	28	30	70-130
Ethylbenzene	5400	5900	109	25	30	70-130
m+p-Xylene	10800	10400	96	19	30	70-130
o-Xylene	5400	5400	100	23	30	70-130

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Comments: ______________________________

SOIL VOLATILE LCS DUPLICATE RECOVERY

Client Name: Stone & Webster   Report Number: 29816

Project: 0813405

COMPOUND	SPIKE ADDED (ug/kg)	SAMPLE CONCENTRATION (ug/kg)	LCS CONCENTRATION (ug/kg)	LCS % REC	#	QC. LIMITS REC.
Vinyl chloride	5000	0	4800	96		70-130
1,1 Dichloroethene	5000	0	4200	84		70-130
trans-1,2 Dichloroethene	5000	0	4500	90		70-130
1,1 Dichloroethane	5000	0	4200	84		70-130
cis 1,2 Dichloroethene	5000	0	4200	84		70-130
1,1,1 Trichloroethane	5000	0	3800	76		70-130
1,2 Dichloroethane	5000	0	3800	76		70-130
Benzene	5000	0	4500	90		70-130
Trichloroethene	5000	0	4500	90		70-130
Toluene	5000	0	4800	96		70-130
Tetrachloroethene	5000	0	4500	90		70-130
Chlorobenzene	5000	0	4800	96		70-130
Ethylbenzene	5000	0	4800	96		70-130
m+p-Xylene	5000	0	4600	92		70-130
o-Xylene	5000	0	4800	96		70-130

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Comments:

VOLATILE SYSTEM MONITORING COMPOUND RECOVERY
8260

Client Name: Stone & Webster   Report Number: 29816

Project: 0813405

CLIENT SAMPLE ID.	SMC1 (DBFM)	#	SMC2 (DCE)	#	SMC3 (TOL)	#	SMC4 (BFB)	#	TOT OUT
B-1-1 (0.0-0.5)	86		75		100		93		0
B-1-3 (0.0-0.5)	82		71		100		95		0
B-1-4 (0.0-0.5)	86		74		99		96		0
B-1-5 (0.0-0.5)	88		82		101		92		0
B-1-7 (0.0-0.5)	82		73		102		93		0
B-5-1 (0.0-0.5)	91		79		101		94		0
TRIP BLANK	86		74		101		96		0

	QC LIMITS
SMC1 = Dibromofluoromethane	(70-130)
SMC2 =1,2-dichloroethane-d4	(70-130)
SMC3 =Toluene-d8	(70-130)
SMC4 =4-Bromofluorobenzene	(70-130)

\# Column to be used to flag recovery values
* Values outside of contract required QC limits
D System Monitoring Compound diluted out

SOIL SEMI-VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE SPIKE RECOVERY

Client Name: Stone & Webster   Report Number: 29816

Project: 0813405

Matrix Spike - Sample No.: 29816-180750

COMPOUND	SPIKE ADDED (ug/kg)	SAMPLE CONCENTRATION (ug/kg)	MS CONCENTRATION (ug/kg)	MS % REC	#	QC. LIMITS REC.
Napthalene	1882	0	1452	77		40-140
2-Methynaphthalene	1882	0	1724	92		40-140
Acenaphthylene	1882	0	1389	74		40-140
Acenaphthene	1882	0	1520	81		40-140
Fluorene	1882	0	1718	91		40-140
Phenanthrene	1882	262	1837	84		40-140
Anthrancene	1882	0	1550	82		40-140
Fluoranthene	1882	461	2221	93		40-140
Pyrene	1882	374	1972	85		40-140
Benzo(a)anthracene	1882	258	2016	93		40-140
Chrysene	1882	258	1996	92		40-140
Benzo(b)fluoranthene	1882	367	2077	91		40-140
Benzo(k)fluoranthene	1882	0	1718	91		40-140
Benzo(a)pyrene	1882	233	1806	84		40-140
Indeno(1,2,3-cd)pyrene	1882	0	1823	97		40-140
Dibenzo(a,h) anthracene	1882	0	1750	93		40-140
Benzo(g,h,l)perlyene	1882	0	1742	93		40-140

COMPOUND	SPIKE ADDED (ug/kg)	MSD CONCENTRATION (ug/kg)	MSD % REC	#	% RPD	QC LIMITS RPD	QC. LIMITS REC.
Napthalene	1896	1321	70		10	30	40-140
2-Methynaphthalene	1896	1497	79		15	30	40-140
Acenaphthalene	1896	1338	71		4	30	40-140
Acenaphthene	1896	1453	77		5	30	40-140
Fluorene	1896	1632	86		6	30	40-140
Phenanthrene	1896	1821	82		2	30	40-140
Anthrancene	1896	1529	81		2	30	40-140
Fluoranthene	1896	2079	85		9	30	40-140
Pyrene	1896	1793	75		13	30	40-140
Benzo(a)anthracene	1896	1831	83		12	30	40-140
Chrysene	1896	1877	85		8	30	40-140
Benzo(b)fluoranthene	1896	1794	75		19	30	40-140
Benzo(k)fluoranthene	1896	1667	88		4	30	40-140
Benzo(a)pyrene	1896	1715	78		7	30	40-140
Indeno(1,2,3-cd)pyrene	1896	1578	83		15	30	40-140
Dibenzo(a,h) anthracene	1896	1567	83		12	30	40-140
Benzo(g,h,l)perlyene	1896	1497	79		16	30	40-140

\# Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Comments: ______

SEMI-VOLATILE LCS RECOVERY

Client Name: Stone & Stone & Webster   Report Number: 29816

Project: 0813405

COMPOUND	SPIKE ADDED (ug/kg)	SAMPLE CONCENTRATION (ug/kg)	LCS CONCENTRATION (ug/kg)	LCS % REC #	QC. LIMITS REC.
Napthalene	1667	0	1124	67	40-140
2-Methynaphthalene	1667	0	1386	83	40-140
Acenaphthylene	1667	0	1113	67	40-140
Acenaphthene	1667	0	1212	73	40-140
Fluorene	1667	0	1432	86	40-140
Phenanthrene	1667	0	1257	75	40-140
Anthrancene	1667	0	1226	74	40-140
Fluoranthene	1667	0	1442	87	40-140
Pyrene	1667	0	1151	69	40-140
Benzo(a)anthracene	1667	0	1369	82	40-140
Chrysene	1667	0	1347	81	40-140
Benzo(b)fluoranthene	1667	0	1293	78	40-140
Benzo(k)fluoranthene	1667	0	1301	78	40-140
Benzo(a)pyrene	1667	0	1267	76	40-140
Indeno(1,2,3-cd)pyrene	1667	0	1592	96	40-140
Dibenzo(a,h) anthracene	1667	0	1624	97	40-140
Benzo(g,h,I)perlyene	1667	0	1543	93	40-140

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Comments:

2A
PAH SYSTEM MONITORING COMPOUND RECOVERY

Client Name: Stone & Webster Report Number: 29816

Project: 0813405

	CLIENT SAMPLE ID.	SMC1 #	SMC2 #	SMC3 #	TOT OUT
47	B-1-3 (0.0-0.5)	98	110	107	0
48	B-1-4 (0.0-0.5)	71	97	105	0
49	B-1-5 (0.0-0.5)	74	84	75	0
50	B-1-7 (0.0-0.5)	91	105	97	0
51	B-5-1 (0.0-0.5)	67	82	79	0
28	DUP 1	77	89	83	0
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					

		QC LIMITS
SMC1	= Nitrobenzene-d5	(30-130)
SMC2	= 2-Fluorophenyl	(30-130)
SMC3	= Terphenyl-d14	(30-130)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

SOIL PCB MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Client Name: Stone & Webster　　Report Number: 29816

Project : 0813405

Matrix Spike -Sample No.: 29708-180090

COMPOUND	SPIKE ADDED (ug/kg)	SAMPLE CONCENTRATION (ug/kg)	MS CONCENTRATION (ug/kg)	MS % REC	#	QC. LIMITS REC.
PCB 1260	1000	0	874	87		40-140
PCB 1016	1000	0	795	80		40-140

COMPOUND	DUPLICATE CONCENTRATION (ug/kg)	% RPD	QC LIMITS RPD
PCB 1260	0	0	30
PCB 1016	0	0	30

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Comments: ______________________________

SOIL PCB LCS RECOVERY

Client Name: Stone & Webster   Report Number: 29816

Project : 0813405

COMPOUND	SPIKE ADDED (ug/kg)	SAMPLE CONCENTRATION (ug/kg)	LCS CONCENTRATION (ug/kg)	LCS % REC #	QC. LIMITS REC.
PCB 1260	1000	0	1069	107	40-140
PCB 1016	1000	0	1049	105	40-140

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Comments:

2A

SOIL PCB SYSTEM MONITORING COMPOUND RECOVERY

Client Name: Stone & Webster　　Report Number: 29816

Project: 0813405

	CLIENT SAMPLE ID.	SMC1 #	SMC2 #	TOT OUT
01	B-1-1 (0.0-0.5)	74	96	0
02	B-1-2 (0.0-0.5)	78	74	0
03	B-1-3 (0.0-0.5)	74	104	0
04	B-1-4 (0.0-0.5)	62	104	0
05	B-1-5 (0.0-0.5)	74	91	0
06	B-1-7 (0.0-0.5)	54	102	0
07	B-5-1 (0.0-0.5)	93	95	0
08	B-1-6 (0.0-0.5)	41	98	0
09	DUP 2	64	82	0
10	DUP 1	50	87	0
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				

		QC LIMITS
SMC1	= Tetrachloro-m-xylene	(30-150)
SMC2	= Decachlorobiphenyl	(30-150)

\# Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

SOIL PESTICIDE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Client Name: Stone & Webster   Report Number: 29816

Project : 0813405

Matrix Spike -Sample No.: 29816-180751

COMPOUND	SPIKE ADDED (ug/kg)	SAMPLE CONCENTRATION (ug/kg)	MS CONCENTRATION (ug/kg)	MS % REC	#	QC. LIMITS REC.
beta-BHC	100	0	91	91		40-140

COMPOUND	SPIKE ADDED (ug/kg)	MSD CONCENTRATION (ug/kg)	MSD % REC	#	% RPD	#	QC LIMITS RPD	QC LIMITS REC.
beta-BHC	100	100	100		9		30	40-140

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Comments: beta-BHC ANALYSIS ONLY

SOIL PESTICIDE LCS/LCS DUPLICATE RECOVERY

Client Name: Stone & Webster

Report Number: 29816

Project : 0813405

COMPOUND	SPIKE ADDED (ug/kg)	SAMPLE CONCENTRATION (ug/kg)	LCS CONCENTRATION (ug/kg)	LCS % REC	#	QC. LIMITS REC.
beta-BHC	100	0	80	80		40-140

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Comments:

2A
WATER PESTICIDE SYSTEM MONITORING COMPOUND RECOVERY

Client Name: Stone & Webster

Report Number: 29816

Project: 0813405

	CLIENT SAMPLE ID.	SMC1 #	SMC2 #	TOT OUT
01	B-1-1 (0.0-0.5)	74	96	0
02	B-1-3 (0.0-0.5)	74	104	0
03	B-1-4 (0.0-0.5)	62	104	0
04	B-1-5 (0.0-0.5)	74	91	0
05	B-1-7 (0.0-0.5)	54	102	0
06	B-5-1 (0.0-0.5)	93	95	0
07	DUP 1	50	87	0
08				
09				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				

		QC LIMITS
SMC1	= Tetrachloro-m-xylene	(30-150)
SMC2	= Decachlorobiphenyl	(30-150)

\# Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

3A

EPH MATRIX SPIKE/ DUPLICATE RECOVERY

Client Name: Stone & Webster

Report Number: 29816

Project #: 0813405

Matrix Spike - Sample No.: 29775-180409

COMPOUND	SPIKE ADDED (mg/kg)	SAMPLE CONCENTRATION (mg/kg)	MS CONCENTRATION (mg/kg)	MS % REC	#	QC. LIMITS REC.
C9	7.8	0.0	2.3	29	*	(40-140)
C14	7.8	94.3	116.6	NA	1	(40-140)
C19	7.8	1.5	6.8	68		(40-140)
C20	7.8	0.0	6.1	79		(40-140)
C28	7.8	0.0	5.2	66		(40-140)
Acenaphthene	7.8	1.1	6.4	69		(40-140)
Anthracene	7.8	0.0	6.4	83		(40-140)
Chrysene	7.8	0.0	6.1	78		(40-140)
Naphthalene	7.8	1.2	9.9	112		(40-140)
Pyrene	7.8	0.0	6.4	83		(40-140)

COMPOUND	SAMPLE CONCENTRATION (mg/kg)		% RPD	#	QC LIMITS RPD	REC.
C9	0.0		0		50	(40-140)
C14	100.9		7		50	(40-140)
C19	1.5		0		50	(40-140)
C20	0.0		0		50	(40-140)
C28	0.0		0		50	(40-140)
Acenapthalene	1.4		24		50	(40-140)
Anthracene	0.0		0		50	(40-140)
Chrysene	0.0		0		50	(40-140)
Naphthalene	2.2		59	*	50	(40-140)
Pyrene	0.0		0		50	(40-140)

\# Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Comments: (1)Sample amount for C14 overwhelmed the spike amount, spike recovery not applicable.

3A
EPH LCS RECOVERY

Client Name: Stone & Webster Report Number: 29816

Project #: 0813405

COMPOUND	SPIKE ADDED (mg/kg)	SAMPLE CONCENTRATION (mg/kg)	LCS CONCENTRATION (mg/kg)	LCS % REC	#	QC. LIMITS REC.
C9	6.7	0.0	1.8	26	*	(40-140)
C14	6.7	0.0	3.9	58		(40-140)
C19	6.7	0.0	4.7	70		(40-140)
C20	6.7	0.0	4.8	71		(40-140)
C28	6.7	0.0	4.9	74		(40-140)
Acenaphthene	6.7	0.0	4.8	72		(40-140)
Anthracene	6.7	0.0	6.2	92		(40-140)
Chrysene	6.7	0.0	6.2	93		(40-140)
Naphthalene	6.7	0.0	3.4	51		(40-140
Pyrene	6.7	0.0	6.2	93		(40-140

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Comments:

EPH SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: STL WESTFIELD

STL Job#: 29816

	SAMPLE ID	SMC1 #	SMC2 #	SMC3 #	SMC4 #	TOT OUT
01	B-1-1 (0.0-0.5)	73	87	73	99	0
02	B-1-2 (0.0-0.5)	67	83	83	103	0
03	B-1-3 (0.0-0.5)	71	85	85	106	0
04	B-1-4 (0.0-0.5)	74	92	84	102	0
05	B-1-5 (0.0-0.5)	80	91	89	100	0
06	B-7-7 (0.0-0.5)	89	101	102	104	0
07	B-5-1 (0.0-0.5)	78	101	90	105	0
08	B-1-6 (0.0-0.5)	83	94	87	104	0
09	DUP 2	69	102	110	115	0
10	DUP 1	81	86	71	105	0
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						

	QC LIMITS
SMC1 = Chloro-octadecane (COD) Aliphatic	(40-140)
SMC2 = Ortho-terphenyl (OTP) Aromatic Fraction Surrogates	(40-140)
SMC3 = 2-Bromonaphthalene	(40-140)
SMC4 = 2-Fluorobiphenyl	(40-140)

Column to be used to flag recovery values

* Values outside of method required QC limits

D System Monitoring Compound diluted out

NA= In accordance with section 9.1.4.1 of the method the fractionation step was not performed on these samples since they contained no EPH.

INORGANIC QUALITY CONTROL

Client Name: Stone & Webster
Project: 0813405
Job No.: 29816
Sample No: 180745

Analysis	Sample Result mg/kg	C	Duplicate Result mg/kg	C	Q	%RPD	Spl + Spk	Spike	%Rec.	Q	Method Blank	C
Silver	1	U	1	U		0	6.2	6.68	93		1	U
Arsenic	5.2		5.4			4	67.5	66.8	93		1	U
Barium	19		20			5	80.2	66.8	92		1	U
Beryllium	0.3	U	0.3	U		0	65.9	66.8	99		0.3	U
Cadmium	0.3	U	0.3	U		0	62.6	66.8	94		0.3	U
Chromium	12		13			8	74.2	66.8	93		1	U
Lead	5.2		5.5			6	68.2	66.8	94		1	U
Selenium	1	U	1	U		0	61.9	66.8	93		1	U
Zinc	24		25			4	87.3	66.8	95		7	U
Mercury	0.06	U	0.06	U		0	0.109	0.107	102		0.06	U

Analysis	LCS	C	LCS TRUE	C	Q	% REC
Silver	95		100			95
Arsenic	965		1,000			97
Barium	975		1,000			98
Beryllium	1,000		1,000			100
Cadmium	973		1,000			97
Chromium	965		1,000			97
Lead	972		1,000			97
Selenium	937		1,000			94
Zinc	973		1,000			97
Mercury	1.78		1.85			96

(*) Outside QC Limits
C = Concentration Qualifier
Q = QC Qualifier

Comments: ______________________________

Severn Trent Laboratories, Inc.

SEVERN TRENT SERVICES

• 53 Southampton Road
Westfield, MA 01085
(P) 413-572-4000
(F) 413-572-3707

• 149 Rangeway Road
N. Billerica, MA 01862
(P) 978-667-1400
(F) 978-667-7871

Chain of Custody Form

Client: Stone + Webster   Job #:

Address: 100 Technology Dr   Project Manager:

Stoughton Ma 02072   Work ID:

Phone: 617-589-5216   Fax: Contact:

Job#   Quote#   PO#

Shaded areas for office use

Analysis Requested
Check analysis and specify method and analytes in comments section.
For example:
500-series for drinking water
600-series for waste water
8000-series for haz/solid waste
Use comments section to further define.

Comments
(Special Instructions)

Requested Turn Around Time
5 Business Day ______ Rush ______
10 Business Day ______ Other ______

Regulatory Classification -- Please Specify
NPDES ______ Drinking Water ______ MCP Other ______
RCRA ______ MCP GW1 ______ Other ______

Sample Type Codes
WW - Wellwater W - Wastewater SW - Surfacewater LW - Labwater
RW - Raw Water GW - Groundwater PW - Public Water SO - Soil
S - Solid SL - Sludge O - Oil A - Air Z - Other

Sample ID	Sample Type	Sampler's Initials	Date / Time Collected	Grab	Comp.	# Containers	Plastic (P) or Glass (G)	Preservative: NaHSO4/MeOH	HNO3 to pH <2	H2SO4 to pH <2	HCl to pH <2	NaOH to pH >12	Other	4C	pH	Volatiles	Semivolatiles	PCB & Pesticides	EPH	VPH	DRO/GRO (circle)	Oil & Grease	Metals	General Chemistry	Bacteriological	Other PAH
B-1-5 2-4	SO	MS	8-9-01 10:15		✓	2	G							✓				✓	✓				✓			✓
B-1-5 4-6			8-9-01 10:20		✓	2	G											✓	✓				✓			✓
B-1-6 0-.5			8-9-01 10:30			1	G											✓	✓							
B-1-6 .5-2			8-9-01 10:35			1	G											✓	✓							
B-1-6 2-4			8-9-01 10:40			1	G											✓	✓							
B-1-6 4-6			8-9-01 10:45			1	G											✓	✓							
B-1-7 0-.5			8-9-01 10:50			2	P									✓										
B-1-7 .5-2			8-9-01 10:53			1	P									✓										
B-1-7 2-4			8-9-01 11:00			1	P									✓										
B-1-7 0-.5			8-9-01 10:[illegible]			2	G											✓	✓				✓			✓

PCB + EPH only

Sampled by (print):   Signature:

Relinquished by: Mat Schaller Date: 8-9-01 Time: 1:30
Received by: Stephen W. Lorraine Date: 8-9-01 Time: 13:30

Relinquished by: Stephen W. Lorraine Date: 8-9-01 Time: 17:40
Received by: R Mos[illegible] Date: 8/9/01 Time: 1750

Method of shipment:

Cooler #: SR
Temp @ receipt: 5°C
Preservation/pH checked
By: R[illegible] Date: 8/9/01

White = Lab file Yellow = Report copy Pink = Customer copy
STL-8245 11/00

Severn Trent Laboratories, Inc.

Chain of Custody Form

SEVERN TRENT SERVICES

• 53 Southampton Road
Westfield, MA 01085
(P) 413-572-4000
(F) 413-572-3707

• 149 Rangeway Road
N. Billerica, MA 018[illegible]
(P) 978-667-1400
(F) 978-667-7871

Job#: | Quote#: | PO#:

Client: Stone + Webster
Address: 100 Technology Dr
Stoughton, Ma 02072
Phone: 617-589-5216 Fax: 617-589-2260

Job #: 08134105
Project Manager: Lisa Tyrrell
Work ID:
Contact: Mat Scheller

Shaded areas for office use

Analysis Requested
Check analysis and specify method and analytes in comments section.
For example:
500-series for drinking water
600-series for waste water
8000-series for haz/solid waste
Use comments section to further define.

Comments (Special Instructions)
Metals = RCRA 8 + Zn + Be

Requested Turn Around Time
15 Business Day ____ Rush ____
10 Business Day ____ Other 5 day

Regulatory Classification – Please Specify
NPDES ____ Drinking Water ____ MCP Other S-3
RCRA ____ MCP GW1 ____ Other ____

Sample Type Codes
WW - Wellwater, W - Wastewater, SW - Surfacewater, LW - Labwater
RW - Raw Water, GW - Groundwater, PW - Public Water, SO - Soil
S - Solid, SL - Sludge, O - Oil, A - Air, Z - Other

Sample ID	Sample Type	Sampler's Initials	Date / Time Collected	Grab	Comp.	# Containers	Plastic (P) or Glass (G)	NaHSO4/MeOH	HNO3 to pH <2	H2SO4 to pH <2	HCl to pH <2	NaOH to pH >12	Other	4°C	pH	Volatiles	Semivolatiles	PCB & Pesticides	EPH	~~VPH~~	DRO/GRO (circle)	Oil & Grease	Metals	General Chemistry	Bacteriological	Other ~~Diff~~
B-1-4 0-.5	SO	MS	8-9-01 9:40		✓	1	G							|				✓	✓				✓			✓
B-1-4 .5-2	|	|	8-9-01 9:45		|	1	G							|				|	|				|			|
B-1-4 2-4	|	|	8-9-01 9:50		|	1	G							|				|	|				|			|
B-1-4 4-6	|	|	8-9-01 9:55		|	1	G							|				|	|				|			|
B-1-5 0-.5	|	|	8-9-01 10:05			2	P							|		✓										
B-1-5 .5-2	|	|	8-9-01 10:10			1	P							|		✓										
B-1-5 2-4	|	|	8-9-01 10:15			1	P							|		✓										
B-1-5 4-6	|	|	8-9-01 10:20			1	P							|		✓										
B-1-5 0-.5	|	|	8-9-01 10:05			1	G							|			MS	✓	✓				✓			✓
B-1-5 .5-2	|	|	8-9-01 10:10			1	G							|			MS	✓	✓				✓			✓

Sampled by (print): Mat Scheller
Signature: Mat Scheller

Relinquished by: Mat Scheller Date: 8/9/01 Time: 1:30
Received by: Stephen W. Lorraine Date: 8-9-01 Time: 13:30

Relinquished by: Stephen W. Lorraine Date: 8-9-01 Time: 17:40
Received by: R. Moran Date: 8/9/01 Time: 17:40

Method of shipment:

Cooler #: 5[illegible]
Temp @ receipt: 6.7°
Preservation/pH checked
By: R[illegible] Date: 8/9/01

White - [illegible] Yellow - [illegible] Report Pink - Customer copy
STL-8245 [illegible]

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hain of Custody Form

SEVERN TRENT SERVICES

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(F) 413-572-3707

• 149 Rangeway Road
N. Billerica, MA 01862
(P) 978-667-1400
(F) 978-667-7871

Job#	Quote#	PO#

Client: Stone+ Webster
Address: 100 Technology Dr
Sloughton MA 02072
Phone: 617-589-5216 Fax: 617-589-2160

Job #: 0813405
Project Manager: Lisa Tyrala
Work ID:
Contact: Matt Scheller

Shaded areas for office use

Analysis Requested
Check analysis and specify method and analytes in comments section.
For example:
500-series for drinking water
600-series for waste water
8000-series for haz/solid waste
Use comments section to further define.

Comments
(Special Instructions)

Requested Turn Around Time
5 Business Day ______ Rush ______
10 Business Day ______ Other ______

Regulatory Classification – Please Specify
NPDES ______ Drinking Water ______ MCP Other ______
RCRA ______ MCP GW1 ______ Other ______

Sample Type Codes
WW - Wellwater, W - Wastewater, SW - Surfacewater, LW - Labwater
RW - Raw Water, GW - Groundwater, PW - Public Water, SO - Soil
S - Solid, SL - Sludge, O - Oil, A - Air, Z - Other

Sample ID	Sample Type	Sampler's Initials	Date / Time Collected	Grab	Comp.	# Containers	Plastic (P) or Glass (G)	NaHSO4/MeOH	HNO3 to pH <2	H2SO4 to pH <2	HCl to pH <2	NaOH to pH >12	Other	4°C	pH	Volatiles	Semivolatiles	PCB & Pesticides	EPH	VPH	DRO/GRO (circle)	Oil & Grease	Metals	General Chemistry	Bacteriological	Other PAH
B-1-3 2-4	SO	MS	8-9-01 9:20			1	P							✓		✓										
B-1-3 4-6			8-9-01 9:22			1	P							✓		✓										
B-1-3 0-.5			8-9-01 9:10			1	G											✓	✓				✓			✓
B-1-3 .5-2			8-9-01 9:14			1	G											✓	✓				✓			✓
B-1-3 2-4			8-9-01 9:20			1	G											✓	✓				✓			✓
B-1-3 4-6			8-9-01 9:22			1	G											✓	✓				✓			✓
B-1-4 0-.5			8-9-01 9:40			2	P									✓										
B-1-4 .5-2			8-9-01 9:45			1	P									✓										
B-1-4 2-4			8-9-01 9:50			1	P									✓										
B-1-4 4-6			8-9-01 9:55			1	P									✓										

Sampled by (print): Matt Scheller
Signature:

Relinquished by: Matt Scheller Date: 8-9-01 Time: 1:30
Received by: Stephen W. Lorraine Date: 8-9-01 Time: 13:30

Relinquished by: Stephen W. Lorraine Date: 8-9-01 Time: 17:40
Received by: R Moran Date: 8/9/01 Time: 1740

Method of shipment:

Cooler #: SR
Temp @ receipt: 5.7°C
Preservation/pH checked
By: RG Date: 8/9/01

White = Lab file Yellow = Report copy Pink = Customer copy
STL 8215

Severn Trent Laboratories, Inc.

Chain of Custody Form

SEVERN TRENT SERVICES

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(F) 413-572-3707

149 Rangeway Road
N. Billerica, MA 01862
(P) 978-667-1400
(F) 978-667-7871

Quote#:

PO#:

Client: Stone + Webster

Job #: 0813405

Address: 100 Technology Dr Stoughton MA 02072

Project Manager: Lis Tyrala

Work ID:

Phone: 617-589-526 Fax: 617-589-2160

Contact: Mat Scheller

Requested Turn Around Time

15 Business Day ____ Rush ____
10 Business Day ____ Other ____

Regulatory Classification – Please Specify

NPDES ____ Drinking Water ____ MCP Other ____
RCRA ____ MCP GW1 ____ Other ____

Analysis Requested
Check analysis and specify method and analytes in comments section.
For example:
500-series for drinking water
600-series for waste water
8000-series for haz/solid waste
Use comments section to further define.

Comments
(Special Instructions)

metals = RCRA 8 + Zn + Be

Sample Type Codes
WW - Wellwater, W - Wastewater, SW - Surfacewater, LW - Labwater, RW - Raw Water, GW - Groundwater, PW - Public Water, SO - Soil, S - Solid, SL - Sludge, O - Oil, A - Air, Z - Other

Sample ID	Sample Type	Sampler's Initials	Date / Time Collected	Grab	Comp.	# Containers	Plastic (P) or Glass (G)	NaHSO4/MeOH	HNO3 to pH <2	H2SO4 to pH <2	HCl to pH <2	NaOH to pH >12	Other	4°C	Volatiles	Semivolatiles	PCB & Pesticides	EPH	VPH	DRO/GRO (circle)	Oil & Grease	Metals	General Chemistry	Bacteriological	Other PAH	Comments
B-5-1 0-.5	SO	MS	8-9-01 7:37		✓	1	G							✓			✓	✓				✓			✓	
B-5-1 .5-2			8-9-01 7:40																							
B-5-1 2-4			8-9-01 7:45																							
B-5-1 4-6			8-9-01 7:58																							Encores
B-5-Φ 0-.5	SO	MS	8-9-01 7:37			2	P								✓											
B-5-1 .5-2			8-9-01 7:40			1	P								✓											
B-5-1 2-4			8-9-01 7:45			1	P								✓											
B-5-1 4-6			8-9-01 7:58			1	P								✓											
B-1-1 0-.5			8-8-01 9:30			1	G										✓	✓				✓			✓	
B-1-1 .5-2			8-9-01 8:31			1	G										✓	✓				✓			✓	

Sampled by (print): Mat Scheller

Signature: Mat Scheller

Relinquished by: Mat Scheller Date: 8-9-01 Time: 1:30

Received by: Stephen W. Lorraine Date: 8-9-01 Time: 13:30

Relinquished by: Stephen W. Lorraine Date: 8-9-01 Time: 17:40

Received by: R [illegible] Date: 8/9/01 Time: 17:40

Preservation pH checked

Method of shipment:

Page ___ of ___

White - file Yellow - Report copy Pink - Customer copy

• 53 Southampton Road
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(F) 413-572-3707

149 Rangeway Road
N. Billerica, MA 01862
(P) 978-667-1400
(F) 978-667-7871

Severn Trent Laboratories, Inc.

SEVERN TRENT SERVICES

Chain of Custody Form

Job#: | Quote#: | PO#:

Client: Stone + Webster
Address: 100 Technology Drive, Stoughton Ma 02072
Phone: 617-589-5216 Fax: 2160
Job #: 0813405
Project Manager: Les Tyrala
Work ID:
Contact: Mat Scheller

Shaded areas for office use

Analysis Requested
Check analysis and specify method and analytes in comments section.
For example:
500-series for drinking water
600-series for waste water
8000-series for haz/solid waste
Use comments section to further define.

Comments (Special Instructions)

Requested Turn Around Time
15 Business Day ______ Rush ______
10 Business Day ______ Other ~~__~~ 5 day

Regulatory Classification – Please Specify
NPDES ______ Drinking Water ______ MCP Other S-3/GW-3
RCRA ______ MCP GW1 ______ Other ______

Sample Type Codes
WW - Wellwater, W - Wastewater, SW - Surfacewater, LW - Labwater
RW - Raw Water, GW - Groundwater, PW - Public Water, SO - Soil
S - Solid, SL - Sludge, O - Oil, A - Air, Z - Other

Sample ID	Sample Type	Sampler's Initials	Date / Time Collected	Grab	Comp.	# Containers	Plastic (P) or Glass (G)	NaHSO4/MeOH	HNO3 to pH <2	H2SO4 to pH <2	HCl to pH <2	NaOH to pH >12	Other	4°C	Volatiles	Semivolatiles	PCB & Pesticides	EPH	VPH	DRO/GRO (circle)	Oil & Grease	Metals	General Chemistry	Bacteriological	Other	Comments
B-1-1 (0-.5)	SO	MS	8-9-01 8:30			2	P							✓	✓											Encores
B-1-1 (.5-2)			8-9-01 8:31			1	P							✓	✓											
B-1-1 (2-4)			8-9-01 8:40			1	P							✓	✓											
B-1-1 (4-6)			8-9-01 8:41			1	P							✓	✓											
B-1-2 (0-.5)			8-9-01 8:50			1	G							✓			✓	✓								PCB + EPH only
B-1-2 (.5-2)			8-9-01 8:53											✓			✓	✓								
B-1-2 (2-4)			8-9-01 8:55											✓			✓	✓								
B-1-2 (4-6)			8-9-01 8:58											✓			✓	✓								
B-1-3 (0-.5)			8-9-01 9:10			2	P							✓	✓											Encores
B-1-3 (.5-2)			8-9-01 9:14			1	P							✓	✓											

Sampled by (print): Mat Scheller
Signature: Mat Scheller

Relinquished by: Mat Scheller Date: 8-9-01 Time: 1:30
Received by: Stephen W. Lorraine Date: 8-9-01 Time: 13:30

Relinquished by: Stephen W. Lorraine Date: 8-9-01 Time: 17:40
Received by: Robin Moore Date: 8/9/01 Time: 1740

Method of shipment:

Preservation pH checked

White = Lab file Yellow = Report copy Pink = Customer copy
STL8245 (1000)

Appendix C

Building No. 2 Laboratory Analytical Reports (Initial and Confirmatory)

STL WESTFIELD/BILLERICA
DATA REPORTING QUALIFIERS AND TERMINOLOGY

A number of data qualifiers are widely used within the environmental testing industry and may be utilized in our data reports. The following definitions of these qualifiers are included as a service to our clientele. The majority of the qualifiers have evolved from the EPA contract laboratory program (CLP).

ORGANIC QUALIFIERS

U - Indicates that the compound was analyzed for but not detected. The sample detection limit is corrected for dilution and percent moisture. This detection limit is not necessarily the instrument detection limit.

J - Indicates an estimated value. This qualifier is used when mass spectral data indicates the presence of a compound that meets the identification criteria and the result is less than the specified quantitation limit but no less than one-half the quantitation limit. Common laboratory contaminants are not reported below the quantitation limit.

B - Indicates that the analyte was found in both the sample and its associated laboratory blank. It indicates possible/probable blank contamination and warns the data user to use caution when applying the results of this analyte. Common laboratory contaminants in applicable method blanks are reported with J qualifiers to one-tenth the quantitation limit.

E - This qualifier indicates compounds whose concentrations exceed the calibration range of the instrument for the specific analysis.

D - Indicates all compounds identified in an analysis at a secondary dilution factor.

RE - This suffix indicates a re-analyzed sample and is appended to the sample number on the result form.

RR - This suffix indicates a re-extracted and re-analyzed sample and is appended to the sample number on the result form.

INORGANICS

U - Indicates that the analyte was analyzed for but not detected.

E - Indicates an estimated value because of the presence of interference.

RPQ00101.MA

CASE NARRATIVE FOR REPORT NUMBER 28932

Client Name : Stone & Webster

Project Name : 0813405

Date : June 27, 2001

Sample No.	Sample ID	Comments
(176645)	B-2-1 (0.0-0.5)	
(176646)	B-2-2 (0.0-0.5)	
(176647)	B-2-3 (0.0-0.5)	
(176648)	B-2-5 (0-2)	
(176649)	B-2-4 (0.0-0.5)	
(176650)	B-2-6 (0-2)	There was insufficient sample to perform a % solids analysis. All results are reported on a wet weight basis.

ADDITIOMNAL CASE NARRATIVE FOR REPORT NUMBER 28932

Client Name: Stone & Webster
Project Name: 0813405
Date: June 27, 2001

EPA 8081

Samples in this report were analyzed by EPA methods 8081. Sample B-2-2 (0.0-0.5) resulted in a reportable amount of beta-BHC. The %D between the two analytical columns was >40%. The larger result was judged to be elevated due to interference. The lower result is included in this data package.

VPH/EPH CERTIFICATION

Job Number: 28932

The samples in this data set were analyzed by the MADEP VPH and/or EPH Methods (Revision 0 January 1998). The following information is provided relative to sample receipt, QA/QC procedures and method modifications.

Sample Receipt and Analysis:

- Sample containers were received in satisfactory condition.
- Samples were received at 4±2°C or on ice.
- Aqueous samples were preserved properly.
- VPH soil samples were properly preserved with methanol (1:1 ± 25%; covered soil).
- EPH water and soil samples are prepared for analysis by liquid-liquid and sonication extraction, respectively.

Reporting Conventions:

- The Unadjusted C11-C22 aromatic range excludes concentrations of any surrogate(s) and/or internal standards eluting in that range.
- C11-C22 aromatic hydrocarbons exclude the concentration of target PAH analytes.
- Unadjusted VPH ranges exclude the concentrations of any surrogate(s) and/or internal standards eluting in that range.
- C5-C8 aliphatic hydrocarbons exclude the concentrations of target analytes eluting in that range.
- C9-C12 aliphatic hydrocarbons exclude the concentration of target analytes eluting in that range and the concentration of C9-C10 aromatic hydrocarbons.

QA/QC Procedures:

- All QA/QC procedures required by the EPH/VPH Methods were followed. All Method performance/acceptance standards were achieved with the following exception. In the EPH analysis the recovery performance for the lowest molecular weight aliphatic marker, (C9), is considered advisory. The method specified surrogate standard recovery ranges are 40%-140% (EPH) and 70%-130% (VPH).

Method Modifications:

- Sample and standard chromatograms are corrected for column bleed and a single component contaminant from the SPE cartridge.

Certification:

The signature on the report cover page serves as the attestation for the method specified certification:

> *I attest under the pains of perjury that, based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.*

Inorganics Analysis Data Sheet

Client Name : Stone & Webster	Report No : 28932
Project Name : 0813405	Date Collected : 6/18/01
Matrix Name : Soil	Date Received : 6/19/01

Sample No.	Client ID	Analyte	Result	Units	Method	Date Analyzed	By
176645	B-2-1 (0.0-0.5)	Solids, percent	88.6	%	EPA 160.3	6/20/01	GRB
		Arsenic	7.5	mg/kg dry	SW8466010B	6/21/01	BGE
		Barium	49	mg/kg dry	SW8466010B	6/21/01	BGE
		Beryllium	0.30	mg/kg dry	SW8466010B	6/21/01	BGE
		Cadmium	0.26	mg/kg dry	SW8466010B	6/21/01	BGE
		Chromium	28	mg/kg dry	SW8466010B	6/21/01	BGE
		Lead	30	mg/kg dry	SW8466010B	6/21/01	BGE
		Mercury	0.10	mg/kg dry	SW8467471A	6/21/01	BGE
		Selenium	2.2	mg/kg dry	SW8466010B	6/21/01	BGE
		Silver	1U	mg/kg dry	SW8466010B	6/21/01	BGE
		Zinc	35	mg/kg dry	SW8466010B	6/21/01	BGE
176646	B-2-2 (0.0-0.5)	Solids, percent	84.8	%	EPA 160.3	6/20/01	GRB
176647	B-2-3 (0.0-0.5)	Solids, percent	97.1	%	EPA 160.3	6/20/01	GRB
176648	B-2-5 (0-2)	Solids, percent	75.4	%	EPA 160.3	6/20/01	GRB
176649	B-2-4 (0.0-0.5)	Solids, percent	91.4	%	EPA 160.3	6/20/01	GRB
		Arsenic	5.1	mg/kg dry	SW8466010B	6/21/01	BGE
		Barium	44	mg/kg dry	SW8466010B	6/21/01	BGE
		Beryllium	0.45	mg/kg dry	SW8466010B	6/21/01	BGE
		Cadmium	0.43	mg/kg dry	SW8466010B	6/21/01	BGE
		Chromium	13	mg/kg dry	SW8466010B	6/21/01	BGE
		Lead	59	mg/kg dry	SW8466010B	6/21/01	BGE
		Mercury	0.05U	mg/kg dry	SW8467471A	6/21/01	BGE
		Selenium	1U	mg/kg dry	SW8466010B	6/21/01	BGE
		Silver	1U	mg/kg dry	SW8466010B	6/21/01	BGE
		Zinc	43	mg/kg dry	SW8466010B	6/21/01	BGE
176650	B-2-6 (0-2)	Arsenic	4.5	mg/kg dry	SW8466010B	6/21/01	BGE
		Barium	44	mg/kg dry	SW8466010B	6/21/01	BGE
		Beryllium	0.21	mg/kg dry	SW8466010B	6/21/01	BGE
		Cadmium	3.0	mg/kg dry	SW8466010B	6/21/01	BGE
		Chromium	7.7	mg/kg dry	SW8466010B	6/21/01	BGE
		Lead	2100	mg/kg dry	SW8466010B	6/21/01	BGE
		Mercury	2.5	mg/kg dry	SW8467471A	6/21/01	BGE
		Selenium	1U	mg/kg dry	SW8466010B	6/21/01	BGE
		Silver	1U	mg/kg dry	SW8466010B	6/21/01	BGE
		Zinc	3400	mg/kg dry	SW8466010B	6/21/01	BGE

Pesticides/PCB Organics Analysis Data Sheet

SW8468081A

Client ID :	B-2-1 (0.0-0.5)	Report No :	28932
Client Name :	Stone & Webster	STL Sample Number :	176645
Project Name :	0813405	Lab File ID :	H9470
Matrix :	Soil	Date Collected :	6/18/01
Sample Wt/Vol :	10.3g	Date Received :	6/19/01
% Solid :	88.6	Date Extracted :	6/20/01
GPC Clean up :		Date Analyzed :	6/21/01
Sulfur Clean up :		By :	SH
Dilution Factor :	1		

CAS NO	Compound	Reporting Limit ug/kg dry	Concentration ug/kg dry
319-85-7	beta-BHC	11	U

Pesticides/PCB Organics Analysis Data Sheet

SW8468081A

Client ID :	B-2-2 (0.0-0.5)	Report No :	28932
Client Name :	Stone & Webster	STL Sample Number :	176646
Project Name :	0813405	Lab File ID :	H9471
Matrix :	Soil	Date Collected :	6/18/01
Sample Wt/Vol :	10.37g	Date Received :	6/19/01
% Solid :	84.8	Date Extracted :	6/20/01
GPC Clean up :		Date Analyzed :	6/21/01
Sulfur Clean up :		By :	SH
Dilution Factor :	1		

CAS NO	Compound	Reporting Limit ug/kg dry	Concentration ug/kg dry
319-85-7	beta-BHC	11	13

Pesticides/PCB Organics Analysis Data Sheet

SW8468081A

Client ID :	B-2-4 (0.0-0.5)	Report No :	28932
Client Name :	Stone & Webster	STL Sample Number :	176649
Project Name :	0813405	Lab File ID :	H9472
Matrix :	Soil	Date Collected :	6/18/01
Sample Wt/Vol :	10.0g	Date Received :	6/19/01
% Solid :	91.4	Date Extracted :	6/20/01
GPC Clean up :		Date Analyzed :	6/21/01
Sulfur Clean up :		By :	SH
Dilution Factor :	1		

CAS NO	Compound	Reporting Limit ug/kg dry	Concentration ug/kg dry
319-85-7	beta-BHC	11	U

Pesticides/PCB Organics Analysis Data Sheet

SW8468081A

Client ID : B-2-6 (0-2)	Report No : 28932
Client Name : Stone & Webster	STL Sample Number : 176650
Project Name : 0813405	Lab File ID : H9473
Matrix : Soil	Date Collected : 6/18/01
Sample Wt/Vol : 10.1g	Date Received : 6/19/01
% Solid :	Date Extracted : 6/20/01
GPC Clean up :	Date Analyzed : 6/21/01
Sulfur Clean up :	By : SH
Dilution Factor : 1	

CAS NO	Compound	Reporting Limit ug/kg dry	Concentration ug/kg dry
319-85-7	beta-BHC	9.9	U

Pesticides/PCB Organics Analysis Data Sheet

SW8468082A

Client ID :	B-2-1 (0.0-0.5)	Report No :	28932
Client Name :	Stone & Webster	STL Sample Number :	176645
Project Name :	0813405	Lab File ID :	H9470
Matrix :	Soil	Date Collected :	6/18/01
Sample Wt/Vol :	10.3g	Date Received :	6/19/01
% Solid :	88.6	Date Extracted :	6/20/01
GPC Clean up :		Date Analyzed :	6/21/01
Sulfur Clean up :		By :	SH
Dilution Factor :	1		

CAS NO	Compound	Reporting Limit ug/kg dry	Concentration ug/kg dry
12674-11-2	Arochlor-1016	110	U
11104-28-2	Arochlor-1221	110	U
11141-16-5	Arochlor-1232	110	U
53469-21-9	Arochlor-1242	110	U
12672-29-6	Arochlor-1248	110	U
11097-69-1	Arochlor-1254	110	U
11096-82-5	Arochlor-1260	110	U

Pesticides/PCB Organics Analysis Data Sheet

SW8468082A

Client ID :	B-2-2 (0.0-0.5)	Report No :	28932
Client Name :	Stone & Webster	STL Sample Number :	176646
Project Name :	0813405	Lab File ID :	H9471
Matrix :	Soil	Date Collected :	6/18/01
Sample Wt/Vol :	10.37g	Date Received :	6/19/01
% Solid :	84.8	Date Extracted :	6/20/01
GPC Clean up :		Date Analyzed :	6/21/01
Sulfur Clean up :		By :	SH
Dilution Factor :	1		

CAS NO	Compound	Reporting Limit ug/kg dry	Concentration ug/kg dry
12674-11-2	Arochlor-1016	110	U
11104-28-2	Arochlor-1221	110	U
11141-16-5	Arochlor-1232	110	U
53469-21-9	Arochlor-1242	110	U
12672-29-6	Arochlor-1248	110	U
11097-69-1	Arochlor-1254	110	U
11096-82-5	Arochlor-1260	110	U

Pesticides/PCB Organics Analysis Data Sheet

SW8468082A

Client ID : B-2-3 (0.0-0.5)	Report No : 28932
Client Name : Stone & Webster	STL Sample Number : 176647
Project Name : 0813405	Lab File ID : H9474
Matrix : Soil	Date Collected : 6/18/01
Sample Wt/Vol : 10.1g	Date Received : 6/19/01
% Solid : 97.1	Date Extracted : 6/20/01
GPC Clean up :	Date Analyzed : 6/21/01
Sulfur Clean up :	By : SH
Dilution Factor : 1	

CAS NO	Compound	Reporting Limit ug/kg dry	Concentration ug/kg dry
12674-11-2	Arochlor-1016	100	U
11104-28-2	Arochlor-1221	100	U
11141-16-5	Arochlor-1232	100	U
53469-21-9	Arochlor-1242	100	U
12672-29-6	Arochlor-1248	100	U
11097-69-1	Arochlor-1254	100	U
11096-82-5	Arochlor-1260	100	U

Pesticides/PCB Organics Analysis Data Sheet

SW8468082A

Client ID :	B-2-5 (0-2)	Report No :	28932
Client Name :	Stone & Webster	STL Sample Number :	176648
Project Name :	0813405	Lab File ID :	H9475
Matrix :	Soil	Date Collected :	6/18/01
Sample Wt/Vol :	10.8g	Date Received :	6/19/01
% Solid :	75.4	Date Extracted :	6/20/01
GPC Clean up :		Date Analyzed :	6/21/01
Sulfur Clean up :		By :	SH
Dilution Factor :	1		

CAS NO	Compound	Reporting Limit ug/kg dry	Concentration ug/kg dry
12674-11-2	Arochlor-1016	120	U
11104-28-2	Arochlor-1221	120	U
11141-16-5	Arochlor-1232	120	U
53469-21-9	Arochlor-1242	120	U
12672-29-6	Arochlor-1248	120	U
11097-69-1	Arochlor-1254	120	U
11096-82-5	Arochlor-1260	120	U

Pesticides/PCB Organics Analysis Data Sheet

SW8468082A

Client ID :	B-2-4 (0.0-0.5)	Report No :	28932
Client Name :	Stone & Webster	STL Sample Number :	176649
Project Name :	0813405	Lab File ID :	H9472
Matrix :	Soil	Date Collected :	6/18/01
Sample Wt/Vol :	10.0g	Date Received :	6/19/01
% Solid :	91.4	Date Extracted :	6/20/01
GPC Clean up :		Date Analyzed :	6/21/01
Sulfur Clean up :		By :	SH
Dilution Factor :	1		

CAS NO	Compound	Reporting Limit ug/kg dry	Concentration ug/kg dry
12674-11-2	Arochlor-1016	110	U
11104-28-2	Arochlor-1221	110	U
11141-16-5	Arochlor-1232	110	U
53469-21-9	Arochlor-1242	110	U
12672-29-6	Arochlor-1248	110	U
11097-69-1	Arochlor-1254	110	U
11096-82-5	Arochlor-1260	110	U

Pesticides/PCB Organics Analysis Data Sheet

SW8468082A

Client ID :	B-2-6 (0-2)	Report No :	28932
Client Name :	Stone & Webster	STL Sample Number :	176650
Project Name :	0813405	Lab File ID :	H9473
Matrix :	Soil	Date Collected :	6/18/01
Sample Wt/Vol :	10.1g	Date Received :	6/19/01
% Solid :		Date Extracted :	6/20/01
GPC Clean up :		Date Analyzed :	6/21/01
Sulfur Clean up :		By :	SH
Dilution Factor :	1		

CAS NO	Compound	Reporting Limit ug/kg dry	Concentration ug/kg dry
12674-11-2	Arochlor-1016	99	U
11104-28-2	Arochlor-1221	99	U
11141-16-5	Arochlor-1232	99	U
53469-21-9	Arochlor-1242	99	U
12672-29-6	Arochlor-1248	99	U
11097-69-1	Arochlor-1254	99	U
11096-82-5	Arochlor-1260	99	U

Volatile Organics Analysis Data Sheet

SW8468260B

Client ID :	B-2-1 (0.0-0.5)	Report No :	28932
Client Name :	Stone & Webster	STL Sample Number :	176645
Project Name :	0813405	Lab File ID :	V21690
Matrix :	Soil	Date Collected :	6/18/01
Sample Wt/Vol :	5.65g	Date Received :	6/19/01
% Solid :	88.6	Date Analyzed :	6/19/01
Dilution Factor :	1	By :	JAW

CAS NO	Compound	Reporting Limit ug/kg dry	Concentration ug/kg dry
67-64-1	Acetone	50	U
71-43-2	Benzene	2.5	5.1
75-15-0	Carbon Disulfide	2.5	U
67-66-3	Chloroform	2.5	U
107-06-2	1,2-Dichloroethane	2.5	U
100-41-4	Ethylbenzene	2.5	U
75-01-4	Vinyl chloride	5.0	U

Semi-Volatile Organics Analysis Data Sheet

SW8468270C

Client ID : B-2-1 (0.0-0.5)	Report No : 28932
Client Name : Stone & Webster	STL Sample Number : 176645
Project Name : 0813405	Lab File ID : B7059
Matrix : Soil	Date Collected : 6/18/01
Sample Wt/Vol : 30.1g	Date Received : 6/19/01
% Solid : 88.6	Date Extracted : 6/20/01
GPC Clean up :	Date Analyzed : 6/20/01
Dilution Factor : 4	By : SM

CAS NO	Compound	Reporting Limit ug/kg dry	Concentration ug/kg dry
83-32-9	Acenaphthene	1,500	U
208-96-8	Acenaphthylene	1,500	U
120-12-7	Anthracene	1,500	1400 J
56-55-3	Benzo(a)anthracene	1,500	5800
205-99-2	Benzo(b)fluoranthene	1,500	6600
207-08-9	Benzo(k)fluoranthene	1,500	3600
191-24-2	Benzo(g,h,i)perylene	1,500	2900
50-32-8	Benzo(a)pyrene	1,500	5600
218-01-9	Chrysene	1,500	5400
53-70-3	Dibenzo(a,h)anthracene	1,500	1500
206-44-0	Fluoranthene	1,500	11000
86-73-7	Fluorene	1,500	U
193-39-5	Indeno(1,2,3-cd)pyrene	1,500	3200
91-57-6	2-Methylnaphthalene	1,500	U
91-20-3	Naphthalene	1,500	U
85-01-8	Phenanthrene	1,500	5500
129-00-0	Pyrene	1,500	7000

Semi-Volatile Organics Analysis Data Sheet

SW8468270C

Client ID :	B-2-4 (0.0-0.5)	Report No :	28932
Client Name :	Stone & Webster	STL Sample Number :	176649
Project Name :	0813405	Lab File ID :	B7057
Matrix :	Soil	Date Collected :	6/18/01
Sample Wt/Vol :	30.2g	Date Received :	6/19/01
% Solid :	91.4	Date Extracted :	6/20/01
GPC Clean up :		Date Analyzed :	6/20/01
Dilution Factor :	1	By :	SM

CAS NO	Compound	Reporting Limit ug/kg dry	Concentration ug/kg dry
83-32-9	Acenaphthene	360	U
208-96-8	Acenaphthylene	360	U
120-12-7	Anthracene	360	U
56-55-3	Benzo(a)anthracene	360	U
205-99-2	Benzo(b)fluoranthene	360	U
207-08-9	Benzo(k)fluoranthene	360	U
191-24-2	Benzo(g,h,i)perylene	360	U
50-32-8	Benzo(a)pyrene	360	U
218-01-9	Chrysene	360	U
53-70-3	Dibenzo(a,h)anthracene	360	U
206-44-0	Fluoranthene	360	U
86-73-7	Fluorene	360	U
193-39-5	Indeno(1,2,3-cd)pyrene	360	U
91-57-6	2-Methylnaphthalene	360	U
91-20-3	Naphthalene	360	U
85-01-8	Phenanthrene	360	U
129-00-0	Pyrene	360	U

Semi-Volatile Organics Analysis Data Sheet

SW8468270C

Client ID : B-2-6 (0-2)	Report No : 28932
Client Name : Stone & Webster	STL Sample Number : 176650
Project Name : 0813405	Lab File ID : B7058
Matrix : Soil	Date Collected : 6/18/01
Sample Wt/Vol : 30.0g	Date Received : 6/19/01
% Solid :	Date Extracted : 6/20/01
GPC Clean up :	Date Analyzed : 6/20/01
Dilution Factor : 4	By : SM

CAS NO	Compound	Reporting Limit ug/kg dry	Concentration ug/kg dry
83-32-9	Acenaphthene	1,300	U
208-96-8	Acenaphthylene	1,300	U
120-12-7	Anthracene	1,300	U
56-55-3	Benzo(a)anthracene	1,300	1000 J
205-99-2	Benzo(b)fluoranthene	1,300	1200 J
207-08-9	Benzo(k)fluoranthene	1,300	720 J
191-24-2	Benzo(g,h,i)perylene	1,300	U
50-32-8	Benzo(a)pyrene	1,300	1100 J
218-01-9	Chrysene	1,300	1100 J
53-70-3	Dibenzo(a,h)anthracene	1,300	U
206-44-0	Fluoranthene	1,300	2400
86-73-7	Fluorene	1,300	U
193-39-5	Indeno(1,2,3-cd)pyrene	1,300	U
91-57-6	2-Methylnaphthalene	1,300	U
91-20-3	Naphthalene	1,300	U
85-01-8	Phenanthrene	1,300	2100
129-00-0	Pyrene	1,300	1400

Semi-Volatile Organics Analysis Data Sheet

MADEP EPH

Client ID : B-2-1 (0.0-0.5)	Report No : 28932
Client Name : Stone & Webster	STL Sample Number : 176645
Project Name : 0813405	Lab File ID : D13264
Matrix : Soil	Date Collected : 6/18/01
Sample Wt/Vol : 30.1g	Date Received : 6/19/01
% Solid : 88.6	Date Extracted : 6/20/01
GPC Clean up :	Date Analyzed : 6/20/01
Dilution Factor : 2.5	By : SM

CAS NO	Compound	Reporting Limit mg/kg dry	Concentration mg/kg dry
	Unadjusted C11-C22 Aromatics	9.4	230
	C9-C18 Aliphatics	9.4	U
	C19-C36 Aliphatics	9.4	160
	C11-C22 Aromatics	9.4	180
	EPH Concentration (Total)	9.4	330
83-32-9	Acenaphthene	0.9	U
208-96-8	Acenaphthylene	0.9	U
120-12-7	Anthracene	0.9	0.96
56-55-3	Benzo(a)anthracene	0.9	4.7
50-32-8	Benzo(a)pyrene	0.9	5.4
205-99-2	Benzo(b)fluoranthene	0.9	6.4
191-24-2	Benzo(g,h,i)perylene	0.9	3.1
207-08-9	Benzo(k)fluoranthene	0.9	3.0
218-01-9	Chrysene	0.9	4.4
53-70-3	Dibenzo(a,h)anthracene	0.9	U
206-44-0	Fluoranthene	0.9	8.9
86-73-7	Fluorene	0.9	U
193-39-5	Indeno(1,2,3-cd)pyrene	0.9	3.5
91-57-6	2-Methylnaphthalene	0.9	U
91-20-3	Naphthalene	0.9	U
85-01-8	Phenanthrene	0.9	3.7
129-00-0	Pyrene	0.9	8.8

Semi-Volatile Organics Analysis Data Sheet

MADEP EPH

Client ID : B-2-2 (0.0-0.5)	Report No : 28932
Client Name : Stone & Webster	STL Sample Number : 176646
Project Name : 0813405	Lab File ID : D13266
Matrix : Soil	Date Collected : 6/18/01
Sample Wt/Vol : 30.1g	Date Received : 6/19/01
% Solid : 84.8	Date Extracted : 6/20/01
GPC Clean up :	Date Analyzed : 6/20/01
Dilution Factor : 5	By : SM

CAS NO	Compound	Reporting Limit mg/kg dry	Concentration mg/kg dry
	Unadjusted C11-C22 Aromatics	20	520
	C9-C18 Aliphatics	20	U
	C19-C36 Aliphatics	20	U
	C11-C22 Aromatics	20	310
	EPH Concentration (Total)	20	310
83-32-9	Acenaphthene	2.0	U
208-96-8	Acenaphthylene	2.0	3.5
120-12-7	Anthracene	2.0	7.5
56-55-3	Benzo(a)anthracene	2.0	18
50-32-8	Benzo(a)pyrene	2.0	18
205-99-2	Benzo(b)fluoranthene	2.0	19
191-24-2	Benzo(g,h,i)perylene	2.0	8.3
207-08-9	Benzo(k)fluoranthene	2.0	7.9
218-01-9	Chrysene	2.0	14
53-70-3	Dibenzo(a,h)anthracene	2.0	2.2
206-44-0	Fluoranthene	2.0	40
86-73-7	Fluorene	2.0	2.4
193-39-5	Indeno(1,2,3-cd)pyrene	2.0	9.6
91-57-6	2-Methylnaphthalene	2.0	U
91-20-3	Naphthalene	2.0	U
85-01-8	Phenanthrene	2.0	30
129-00-0	Pyrene	2.0	34

Semi-Volatile Organics Analysis Data Sheet

MADEP EPH

Client ID : B-2-3 (0.0-0.5)	Report No : 28932
Client Name : Stone & Webster	STL Sample Number : 176647
Project Name : 0813405	Lab File ID : D13268
Matrix : Soil	Date Collected : 6/18/01
Sample Wt/Vol : 30.3g	Date Received : 6/19/01
% Solid : 97.1	Date Extracted : 6/20/01
GPC Clean up :	Date Analyzed : 6/20/01
Dilution Factor : 1	By : SM

CAS NO	Compound	Reporting Limit mg/kg dry	Concentration mg/kg dry
	Unadjusted C11-C22 Aromatics	3.4	U
	C9-C18 Aliphatics	3.4	U
	C19-C36 Aliphatics	3.4	U
	C11-C22 Aromatics	3.4	U
	EPH Concentration (Total)	3.4	U
83-32-9	Acenaphthene	0.3	U
208-96-8	Acenaphthylene	0.3	U
120-12-7	Anthracene	0.3	U
56-55-3	Benzo(a)anthracene	0.3	U
50-32-8	Benzo(a)pyrene	0.3	U
205-99-2	Benzo(b)fluoranthene	0.3	U
191-24-2	Benzo(g,h,i)perylene	0.3	U
207-08-9	Benzo(k)fluoranthene	0.3	U
218-01-9	Chrysene	0.3	U
53-70-3	Dibenzo(a,h)anthracene	0.3	U
206-44-0	Fluoranthene	0.3	U
86-73-7	Fluorene	0.3	U
193-39-5	Indeno(1,2,3-cd)pyrene	0.3	U
91-57-6	2-Methylnaphthalene	0.3	U
91-20-3	Naphthalene	0.3	U
85-01-8	Phenanthrene	0.3	U
129-00-0	Pyrene	0.3	U

Semi-Volatile Organics Analysis Data Sheet

MADEP EPH

Client ID :	B-2-5 (0-2)	Report No :	28932
Client Name :	Stone & Webster	STL Sample Number :	176648
Project Name :	0813405	Lab File ID :	D13270
Matrix :	Soil	Date Collected :	6/18/01
Sample Wt/Vol :	30.2g	Date Received :	6/19/01
% Solid :	75.4	Date Extracted :	6/20/01
GPC Clean up :		Date Analyzed :	6/20/01
Dilution Factor :	1	By :	SM

CAS NO	Compound	Reporting Limit mg/kg dry	Concentration mg/kg dry
	Unadjusted C11-C22 Aromatics	4.4	43
	C9-C18 Aliphatics	4.4	U
	C19-C36 Aliphatics	4.4	U
	C11-C22 Aromatics	4.4	28
	EPH Concentration (Total)	4.4	28
83-32-9	Acenaphthene	0.4	U
208-96-8	Acenaphthylene	0.4	U
120-12-7	Anthracene	0.4	0.45
56-55-3	Benzo(a)anthracene	0.4	1.3
50-32-8	Benzo(a)pyrene	0.4	1.3
205-99-2	Benzo(b)fluoranthene	0.4	1.4
191-24-2	Benzo(g,h,i)perylene	0.4	0.72
207-08-9	Benzo(k)fluoranthene	0.4	0.63
218-01-9	Chrysene	0.4	1.1
53-70-3	Dibenzo(a,h)anthracene	0.4	U
206-44-0	Fluoranthene	0.4	2.7
86-73-7	Fluorene	0.4	U
193-39-5	Indeno(1,2,3-cd)pyrene	0.4	0.75
91-57-6	2-Methylnaphthalene	0.4	U
91-20-3	Naphthalene	0.4	U
85-01-8	Phenanthrene	0.4	1.9
129-00-0	Pyrene	0.4	2.5

Semi-Volatile Organics Analysis Data Sheet

MADEP EPH

Client ID : B-2-4 (0.0-0.5)	Report No : 28932
Client Name : Stone & Webster	STL Sample Number : 176649
Project Name : 0813405	Lab File ID : D13272
Matrix : Soil	Date Collected : 6/18/01
Sample Wt/Vol : 30.3g	Date Received : 6/19/01
% Solid : 91.4	Date Extracted : 6/20/01
GPC Clean up :	Date Analyzed : 6/20/01
Dilution Factor : 1	By : SM

CAS NO	Compound	Reporting Limit mg/kg dry	Concentration mg/kg dry
	Unadjusted C11-C22 Aromatics	3.6	U
	C9-C18 Aliphatics	3.6	U
	C19-C36 Aliphatics	3.6	U
	C11-C22 Aromatics	3.6	U
	EPH Concentration (Total)	3.6	U
83-32-9	Acenaphthene	0.4	U
208-96-8	Acenaphthylene	0.4	U
120-12-7	Anthracene	0.4	U
56-55-3	Benzo(a)anthracene	0.4	U
50-32-8	Benzo(a)pyrene	0.4	U
205-99-2	Benzo(b)fluoranthene	0.4	U
191-24-2	Benzo(g,h,i)perylene	0.4	U
207-08-9	Benzo(k)fluoranthene	0.4	U
218-01-9	Chrysene	0.4	U
53-70-3	Dibenzo(a,h)anthracene	0.4	U
206-44-0	Fluoranthene	0.4	U
86-73-7	Fluorene	0.4	U
193-39-5	Indeno(1,2,3-cd)pyrene	0.4	U
91-57-6	2-Methylnaphthalene	0.4	U
91-20-3	Naphthalene	0.4	U
85-01-8	Phenanthrene	0.4	U
129-00-0	Pyrene	0.4	U

Semi-Volatile Organics Analysis Data Sheet

MADEP EPH

Client ID : B-2-6 (0-2)	Report No : 28932
Client Name : Stone & Webster	STL Sample Number : 176650
Project Name : 0813405	Lab File ID : D13274
Matrix : Soil	Date Collected : 6/18/01
Sample Wt/Vol : 30.1g	Date Received : 6/19/01
% Solid :	Date Extracted : 6/20/01
GPC Clean up :	Date Analyzed : 6/20/01
Dilution Factor : 1	By : SM

CAS NO	Compound	Reporting Limit mg/kg dry	Concentration mg/kg dry
	Unadjusted C11-C22 Aromatics	3.3	12
	C9-C18 Aliphatics	3.3	U
	C19-C36 Aliphatics	3.3	U
	C11-C22 Aromatics	3.3	10
	EPH Concentration (Total)	3.3	10
83-32-9	Acenaphthene	0.3	U
208-96-8	Acenaphthylene	0.3	U
120-12-7	Anthracene	0.3	U
56-55-3	Benzo(a)anthracene	0.3	U
50-32-8	Benzo(a)pyrene	0.3	U
205-99-2	Benzo(b)fluoranthene	0.3	0.34
191-24-2	Benzo(g,h,i)perylene	0.3	U
207-08-9	Benzo(k)fluoranthene	0.3	U
218-01-9	Chrysene	0.3	U
53-70-3	Dibenzo(a,h)anthracene	0.3	U
206-44-0	Fluoranthene	0.3	0.67
86-73-7	Fluorene	0.3	U
193-39-5	Indeno(1,2,3-cd)pyrene	0.3	U
91-57-6	2-Methylnaphthalene	0.3	U
91-20-3	Naphthalene	0.3	U
85-01-8	Phenanthrene	0.3	0.39
129-00-0	Pyrene	0.3	0.57

BLANK RESULTS SUMMARY

JOB NO: 28932
PROJECT NO: 0813405

ANALYSIS	DATE OF EXTRACTION	DATE OF ANALYSIS	MATRIX	ANALYTE DETECTED	CONCENTRATION
8260	None	6/19/01	Soil	None Detected	
PESTICIDES	6/20/01	6/21/01	Soil	None Detected	
PCB	6/20/01	6/21/01	Soil	None Detected	
PAH by 8270	6/20/01	6/20/01	Soil	None Detected	
EPH	6/20/01	6/20/01	Soil	None Detected	

SOIL VOLATILE LCS/LCS DUPLICATE RECOVERY

Client Name: Stone & Webster Report Number: 28932

Project: 0813405

COMPOUND	SPIKE ADDED (ug/kg)	SAMPLE CONCENTRATION (ug/kg)	LCS CONCENTRATION (ug/kg)	LCS % REC	#	QC. LIMITS REC.
Vinyl Chloride	100	0	80	80		70-130
1,1 Dichloroethene	100	0	85	85		70-130
Trans-1,2 Dichloroethene	100	0	87	87		70-130
1,1 Dichloroethane	100	0	87	87		70-130
cis 1,2 Dichloroethene	100	0	92	92		70-130
1,1,1 Trichloroethane	100	0	92	92		70-130
1,2 Dichloroethane	100	0	92	92		70-130
Benzene	100	0	92	92		70-130
Trichloroethene	100	0	77	77		70-130
Toluene	100	0	71	71		70-130
Tetrachloroethane	100	0	86	86		70-130
Chlorobenzene	100	0	82	82		70-130
Ethylbenzene	100	0	79	79		70-130
m&p Xylene	200	0	166	83		70-130
O Xylene	100	0	85	85		70-130

COMPOUND	SPIKE ADDED (ug/kg)	LCSD CONCENTRATION (ug/kg)	LCSD % REC	#	% RPD	#	QC LIMITS RPD	QC LIMITS REC.
Vinyl Chloride	100	85	85		6		30	70-130
1,1 Dichloroethene	100	97	97		13		30	70-130
Trans-1,2 Dichloroethene	100	99	99		13		30	70-130
1,1 Dichloroethane	100	97	97		11		30	70-130
cis 1,2 Dichloroethene	100	104	104		12		30	70-130
1,1,1 Trichloroethane	100	104	104		12		30	70-130
1,2 Dichloroethane	100	101	101		9		30	70-130
Benzene	100	99	99		7		30	70-130
Trichloroethene	100	88	88		13		30	70-130
Toluene	100	79	79		11		30	70-130
Tetrachloroethane	100	102	102		17		30	70-130
Chlorobenzene	100	92	92		11		30	70-130
Ethylbenzene	100	88	88		11		30	70-130
m&p Xylene	200	184	92		10		30	70-130
O Xylene	100	90	90		6		30	70-130

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Comments:

SOIL VOLATILE LCS DUPLICATE RECOVERY

Client Name: Stone & Webster Report Number: 28932

Project: 0813405

COMPOUND	SPIKE ADDED (ug/kg)	SAMPLE CONCENTRATION (ug/kg)	LCS CONCENTRATION (ug/kg)	LCS % REC	#	QC. LIMITS REC.
Vinyl Chloride	100	0	130	130		70-130
1,1 Dichloroethene	100	0	107	107		70-130
Trans-1,2 Dichloroethene	100	0	111	111		70-130
1,1 Dichloroethane	100	0	119	119		70-130
cis 1,2 Dichloroethene	100	0	116	116		70-130
1,1,1 Trichloroethane	100	0	106	106		70-130
1,2 Dichloroethane	100	0	109	109		70-130
Benzene	100	0	110	110		70-130
Trichloroethene	100	0	91	91		70-130
Toluene	100	0	106	106		70-130
Tetrachloroethane	100	0	99	99		70-130
Chlorobenzene	100	0	111	111		70-130
Ethylbenzene	100	0	109	109		70-130
m&p Xylene	200	0	242	121		70-130
O Xylene	100	0	116	116		70-130

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Comments:

VOLATILE SYSTEM MONITORING COMPOUND RECOVERY
8260

Client Name: Stone & Webster

Report Number: 28932

Project: 0813405

CLIENT SAMPLE ID.	SMC1 (DBFM)	#	SMC2 (DCE)	#	SMC3 (TOL)	#	SMC4 (BFB)	#	TOT OUT
B-2-1 (0.0-0.5)	97		115		80		73		0

	QC LIMITS
SMC1 = Dibromofluoromethane	(70-130)
SMC2 =1,2-dichloroethane-d4	(70-130)
SMC3 =Toluene-d8	(70-130)
SMC4 =4-Bromofluorobenzene	(70-130)

\# Column to be used to flag recovery values
* Values outside of contract required QC limits
D System Monitoring Compound diluted out

SOIL SEMI-VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE SPIKE RECOVERY

Client Name: Stone & Webster

Report Number: 28932

Project: 0813405

Matrix Spike - Sample No.: 28873-176379

COMPOUND	SPIKE ADDED (ug/kg)	SAMPLE CONCENTRATION (ug/kg)	MS CONCENTRATION (ug/kg)	MS % REC	#	QC. LIMITS REC.
Napthalene	1937	0	1307	67		40-140
2-Methynaphthalene	1937	0	1293	67		40-140
Acenaphthylene	1937	0	1516	78		40-140
Acenaphthene	1937	0	1474	76		40-140
Fluorene	1937	0	1419	73		40-140
Phenanthrene	1937	0	1532	79		40-140
Anthrancene	1937	0	1521	79		40-140
Fluoranthene	1937	0	1573	81		40-140
Pyrene	1937	0	1108	57		40-140
Benzo(a)anthracene	1937	0	1560	81		40-140
Chrysene	1937	0	1591	82		40-140
Benzo(b)fluoranthene	1937	0	1943	100		40-140
Benzo(k)fluoranthene	1937	0	1710	88		40-140
Benzo(a)pyrene	1937	0	1655	85		40-140
Indeno(1,2,3-cd)pyrene	1937	0	1017	52		40-140
Dibenzo(a,h) anthracene	1937	0	1031	53		40-140
Benzo(g,h,l)perlyene	1937	0	923	48		40-140

COMPOUND	SPIKE ADDED (ug/kg)	MSD CONCENTRATION (ug/kg)	MSD % REC	#	% RPD	#	QC LIMITS RPD	QC. LIMITS REC.
Napthalene	1926	1359	71		5		30	40-140
2-Methynaphthalene	1926	1396	73		8		30	40-140
Acenaphthalene	1926	1608	84		6		30	40-140
Acenaphthene	1926	1592	83		8		30	40-140
Fluorene	1926	1534	80		8		30	40-140
Phenanthrene	1926	1637	85		7		30	40-140
Anthrancene	1926	1627	85		7		30	40-140
Fluoranthene	1926	1618	84		3		30	40-140
Pyrene	1926	1181	61		7		30	40-140
Benzo(a)anthracene	1926	1625	84		5		30	40-140
Chrysene	1926	1656	86		5		30	40-140
Benzo(b)fluoranthene	1926	2094	109		8		30	40-140
Benzo(k)fluoranthene	1926	1706	89		0		30	40-140
Benzo(a)pyrene	1926	1694	88		3		30	40-140
Indeno(1,2,3-cd)pyrene	1926	1042	54		3		30	40-140
Dibenzo(a,h) anthracene	1926	1060	55		3		30	40-140
Benzo(g,h,l)perlyene	1926	927	48		1		30	40-140

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Comments:

SEMI-VOLATILE LCS RECOVERY

Client Name: Stone & Stone & Webster   Report Number: 28932

Project: 0813405

COMPOUND	SPIKE ADDED (ug/kg)	SAMPLE CONCENTRATION (ug/kg)	LCS CONCENTRATION (ug/kg)	LCS % REC	#	QC. LIMITS REC.
Napthalene	1667	0	1092	66		40-140
2-Methynaphthalene	1667	0	1172	70		40-140
Acenaphthylene	1667	0	1291	77		40-140
Acenaphthene	1667	0	1254	75		40-140
Fluorene	1667	0	1262	76		40-140
Phenanthrene	1667	0	1257	75		40-140
Anthrancene	1667	0	1277	77		40-140
Fluoranthene	1667	0	1342	80		40-140
Pyrene	1667	0	1135	68		40-140
Benzo(a)anthracene	1667	0	1311	79		40-140
Chrysene	1667	0	1309	79		40-140
Benzo(b)fluoranthene	1667	0	1305	78		40-140
Benzo(k)fluoranthene	1667	0	1378	83		40-140
Benzo(a)pyrene	1667	0	1333	80		40-140
Indeno(1,2,3-cd)pyrene	1667	0	1454	87		40-140
Dibenzo(a,h) anthracene	1667	0	1496	90		40-140
Benzo(g,h,I)perlyene	1667	0	1465	88		40-140

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Comments:

2A

PAH SYSTEM MONITORING COMPOUND RECOVERY

Client Name: Stone & Webster

Report Number: 28932

Project: 0813405

	CLIENT SAMPLE ID.	SMC1 #	SMC2 #	SMC3 #	TOT OUT
01	B-2-1-(0.0-0.5)	32	44	38	0
02	B-2-4 (0.0-0.5)	68	85	83	0
03	B-2-6 (0-2)	46	46	50	0
04					
05					
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					

		QC LIMITS
SMC1	= Nitrobenzene-d5	(30-130)
SMC2	= 2-Fluorophenyl	(30-130)
SMC3	= Terphenyl-d14	(30-130)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

SOIL PCB MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Client Name: Stone & Webster Report Number: 28932

Project : 0813405

Matrix Spike -Sample No.: 28888-176411

COMPOUND	SPIKE ADDED (ug/kg)	SAMPLE CONCENTRATION (ug/kg)	MS CONCENTRATION (ug/kg)	MS % REC	#	QC. LIMITS REC.
PCB 1260	1000	0	784	78		40-140
PCB 1016	1000	0	743	74		40-140

COMPOUND	SPIKE ADDED (ug/kg)	MSD CONCENTRATION (ug/kg)	MSD % REC	#	% RPD	#	QC LIMITS RPD	QC LIMITS REC.
PCB 1260	1000	972	97		21		30	40-140
PCB 1016	1000	836	84		12		30	40-140

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Comments:

SOIL PCB LCS RECOVERY

Client Name: Stone & Webster

Report Number: 28932

Project : 0813405

COMPOUND	SPIKE ADDED (ug/kg)	SAMPLE CONCENTRATION (ug/kg)	LCS CONCENTRATION (ug/kg)	LCS % REC #	QC. LIMITS REC.
PCB 1260	1000	0	914	91	40-14
PCB 1016	1000	0	848	85	40-14

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Comments:

2A

SOIL PCB SYSTEM MONITORING COMPOUND RECOVERY

Client Name: Stone & Webster Report Number: 28932

Project: 0813405

	CLIENT SAMPLE ID.	SMC1 #	SMC2 #	TOT OUT
01	B-2-1 (0.0-0.5)	82	58	0
02	B-2-2 (0.0-0.5)	86	62	0
03	B-2-3 (0.0-0.5)	65	69	0
04	B-2-5 (0-2)	57	76	0
05	B-2-4 (0.0-0.5)	89	96	0
06	B-2-6 (0-2)	100	93	0
07				
08				
09				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				

		QC LIMITS
SMC1	= Tetrachloro-m-xylene	(30-150)
SMC2	= Decachlorobiphenyl	(30-150)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

SOIL PESTICIDE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Client Name: Stone & Webster

Report Number: 28932

Project : 0813405

Matrix Spike -Sample No.: 28888-176411

COMPOUND	SPIKE ADDED (ug/kg)	SAMPLE CONCENTRATION (ug/kg)	MS CONCENTRATION (ug/kg)	MS % REC	#	QC. LIMITS REC.
Lindane	100	0	79	79		32-127
Heptachlor	100	0	71	71		34-111
Aldrin	100	0	73	73		42-122
Dieldrin	100	0	79	79		36-146
Endrin	100	0	84	84		30-147
4,4-DDT	100	0	91	91		25-160
beta-BHC	100	0	83	83		17-147

COMPOUND	SPIKE ADDED (ug/kg)	MSD CONCENTRATION (ug/kg)	MSD % REC	#	% RPD	#	QC LIMITS RPD	QC LIMITS REC.
Lindane	100	79	79		1		50	32-127
Heptachlor	100	72	72		1		50	34-111
Aldrin	100	74	74		1		50	42-122
Dieldrin	100	82	82		4		50	36-146
Endrin	100	88	88		5		50	30-147
4,4-DDT	100	103	103		12		50	25-160
beta-BHC	100	85	85		2		50	17-147

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Comments:

SOIL PESTICIDE LCS/LCS DUPLICATE RECOVERY

Client Name: Stone & Webster   Report Number: 28932

Project : 0813405

COMPOUND	SPIKE ADDED (ug/kg)	SAMPLE CONCENTRATION (ug/kg)	LCS CONCENTRATION (ug/kg)	LCS % REC #	QC. LIMITS REC.
Lindane	100	0	92	92	32-127
Heptachlor	100	0	80	80	34-111
Aldrin	100	0	88	88	42-122
Dieldrin	100	0	87	87	36-146
Endrin	100	0	88	88	30-147
4,4-DDT	100	0	101	101	25-160
beta-BHC	100	0	90	90	17-147

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Comments: ____________________

2A

WATER PESTICIDE SYSTEM MONITORING COMPOUND RECOVERY

Client Name: Stone & Webster Report Number: 28932

Project: 0813405

	CLIENT SAMPLE ID.	SMC1 #	SMC2 #	TOT OUT
01	B-2-1 (0.0-0.5)	82	58	0
02	B-2-2 (0.0-0.5)	86	62	0
03	B-2-4 (0.0-0.5)	89	96	0
04	B-2-6 (0-2)	100	93	0
05				
06				
07				
08				
09				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				

		QC LIMITS
SMC1	= Tetrachloro-m-xylene	(20-140)
SMC2	= Decachlorobiphenyl	(20-140)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

3A

EPH MATRIX SPIKE/ DUPLICATE RECOVERY

Client Name: Stone & Webster Report Number: 28932

Project #: 0813405

Matrix Spike - Sample No.: 28816-176176

COMPOUND	SPIKE ADDED (mg/kg)	SAMPLE CONCENTRATION (mg/kg)	MS CONCENTRATION (mg/kg)	MS % REC	#	QC. LIMITS REC.
C9	7.7	0.0	1.5	19	*	(40-140)
C14	7.7	0.0	3.4	44		(40-140)
C19	7.7	0.0	3.9	50		(40-140)
C20	7.7	0.0	3.9	51		(40-140)
C28	7.7	0.0	3.7	48		(40-140)
Acenaphthene	7.7	0.0	4.4	57		(40-140)
Anthracene	7.7	0.0	4.9	64		(40-140)
Chrysene	7.7	0.6	4.8	54		(40-140)
Naphthalene	7.7	0.0	3.2	42		(40-140)
Pyrene	7.7	1.0	5.5	58		(40-140)

COMPOUND	SAMPLE CONCENTRATION (mg/kg)		% RPD	#	QC LIMITS RPD	QC LIMITS REC.
C9	0.0		0		50	(40-140)
C14	0.0		0		50	(40-140)
C19	0.0		0		50	(40-140)
C20	0.0		0		50	(40-140)
C28	0.0		0		50	(40-140)
Acenapthalene	0.0		0		50	(40-140)
Anthracene	0.0		0		50	(40-140)
Chrysene	0.0		0		50	(40-140)
Naphthalene	0.0		0		50	(40-140)
Pyrene	0.5		0		50	(40-140)

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Comments: ______________________

3A
EPH LCS RECOVERY

Client Name: Stone & Webster   Report Number: 28932

Project #: 0813405

COMPOUND	SPIKE ADDED (mg/kg)	SAMPLE CONCENTRATION (mg/kg)	LCS CONCENTRATION (mg/kg)	LCS % REC	#	QC. LIMITS REC.
C9	6.70	0.0	1.5	22	*	(40-140)
C14	6.70	0.0	3.0	45		(40-140)
C19	6.70	0.0	3.7	55		(40-140)
C20	6.70	0.0	3.7	56		(40-140)
C28	6.70	0.0	3.5	53		(40-140)
Acenaphthene	6.70	0.0	4.1	62		(40-140)
Anthracene	6.70	0.0	4.5	67		(40-140)
Chrysene	6.70	0.0	4.3	65		(40-140)
Naphthalene	6.70	0.0	3.5	52		(40-140)
Pyrene	6.70	0.0	4.6	69		(40-140)

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Comments:

EPH SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: STL WESTFIELD　　　　STL Job#: 28932

	SAMPLE ID	SMC1 #	SMC2 #	SMC3 #	SMC4 #	TOT OUT
01	B-2-1 (0.0-0.5)	D	D	69	76	0
02	B-2-2 (0.0-0.5)	D	D	72	88	0
03	B-2-3 (0.0-0.5)	42	51	65	72	0
04	B-2-5 (0-2)	52	64	71	85	0
05	B-2-4 (0.0-0.5)	54	72	84	91	0
06	B-2-6 (0-2)	48	62	82	90	0
07						
08						
09						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						

	QC LIMITS
SMC1 = Chloro-octadecane (COD) Aliphatic	(40-140)
SMC2 = Ortho-terphenyl (OTP) Aromatic	(40-140)
Fraction Surrogates	
SMC3 = 2-Bromonaphthalene	(40-140)
SMC4 = 2-Fluorobiphenyl	(40-140)

Column to be used to flag recovery values

* Values outside of method required QC limits

D System Monitoring Compound diluted out

NA= In accordance with section 9.1.4.1 of the method the fractionation step was not performed on these samples since they contained no EPH.

INORGANIC QUALITY CONTROL

Client Name: Stone & Webster
Project: 0813405
Job No.: 28932
Sample No:

Analysis	Sample Result	C	Duplicate Result	C	Q	%RPD	Spl + Spk	Spike	%Rec.	Q	Method Blank	C
Arsenic	7.50		7.10			5	61.6	58.5	92		1	U
Barium	49.00		34.00			36	91.9	58.5	73		1	U
Beryllium	0.30		0.29			3	56.9	58.5	97		0.2	U
Cadmium	0.26		0.18			36	54.5	58.5	93		0.2	U
Chromium	28.00		32.00			13	79.4	58.5	88		1	U
Mercury	0.10		0.14			33	0.28	0.091	198	*	0.05	U
Lead	30.00		23.00			26	77.8	58.5	82		1	U
Selenium	2.20		1.50			38	53.6	58.5	88		1	U
Silver	1.00	U	1.00	U		0	5.68	5.85	97		1	U
Zinc	35.00		34.00			3	83.4	58.5	83		6.00	U

Analysis	LCS	C	LCS TRUE	C	Q	%RPD
Arsenic	975		1,000			98
Barium	1,020		1,000			102
Beryllium	1,021		1,000			102
Cadmium	988		1,000			99
Chromium	994		1,000			99
Mercury	2.02		1.85			109
Lead	985		1,000			99
Selenium	897		1,000			90
Silver	99		100			99
Zinc	968		1,000			97

(*) Outside QC Limits
C = Concentration Qualifier
Q = QC Qualifier

Comments: Ba S/D 0%.Control limit +/- 10%.

Severn Trent Laboratories, Inc.
Chain of Custody Form

SEVERN TRENT SERVICES

Westfield, MA 01085
(P) 413-572-4000
(F) 413-572-3707

149 ... ay R
N. Billerica, MA 01862
(P) 978-667-1400
(F) 978-667-7871

Client: Stone + Webster
Address: 100 Technology Drive
Stoughton, Ma 02072
Phone: 617-589-5216 Fax: 2160

Job #: 0813405
Project Manager: Les Tyrala
Work ID:
Contact: Mat Scheller

Job# 2832 | Quote# | PO#

Shaded areas for office use

Analysis Requested
Check analysis and specify method and analytes in comments section.
For example:
500-series for drinking water
600-series for waste water
8000-series for haz/solid waste
Use comments section to further define.

Comments (Special Instructions)
Metals = RCRA 8 + Zn + Be

Requested Turn Around Time
15 Business Day ____ Rush ____
10 Business Day ____ Other ____

Regulatory Classification – Please Specify
NPDES ____ Drinking Water ____ MCP Other ____
RCRA ____ MCP GW1 ____ Other ____

Sample Type Codes
WW - Wellwater, W - Wastewater, SW - Surfacewater, LW - Labwater
RW - Raw Water, GW - Groundwater, PW - Public Water, SO - Soil
S - Solid, SL - Sludge, O - Oil, A - Air, Z - Other

Sample ID	Sample Type	Sampler's Initials	Date / Time Collected	Grab	Comp.	# Containers	Plastic (P) or Glass (G)	NaHSO4/MeOH	HNO3 to pH <2	H2SO4 to pH <2	HCl to pH <2	NaOH to pH >12	Other	4°C		Volatiles	Semivolatiles	PCB & Pesticides	EPH	VPH	DRO/GRO (circle)	Oil & Grease	Metals	General Chemistry	Bacteriological	Other PAH	Comments
B-2-1 0-.5	SS	MS	6-18-01 10:30		✓	1	G							✓				✓	✓				✓			✓	
B-2-1 .5-2	SS	MS	6-18-01 10:35		✓	1	G							✓				✓	✓				✓			✓	
B-2-1 2-4	SS	MS	6-18-01 10:38		✓	1	G							✓				✓	✓				✓			✓	
B-2-1 4-6	SS	MS	6-18-01 10:40		✓	1	G							✓				✓	✓				✓			✓	
B-2-1 0-.5	SS	MS	6-18-01 10:30		✓	2	P									✓											Encore
B-2-1 .5-2	SS	MS	6-18-01 10:35		✓	2	P									✓											Encore
B-2-1 2-4	SS	MS	6-18-01 10:38		✓	2	P									✓											Encore
B-2-1 4-6	SS	MS	6-18-01 10:40		✓	2	P									✓											Encore
B-2-2 0-.5	SS	MS	6-18-01 10:45		✓	1	G												✓								EPH + PCB
B-2-2 .5-2	SS	MS	6-18-01 10:48		✓	1	G												✓								EPH + PCB

Sampled by (print): Mat Scheller
Signature: Mat Scheller

Relinquished by: Mat Scheller Date: 6-18-01 Time: 4:30
Received by: R Mason Date: 6/19/01 Time: 930

Relinquished by: Date: Time:
Received by: Date: Time:

Method of shipment:

Cooler#: 372
Temp @ receipt: 2.4°C
Preservation/pH checked
By: [illegible] Date: 6/19/01

White = Lab file Yellow = Report copy Pink = Customer copy
STL-8245 (1000)

Severn Trent Laboratories, Inc.

SEVERN TRENT SERVICES

• 53 Southampton Road, Westfield, MA 01085, (P) 413-572-4000, (F) 413-572-3707

• 149 Rangeway Road, N. Billerica, MA 01862, (P) 978-667-1400, (F) 978-667-7871

Chain of Custody Form

Job# 2632 | Quote# | PO#

Shaded areas for office use

Client: Stone & Webster

Job #: 0813405

Address: 100 Technology Drive, Stoughton, Ma 02072

Project Manager: Lester Tyrala

Work ID:

Phone: 617-589-5216 Fax: 2160

Contact: Mat Scheller

Requested Turn Around Time
15 Business Day ____ Rush ____
10 Business Day ____ Other 48

Regulatory Classification – Please Specify
NPDES ____ Drinking Water ____ MCP Other ____
RCRA ____ MCP GW1 ____ Other ____

Analysis Requested
Check analysis and specify method and analytes in comments section.
For example:
500-series for drinking water
600-series for waste water
8000-series for haz/solid waste
Use comments section to further define.

Comments (Special Instructions)

Metals = RCRA 8 + Zn and Be

Sample Type Codes
WW - Wellwater, W - Wastewater, SW - Surfacewater, LW - Labwater
RW - Raw Water, GW - Groundwater, PW - Public Water, SO - Soil
S - Solid, SL - Sludge, O - Oil, A - Air, Z - Other

Sample ID	Sample Type	Sampler's Initials	Date / Time Collected	Grab	Comp.	# Containers	Plastic (P) or Glass (G)	$NaHSO_4$/MeOH	HNO_3 to pH <2	H_2SO_4 to pH <2	HCl to pH <2	NaOH to pH >12	Other	4°C	Volatiles	Semivolatiles	PCB & Pesticides	EPH	VPH	DRO/GRO (circle)	Oil & Grease	Metals	General Chemistry	Bacteriological	Other PAH
B-2-2 2-4	SS	MS	6-18-01 10:50														PCB	✓							
B-2-2 4-6			6-18-01 10:52														PCB	✓							
B-2-3 0-.5			6-18-01 10:08														PCB	✓							
B-2-3 .5-2			6-18-01 11:15														PCB	✓							
B-2-3 2-4			6-18-01 11:18														PCB	✓							
B-2-3 4-6			6-18-01 11:20														PCB	✓							
B-2-4 0-.5			6-18-01 11:35														✓	✓				✓			✓
B-2-4 .5-2			6-18-01 11:38														✓	✓				✓			✓
B-2-4 2-4			6-18-01 11:40														✓	✓				✓			✓
B-2-4 4-6			6-18-01 11:45														✓	✓				✓			✓

PCB + EPH only

Sampled by (print): Mat Scheller   Signature: Mat Scheller

Relinquished by: Mat Scheller Date: 6-18-01 Time: 4:30   Received by: R Moran Date: 6/19/01 Time: 830

Relinquished by: Date: Time: Received by: Date: Time:

Method of shipment: UPS

Cooler #: SR
Temp @ receipt: 2.5°C
Preservation/pH checked
By: R Date: 6/19/01

Severn Trent Laboratories, Inc.
Chain of Custody Form

SEVERN TRENT SERVICES

• 53 Southampton Road
Westfield, MA 01085
(P) 413-572-4000
(F) 413-572-3707

149 Rangeway Road
N. Billerica, MA 01862
(P) 978-667-1400
(F) 978-667-7871

Client: Stone & Webster
Address: 100 Technology Drive
Stoughton Ma 02072
Phone: 617-589-5216 Fax: 2160

Job #: 0813405
Project Manager: Les Tyrala
Work ID:
Contact: Mat Scheller

Job#: 2392 | Quote# | PO#

Shaded areas for office use

Analysis Requested
Check analysis and specify method and analytes in comments section.
For example:
500-series for drinking water
600-series for waste water
8000-series for haz/solid waste
Use comments section to further define.

Comments (Special Instructions)

Requested Turn Around Time
15 Business Day ____ Rush ____
10 Business Day ____ Other ____

Regulatory Classification – Please Specify
NPDES ____ Drinking Water ____ MCP Other ____
RCRA ____ MCP GW1 ____ Other ____

Sample Type Codes
WW - Wellwater, W - Wastewater, SW - Surfacewater, LW - Labwater
RW - Raw Water, GW - Groundwater, PW - Public Water, SO - Soil
S - Solid, SL - Sludge, O - Oil, A - Air, Z - Other

Sample ID	Sample Type	Sampler's Initials	Date / Time Collected	Grab	Comp.	# Containers	Plastic (P) or Glass (G)	NaHSO4/MeOH	HNO3 to pH <2	H2SO4 to pH <2	HCl to pH <2	NaOH to pH >12	Other	4°C	pH	Volatiles	Semivolatiles	PCB & Pesticides	EPH	VPH	DRO/GRO (circle)	Oil & Grease	Metals	General Chemistry	Bacteriological	Other PAH	Comments
B-2-4 2-4	SO	MS	6-18-01 11:40													✓											Encore
B-2-4 4-6			6-18-01 11:45													✓											Encore
B-2-5 0-2			6-18-01 1:25															PCB	✓								PCB * EPH only
B-2-5 2-4			6-18-01 1:27															PCB	✓								PCB * EPH only
B-2-5 4-6			6-18-01 1:32															PCB	✓								PCB * EPH only
B-2-6 0-2			6-18-01 1:42															✓	✓				✓			✓	
B-2-6 2-4			6-18-01 1:45															✓	✓				✓			✓	
B-2-6 4-6			6-18-01 1:32															✓	✓				✓			✓	

Sampled by (print): Mat Scheller   Signature: Mat Scheller

Relinquished by: Mat Scheller Date: 6-18-01 Time: 4:30
Received by: R Moran Date: 6/19/01 Time: 930

Relinquished by: Date: Time:
Received by: Date: Time:

Method of shipment: UPS

Cooler #: 9R
Temp @ receipt: 2.8°C
Preservation/pH checked
By: R Date: 6/19/01

White = Lab file Yellow = Report copy Pink = Customer copy
STL-8245 (1000)

STL WESTFIELD
COOLER RECEIPT FORM

Client: SHW

STL Job No.: 28932

Project: 0813405

Cooler No.: —

Means of Transportation: UPS

Shipping No. if applicable: 12E07070221001 0930

Date received: 6/19/9

Date Cooler was opened: 6/19/9

Received by, print: R Mesa

Signature R Mesa

1. Were custody seals present? Yes ~~No~~

2. If present were the seals intact? Yes No

3. Did all containers arrive unbroken and in good condition? Yes No

4. Any sign of leakage or hazardous condition? Yes ~~No~~

5. If you answered no to #3 or yes to #4 of the please explain below:

6. Temperature of samples upon receipt at STL: 2,9°C

7. Were all samples properly preserved? Yes No

8. If no to #7 explain which samples and what corrective action was taken:

CASE NARRATIVE FOR REPORT NUMBER 28992

Client Name : Stone & Webster

Project Name : 0813405

Date : June 27, 2001

Sample No.	Sample ID	Comments
(176989)	B-2-7 (0.0-0.5)	
(176990)	B-4-1 (0.0-0.5)	
(176991)	B-2-7 (0-2)	
(176992)	B-2-8 (0.0-0.5)	Percent solids analysis could not be perfomed. Results are reported on a wet weight basis.
(176993)	B-4-2 (0.0-0.5)	

Inorganics Analysis Data Sheet

Client Name :	Stone & Webster	Report No :	28992
Project Name :	0813405	Date Collected :	6/19/01
Matrix Name :	Soil	Date Received :	6/20/01

Sample No.	Client ID	Analyte	Result	Units	Method	Date Analyzed	By
176989	B-2-7 (0.0-0.5)	Solids, percent	86.0	%	EPA 160.3	6/21/01	GBR
		Arsenic	12	mg/kg dry	SW8466010B	6/25/01	BGE
		Barium	65	mg/kg dry	SW8466010B	6/25/01	BGE
		Beryllium	0.59	mg/kg dry	SW8466010B	6/25/01	BGE
		Cadmium	0.39	mg/kg dry	SW8466010B	6/25/01	BGE
		Chromium	33	mg/kg dry	SW8466010B	6/25/01	BGE
		Lead	500	mg/kg dry	SW8466010B	6/25/01	BGE
		Selenium	1U	mg/kg dry	SW8466010B	6/25/01	BGE
		Silver	1U	mg/kg dry	SW8466010B	6/25/01	BGE
		Zinc	1300	mg/kg dry	SW8466010B	6/25/01	BGE
176990	B-4-1 (0.0-0.5)	Solids, percent	75.9	%	EPA 160.3	6/21/01	GBR
		Arsenic	9.0	mg/kg dry	SW8466010B	6/25/01	BGE
		Barium	21	mg/kg dry	SW8466010B	6/25/01	BGE
		Beryllium	0.35	mg/kg dry	SW8466010B	6/25/01	BGE
		Cadmium	0.3U	mg/kg dry	SW8466010B	6/25/01	BGE
		Chromium	21	mg/kg dry	SW8466010B	6/25/01	BGE
		Lead	4.5	mg/kg dry	SW8466010B	6/25/01	BGE
		Mercury	0.05U	mg/kg dry	SW8467471A	6/26/01	BGE
		Selenium	1U	mg/kg dry	SW8466010B	6/25/01	BGE
		Silver	1U	mg/kg dry	SW8466010B	6/25/01	BGE
		Zinc	24	mg/kg dry	SW8466010B	6/26/01	BGE
176993	B-4-2 (0.0-0.5)	Solids, percent	67.7	%	EPA 160.3	6/21/01	GBR

Pesticides/PCB Organics Analysis Data Sheet

SW8468081A

Client ID :	B-2-7 (0.0-0.5)	Report No :	28992
Client Name :	Stone & Webster	STL Sample Number :	176989
Project Name :	0813405	Lab File ID :	H9505
Matrix :	Soil	Date Collected :	6/19/01
Sample Wt/Vol :	10.11g	Date Received :	6/20/01
% Solid :	86.0	Date Extracted :	6/21/01
GPC Clean up :		Date Analyzed :	6/22/01
Sulfur Clean up :		By :	SH
Dilution Factor :	1		

CAS NO	Compound	Reporting Limit ug/kg dry	Concentration ug/kg dry
319-85-7	beta-BHC	12	U

Pesticides/PCB Organics Analysis Data Sheet

SW8468082A

Client ID :	B-2-7 (0.0-0.5)	Report No :	28992
Client Name :	Stone & Webster	STL Sample Number :	176989
Project Name :	0813405	Lab File ID :	H9505
Matrix :	Soil	Date Collected :	6/19/01
Sample Wt/Vol :	10.1g	Date Received :	6/20/01
% Solid :	86.0	Date Extracted :	6/21/01
GPC Clean up :		Date Analyzed :	6/22/01
Sulfur Clean up :		By :	SH
Dilution Factor :	1		

CAS NO	Compound	Reporting Limit ug/kg dry	Concentration ug/kg dry
12674-11-2	Arochlor-1016	120	U
11104-28-2	Arochlor-1221	120	U
11141-16-5	Arochlor-1232	120	U
53469-21-9	Arochlor-1242	120	U
12672-29-6	Arochlor-1248	120	U
11097-69-1	Arochlor-1254	120	U
11096-82-5	Arochlor-1260	120	U

Pesticides/PCB Organics Analysis Data Sheet

SW8468082A

Client ID :	B-2-8 (0.0-0.5)	Report No :	28992
Client Name :	Stone & Webster	STL Sample Number :	176992
Project Name :	0813405	Lab File ID :	H9507
Matrix :	Soil	Date Collected :	6/19/01
Sample Wt/Vol :	10.2g	Date Received :	6/20/01
% Solid :		Date Extracted :	6/21/01
GPC Clean up :		Date Analyzed :	6/22/01
Sulfur Clean up :		By :	SH
Dilution Factor :	1		

CAS NO	Compound	Reporting Limit ug/kg dry	Concentration ug/kg dry
12674-11-2	Arochlor-1016	98	U
11104-28-2	Arochlor-1221	98	U
11141-16-5	Arochlor-1232	98	U
53469-21-9	Arochlor-1242	98	U
12672-29-6	Arochlor-1248	98	U
11097-69-1	Arochlor-1254	98	U
11096-82-5	Arochlor-1260	98	U

Volatile Organics Analysis Data Sheet

SW8468260B

Client ID :	B-2-7 (0-2)	Report No :	28992
Client Name :	Stone & Webster	STL Sample Number :	176991
Project Name :	0813405	Lab File ID :	V21703
Matrix :	Soil	Date Collected :	6/19/01
Sample Wt/Vol :	5.36g	Date Received :	6/20/01
% Solid :		Date Analyzed :	6/22/01
Dilution Factor :	1	By :	JAW

CAS NO	Compound	Reporting Limit ug/kg dry	Concentration ug/kg dry
67-64-1	Acetone	47	U
71-43-2	Benzene	2.3	U
75-15-0	Carbon Disulfide	2.3	U
67-66-3	Chloroform	2.3	U
107-06-2	1,2-Dichloroethane	2.3	U
100-41-4	Ethylbenzene	2.3	U
75-01-4	Vinyl chloride	4.7	U

Semi-Volatile Organics Analysis Data Sheet

SW8468270C

Client ID :	B-2-7 (0.0-0.5)	Report No :	28992
Client Name :	Stone & Webster	STL Sample Number :	176989
Project Name :	0813405	Lab File ID :	B7068
Matrix :	Soil	Date Collected :	6/19/01
Sample Wt/Vol :	30.7g	Date Received :	6/20/01
% Solid :	86.0	Date Extracted :	6/21/01
GPC Clean up :		Date Analyzed :	6/21/01
Dilution Factor :	1	By :	SM

CAS NO	Compound	Reporting Limit ug/kg dry	Concentration ug/kg dry	
83-32-9	Acenaphthene	380	U	
208-96-8	Acenaphthylene	380	U	
120-12-7	Anthracene	380	240	J
56-55-3	Benzo(a)anthracene	380	1400	
205-99-2	Benzo(b)fluoranthene	380	1600	
207-08-9	Benzo(k)fluoranthene	380	830	
191-24-2	Benzo(g,h,i)perylene	380	620	
50-32-8	Benzo(a)pyrene	380	1300	
218-01-9	Chrysene	380	1600	
53-70-3	Dibenzo(a,h)anthracene	380	300	J
206-44-0	Fluoranthene	380	3000	
86-73-7	Fluorene	380	U	
193-39-5	Indeno(1,2,3-cd)pyrene	380	590	
91-57-6	2-Methylnaphthalene	380	U	
91-20-3	Naphthalene	380	U	
85-01-8	Phenanthrene	380	1400	
129-00-0	Pyrene	380	2000	

Semi-Volatile Organics Analysis Data Sheet

MADEP EPH

Client ID :	B-2-7 (0.0-0.5)	Report No :	28992
Client Name :	Stone & Webster	STL Sample Number :	176989
Project Name :	0813405	Lab File ID :	D13510
Matrix :	Soil	Date Collected :	6/19/01
Sample Wt/Vol :	30.3g	Date Received :	6/20/01
% Solid :	86.0	Date Extracted :	6/21/01
GPC Clean up :		Date Analyzed :	6/26/01
Dilution Factor :	1	By :	SM

CAS NO	Compound	Reporting Limit mg/kg dry	Concentration mg/kg dry
	Unadjusted C11-C22 Aromatics	3.8	77
	C9-C18 Aliphatics	3.8	U
	C19-C36 Aliphatics	3.8	40
	C11-C22 Aromatics	3.8	63
	EPH Concentration (Total)	3.8	100
83-32-9	Acenaphthene	0.4	U
208-96-8	Acenaphthylene	0.4	U
120-12-7	Anthracene	0.4	U
56-55-3	Benzo(a)anthracene	0.4	1.4
50-32-8	Benzo(a)pyrene	0.4	1.3
205-99-2	Benzo(b)fluoranthene	0.4	1.5
191-24-2	Benzo(g,h,i)perylene	0.4	0.72
207-08-9	Benzo(k)fluoranthene	0.4	0.57
218-01-9	Chrysene	0.4	1.4
53-70-3	Dibenzo(a,h)anthracene	0.4	U
206-44-0	Fluoranthene	0.4	2.6
86-73-7	Fluorene	0.4	U
193-39-5	Indeno(1,2,3-cd)pyrene	0.4	0.64
91-57-6	2-Methylnaphthalene	0.4	U
91-20-3	Naphthalene	0.4	U
85-01-8	Phenanthrene	0.4	1.5
129-00-0	Pyrene	0.4	2.6

Semi-Volatile Organics Analysis Data Sheet

MADEP EPH

Client ID :	B-2-8 (0.0-0.5)	Report No :	28992
Client Name :	Stone & Webster	STL Sample Number :	176992
Project Name :	0813405	Lab File ID :	D13514
Matrix :	Soil	Date Collected :	6/19/01
Sample Wt/Vol :	30.1g	Date Received :	6/20/01
% Solid :		Date Extracted :	6/21/01
GPC Clean up :		Date Analyzed :	6/26/01
Dilution Factor :	1	By :	SM

CAS NO	Compound	Reporting Limit mg/kg dry	Concentration mg/kg dry
	Unadjusted C11-C22 Aromatics	3.3	6.9
	C9-C18 Aliphatics	3.3	U
	C19-C36 Aliphatics	3.3	U
	C11-C22 Aromatics	3.3	6.9
	EPH Concentration (Total)	3.3	6.9
83-32-9	Acenaphthene	0.3	U
208-96-8	Acenaphthylene	0.3	U
120-12-7	Anthracene	0.3	U
56-55-3	Benzo(a)anthracene	0.3	U
50-32-8	Benzo(a)pyrene	0.3	U
205-99-2	Benzo(b)fluoranthene	0.3	U
191-24-2	Benzo(g,h,i)perylene	0.3	U
207-08-9	Benzo(k)fluoranthene	0.3	U
218-01-9	Chrysene	0.3	U
53-70-3	Dibenzo(a,h)anthracene	0.3	U
206-44-0	Fluoranthene	0.3	U
86-73-7	Fluorene	0.3	U
193-39-5	Indeno(1,2,3-cd)pyrene	0.3	U
91-57-6	2-Methylnaphthalene	0.3	U
91-20-3	Naphthalene	0.3	U
85-01-8	Phenanthrene	0.3	U
129-00-0	Pyrene	0.3	U

BLANK RESULTS SUMMARY

JOB NO: 28992
PROJECT NO: 0813405

ANALYSIS	DATE OF EXTRACTION	DATE OF ANALYSIS	MATRIX	ANALYTE DETECTED	CONCENTRATION
8260	None	6/22/01	Soil	None Detected	
PESTICIDES	6/21/01	6/22/01	Soil	None Detected	
PCB	6/21/01	6/22/01	Soil	None Detected	
PAH by 8270	6/21/01	6/21/01	Soil	None Detected	
EPH	6/21/01	6/27/01	Soil	None Detected	

SOIL VOLATILE LCS/LCS DUPLICATE RECOVERY

Client Name: Stone & Webster Report Number: 28992

Project: 0813405

COMPOUND	SPIKE ADDED (ug/kg)	SAMPLE CONCENTRATION (ug/kg)	LCS CONCENTRATION (ug/kg)	LCS % REC #	QC. LIMITS REC.
Vinyl Chloride	100	0	110	110	70-130
1,1 Dichloroethene	100	0	102	102	70-130
Trans-1,2 Dichloroethene	100	0	104	104	70-130
1,1 Dichloroethane	100	0	112	112	70-130
cis 1,2 Dichloroethene	100	0	108	108	70-130
1,1,1 Trichloroethane	100	0	109	109	70-130
1,2 Dichloroethane	100	0	106	106	70-130
Benzene	100	0	100	100	70-130
Trichloroethene	100	0	94	94	70-130
Toluene	100	0	87	87	70-130
Tetrachloroethane	100	0	85	85	70-130
Chlorobenzene	100	0	85	85	70-130
Ethylbenzene	100	0	88	88	70-130
m&p Xylene	200	0	190	95	70-130
O Xylene	100	0	93	93	70-130

COMPOUND	SPIKE ADDED (ug/kg)	LCSD CONCENTRATION (ug/kg)	LCSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Vinyl Chloride	100	108	108	2	30	70-130
1,1 Dichloroethene	100	102	102	0	30	70-130
Trans-1,2 Dichloroethene	100	101	101	3	30	70-130
1,1 Dichloroethane	100	105	105	6	30	70-130
cis 1,2 Dichloroethene	100	98	98	10	30	70-130
1,1,1 Trichloroethane	100	100	100	9	30	70-130
1,2 Dichloroethane	100	103	103	3	30	70-130
Benzene	100	97	97	3	30	70-130
Trichloroethene	100	87	87	8	30	70-130
Toluene	100	84	84	4	30	70-130
Tetrachloroethane	100	89	89	5	30	70-130
Chlorobenzene	100	87	87	2	30	70-130
Ethylbenzene	100	88	88	0	30	70-130
m&p Xylene	200	192	96	1	30	70-130
O Xylene	100	98	98	5	30	70-130

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Comments:

SOIL VOLATILE LCS RECOVERY

Client Name: Stone & Webster   Report Number: 28992

Project: 0813405

COMPOUND	SPIKE ADDED (ug/kg)	SAMPLE CONCENTRATION (ug/kg)	LCS CONCENTRATION (ug/kg)	LCS % REC	#	QC. LIMITS REC.
Vinyl Chloride	100	0	104	104		70-130
1,1 Dichloroethene	100	0	109	109		70-130
Trans-1,2 Dichloroethene	100	0	108	108		70-130
1,1 Dichloroethane	100	0	113	113		70-130
cis 1,2 Dichloroethene	100	0	110	110		70-130
1,1,1 Trichloroethane	100	0	110	110		70-130
1,2 Dichloroethane	100	0	107	107		70-130
Benzene	100	0	104	104		70-130
Trichloroethene	100	0	99	99		70-130
Toluene	100	0	89	89		70-130
Tetrachloroethane	100	0	93	93		70-130
Chlorobenzene	100	0	94	94		70-130
Ethylbenzene	100	0	95	95		70-130
m&p Xylene	200	0	196	98		70-130
O Xylene	100	0	96	96		70-130

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Comments:

VOLATILE SYSTEM MONITORING COMPOUND RECOVERY
8260

Client Name: Stone & Webster　　Report Number: 28992

Project: 0813405

CLIENT SAMPLE ID.	SMC1 (DBFM) #	SMC2 (DCE) #	SMC3 (TOL) #	SMC4 (BFB) #	TOT OUT
B-4-1 (0.0-0.5)	107	118	95	106	0
B-2-7 (0-2)	101	111	99	100	0

	QC LIMITS
SMC1 = Dibromofluoromethane	(70-130)
SMC2 =1,2-dichloroethane-d4	(70-130)
SMC3 =Toluene-d8	(70-130)
SMC4 =4-Bromofluorobenzene	(70-130)

Column to be used to flag recovery values
* Values outside of contract required QC limits
D System Monitoring Compound diluted out

SOIL SEMI-VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE SPIKE RECOVERY

Client Name: Stone & Webster

Report Number: 28992

Project: 0813405

Matrix Spike - Sample No.: 28873-176379

COMPOUND	SPIKE ADDED (ug/kg)	SAMPLE CONCENTRATION (ug/kg)	MS CONCENTRATION (ug/kg)	MS % REC	#	QC. LIMITS REC.
Napthalene	1938	0	1307	67		40-140
2-Methynaphthalene	1938	0	1293	67		40-140
Acenaphthylene	1938	0	1516	78		40-140
Acenaphthene	1938	0	1474	76		40-140
Fluorene	1938	0	1419	73		40-140
Phenanthrene	1938	0	1532	79		40-140
Anthrancene	1938	0	1521	79		40-140
Fluoranthene	1938	0	1573	81		40-140
Pyrene	1938	0	1108	57		40-140
Benzo(a)anthracene	1938	0	1560	81		40-140
Chrysene	1938	0	1591	82		40-140
Benzo(b)fluoranthene	1938	0	1943	100		40-140
Benzo(k)fluoranthene	1938	0	1710	88		40-140
Benzo(a)pyrene	1938	0	1655	85		40-140
Indeno(1,2,3-cd)pyrene	1938	0	1017	52		40-140
Dibenzo(a,h) anthracene	1938	0	1031	53		40-140
Benzo(g,h,l)perlyene	1938	0	923	48		40-140

COMPOUND	SPIKE ADDED (ug/kg)	MSD CONCENTRATION (ug/kg)	MSD % REC	#	% RPD	QC LIMITS RPD	QC. LIMITS REC.
Napthalene	1926	1359	71		5	30	40-140
2-Methynaphthalene	1926	1396	73		8	30	40-140
Acenaphthalene	1926	1608	84		6	30	40-140
Acenaphthene	1926	1592	83		8	30	40-140
Fluorene	1926	1534	80		8	30	40-140
Phenanthrene	1926	1926	100		23	30	40-140
Anthrancene	1926	1627	85		7	30	40-140
Fluoranthene	1926	1618	84		3	30	40-140
Pyrene	1926	1181	61		7	30	40-140
Benzo(a)anthracene	1926	1625	84		5	30	40-140
Chrysene	1926	1656	86		5	30	40-140
Benzo(b)fluoranthene	1926	2094	109		8	30	40-140
Benzo(k)fluoranthene	1926	1706	89		0	30	40-140
Benzo(a)pyrene	1926	1694	88		3	30	40-140
Indeno(1,2,3-cd)pyrene	1926	1042	54		3	30	40-140
Dibenzo(a,h) anthracene	1926	1060	55		3	30	40-140
Benzo(g,h,l)perlyene	1926	927	48		1	30	40-140

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Comments: ______

SEMI-VOLATILE LCS RECOVERY

Client Name: Stone & Stone & Webster

Report Number: 28992

Project: 0813405

COMPOUND	SPIKE ADDED (ug/kg)	SAMPLE CONCENTRATION (ug/kg)	LCS CONCENTRATION (ug/kg)	LCS % REC	#	QC. LIMITS REC.
Napthalene	1667	0	1092	66		40-140
2-Methynaphthalene	1667	0	1172	70		40-140
Acenaphthylene	1667	0	1291	77		40-140
Acenaphthene	1667	0	1254	75		40-140
Fluorene	1667	0	1262	76		40-140
Phenanthrene	1667	0	1257	75		40-140
Anthrancene	1667	0	1277	77		40-140
Fluoranthene	1667	0	1342	80		40-140
Pyrene	1667	0	1135	68		40-140
Benzo(a)anthracene	1667	0	1311	79		40-140
Chrysene	1667	0	1309	79		40-140
Benzo(b)fluoranthene	1667	0	1305	78		40-140
Benzo(k)fluoranthene	1667	0	1378	83		40-140
Benzo(a)pyrene	1667	0	1333	80		40-140
Indeno(1,2,3-cd)pyrene	1667	0	1454	87		40-140
Dibenzo(a,h) anthracene	1667	0	1496	90		40-140
Benzo(g,h,I)perlyene	1667	0	1465	88		40-140

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Comments:

2A

PAH SYSTEM MONITORING COMPOUND RECOVERY

Client Name: Stone & Webster Report Number: 28992

Project: 0813405

	CLIENT SAMPLE ID.	SMC1 #	SMC2 #	SMC3 #	TOT OUT
01	B-2-7 (0.0-0.5)	89	87	71	0
02	B-4-1 (0.0-0.5)	60	74	63	0
03					
04					
05					
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					

		QC LIMITS
SMC1	= Nitrobenzene-d5	(30-130)
SMC2	= 2-Fluorophenyl	(30-130)
SMC3	= Terphenyl-d14	(30-130)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

2A

SOIL PCB SYSTEM MONITORING COMPOUND RECOVERY

Client Name: Stone & Webster Report Number: 28992

Project: 0813405

	CLIENT SAMPLE ID.	SMC1 #	SMC2 #	TOT OUT
01	B-2-7 (0.0-0.5)	87	84	0
02	B-4-15 (0.0-0.5)	100	92	0
03	B-2-8 (0.0-0.5)	87	97	0
04	B-4-2 (0.0-0.5)	79	92	0
05				
06				
07				
08				
09				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				

		QC LIMITS
SMC1	= Tetrachloro-m-xylene	(30-150)
SMC2	= Decachlorobiphenyl	(30-150)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

SOIL PCB MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Client Name: Stone & Webster   Report Number: 28992

Project : 0813405

Matrix Spike -Sample No.: 28888-176411

COMPOUND	SPIKE ADDED (ug/kg)	SAMPLE CONCENTRATION (ug/kg)	MS CONCENTRATION (ug/kg)	MS % REC	#	QC. LIMITS REC.
PCB 1260	1000	0	785	78		40-14
PCB 1016	1000	0	743	74		40-14

COMPOUND	SPIKE ADDED (ug/kg)	MSD CONCENTRATION (ug/kg)	MSD % REC	#	% RPD	#	QC LIMITS RPD	QC LIMITS REC.
PCB 1260	1000	972	97		21		30	40-140
PCB 1016	1000	836	84		12		30	40-140

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Comments: ____________________

SOIL PCB LCS RECOVERY

Client Name: Stone & Webster Report Number: 28992

Project : 0813405

COMPOUND	SPIKE ADDED (ug/kg)	SAMPLE CONCENTRATION (ug/kg)	LCS CONCENTRATION (ug/kg)	LCS % REC	#	QC. LIMITS REC.
PCB 1260	1000	0	914	91		40-140
PCB 1016	1000	0	848	85		40-140

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Comments: ______________________________

SOIL PESTICIDE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Client Name: Stone & Webster Report Number: 28992

Project : 0813405

Matrix Spike -Sample No.: 28888-176411

COMPOUND	SPIKE ADDED (ug/kg)	SAMPLE CONCENTRATION (ug/kg)	MS CONCENTRATION (ug/kg)	MS % REC	#	QC. LIMITS REC.
Lindane	100	0	79	79		30-150
Heptachlor	100	0	71	71		30-150
Aldrin	100	0	73	73		30-150
Dieldrin	100	0	79	79		30-150
Endrin	100	0	84	84		30-150
4,4-DDT	100	0	91	91		30-150
beta-BHC	100	0	83	83		30-150

COMPOUND	SPIKE ADDED (ug/kg)	MSD CONCENTRATION (ug/kg)	MSD % REC	#	% RPD	#	QC LIMITS RPD	QC LIMITS REC.
Lindane	100	79	79		1		30	30-150
Heptachlor	100	72	72		1		30	30-150
Aldrin	100	74	74		1		30	30-150
Dieldrin	100	82	82		4		30	30-150
Endrin	100	88	88		5		30	30-150
4,4-DDT	100	103	103		13		30	30-150
beta-BHC	100	85	85		2		30	30-150

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Comments: ______________________________

SOIL PESTICIDE LCS/LCS DUPLICATE RECOVERY

Client Name: Stone & Webster

Report Number: 28992

Project : 0813405

COMPOUND	SPIKE ADDED (ug/kg)	SAMPLE CONCENTRATION (ug/kg)	LCS CONCENTRATION (ug/kg)	LCS % REC	#	QC. LIMITS REC.
Lindane	100	0	92	92		30-150
Heptachlor	100	0	80	80		30-150
Aldrin	100	0	88	88		30-150
Dieldrin	100	0	88	88		30-150
Endrin	100	0	88	88		30-150
4,4-DDT	100	0	101	101		30-150
beta-BHC	100	0	90	90		30-150

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Comments:

2A

WATER PESTICIDE SYSTEM MONITORING COMPOUND RECOVERY

Client Name: Stone & Webster Report Number: 28992

Project: 0813405

	CLIENT SAMPLE ID.	SMC1 #	SMC2 #	TOT OUT
01	B-2-7 (0.0-0.5)	87	84	0
02	B-4-15 (0.0-0.5)	100	92	0
03				
04				
05				
06				
07				
08				
09				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				

		QC LIMITS
SMC1	= Tetrachloro-m-xylene	(20-140)
SMC2	= Decachlorobiphenyl	(20-140)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

3A
EPH MATRIX SPIKE/ DUPLICATE RECOVERY

Client Name: Stone & Webster Report Number: 28992

Project #: 0813405

Matrix Spike - Sample No.: 28968-176923

COMPOUND	SPIKE ADDED (mg/kg)	SAMPLE CONCENTRATION (mg/kg)	MS CONCENTRATION (mg/kg)	MS % REC	#	QC. LIMITS REC.
C9	7.2	0.0	1.8	25	*	(40-140)
C14	7.2	8.3	11.9	50		(40-140)
C19	7.2	0.0	4.3	59		(40-140)
C20	7.2	0.0	4.3	59		(40-140)
C28	7.2	0.0	4.2	58		(40-140)
Acenaphthene	7.2	0.0	5.0	69		(40-140)
Anthracene	7.2	0.0	5.3	74		(40-140)
Chrysene	7.2	0.0	5.3	73		(40-140)
Naphthalene	7.2	0.0	4.5	62		(40-140)
Pyrene	7.2	0.0	5.5	76		(40-140)

COMPOUND	SAMPLE CONCENTRATION (mg/kg)		% RPD	#	QC LIMITS RPD	QC LIMITS REC.
C9	0.0		0		50	(40-140)
C14	9.4		12		50	(40-140)
C19	0.0		0		50	(40-140)
C20	0.0		0		50	(40-140)
C28	0.0		0		50	(40-140)
Acenapthalene	0.0		0		50	(40-140)
Anthracene	0.0		0		50	(40-140)
Chrysene	0.0		0		50	(40-140)
Naphthalene	0.0		0		50	(40-140)
Pyrene	0.0		0		50	(40-140)

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Comments:

3A
EPH LCS RECOVERY

Client Name: Stone & Webster Report Number: 28992

Project #: 0813405

COMPOUND	SPIKE ADDED (mg/kg)	SAMPLE CONCENTRATION (mg/kg)	LCS CONCENTRATION (mg/kg)	LCS % REC	#	QC. LIMITS REC.
C9	6.70	0.0	1.8	28	*	(40-140)
C14	6.70	0.0	3.9	58		(40-140)
C19	6.70	0.0	4.6	69		(40-140)
C20	6.70	0.0	4.7	69		(40-140)
C28	6.70	0.0	4.6	69		(40-140)
Acenaphthene	6.70	0.0	4.7	71		(40-140)
Anthracene	6.70	0.0	5.1	76		(40-140)
Chrysene	6.70	0.0	5.0	75		(40-140)
Naphthalene	6.70	0.0	3.9	58		(40-140)
Pyrene	6.70	0.0	5.2	78		(40-140)

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

Comments:

EPH SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: STL WESTFIELD STL Job#: 28992

	SAMPLE ID	SMC1 #	SMC2 #	SMC3 #	SMC4 #	TOT OUT
01	B-2-7 (0.0-0.5)	56	76	107	119	0
02	B-4-1 (0.0-0.5)	56	77	71	111	0
03	B-2-8 (0.0-0.5)	60	78	60	109	0
04	B-4-2 (0.0-0.5)	54	77	106	115	0
05						
06						
07						
08						
09						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						

	QC LIMITS
SMC1 = Chloro-octadecane (COD) Aliphatic	(40-140)
SMC2 = Ortho-terphenyl (OTP) Aromatic	(40-140)
Fraction Surrogates	
SMC3 = 2-Bromonaphthalene	(40-140)
SMC4 = 2-Fluorobiphenyl	(40-140)

\# Column to be used to flag recovery values

* Values outside of method required QC limits

D System Monitoring Compound diluted out

NA= In accordance with section 9.1.4.1 of the method the fractionation step was not performed on these samples since they contained no EPH.

INORGANIC QUALITY CONTROL

Client Name: Stone & Webster
Project: 0813405
Job No.: 28992
Sample No: 176990

Analysis	Sample Result	C	Duplicate Result	C	Q	%RPD	Spl + Spk	Spike	%Rec.	Q	Method Blank	C
Arsenic	9.0		14			43.5	72.8	67.9	94		1	U
Barium	21		16			27.0	82.8	67.9	91		1	U
Beryllium	0.35		0.32			9.0	67.9	67.9	99		0.3	U
Cadmium	0.3	U	0.3	U		0.0	61.8	67.9	91		0.3	U
Chromium	21		17			21.1	90.6	67.9	103		1	U
Mercury	0.05	U	0.05	U		0.0	0.116	0.099	117		0.05	U
Lead	4.5		3.7			19.5	68.8	67.9	95		1	U
Selenium	1	U	1	U		0.0	63.8	67.9	94		1	U
Silver	1	U	1	U		0.0	6.18	6.79	91		1	U
Zinc	24		20			18.2	80.2	67.9	83		7.00	U

Analysis	LCS	C	LCS TRUE	C	Q	%REC
Arsenic	971		1,000			97
Barium	919		1,000			92
Beryllium	1,038		1,000			104
Cadmium	953		1,000			95
Chromium	982		1,000			98
Mercury	1.98		1.85			107
Lead	997		1,000			100
Selenium	960		1,000			96
Silver	93		100			93
Zinc	1098		1,000			110

(*) Outside QC Limits
C = Concentration Qualifier
Q = QC Qualifier

Comments: ______________________________

Severn Trent Laboratories, Inc.

Chain of Custody Form

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(F) 413-572-3707

• 149 Rangeway Road
N. Billerica, MA 01862
(P) 978-667-1400
(F) 978-667-7871

Job#: [illegible] | Quote#: | PO#:

Shaded areas for office use

Client: Stone + Webster
Job #: 0813405
Address: 100 Technology Drive, Stoughton Ma 02072
Project Manager: Les Tyrala
Work ID:
Phone: 617-589-5211 Fax: 2160
Contact: Mat Scheller

Requested Turn Around Time
15 Business Day ____ Rush ____
10 Business Day ____ Other 48

Regulatory Classification – Please Specify
NPDES ____ Drinking Water ____ MCP Other ____
RCRA ____ MCP GW1 ____ Other ____

Analysis Requested
Check analysis and specify method and analytes in comments section.
For example:
600-series for drinking water
600-series for waste water
8000-series for haz/solid waste
Use comments section to further define.

Comments (Special Instructions)
Metals = RCRA 8 + Zn + Be

Sample Type Codes
WW - Wellwater, W - Wastewater, SW - Surfacewater, LW - Labwater
RW - Raw Water, GW - Groundwater, PW - Public Water, SO - Soil
S - Solid, SL - Sludge, O - Oil, A - Air, Z - Other

Preservative: NaHSO4/MeOH, HNO3 to pH <2, H2SO4 to pH <2, HCl to pH <2, NaOH to pH >12, Other, 4°C

Sample ID	Sample Type	Sampler's Initials	Date / Time Collected	Grab	Comp.	# Containers	Plastic (P) or Glass (G)	NaHSO4/MeOH	HNO3 to pH <2	H2SO4 to pH <2	HCl to pH <2	NaOH to pH >12	Other	4°C	Volatiles	Semivolatiles	PCB & Pesticides	EPH	VPH	DRO/GRO (circle)	Oil & Grease	Metals	General Chemistry	Bacteriological	Other PAH	Comments
B-2-7 0-.5	SO	MS	6-19-01 7:56		✓	1	G										✓	✓				✓			✓	
B-2-7 .5-2			6-19-01 8:35																							
B-2-7 2-4			6-19-01 8:40																							
B-2-7 4-6			6-19-01 8:45																							
B-2-7 0-2			6-19-01 8:35			2	P								✓											Encores
B-2-7 2-4			6-19-01 8:40			2	P								✓											
B-2-7 4-6			6-19-01 8:45			2	P								✓											
B-2-8 0-.5			6-19-01 9:18		✓	1	G										PCB	✓								PCB + EPH ONLY
B-2-8 .5-2			6-19-01 9:21														PCB	✓								
B-2-8 2-4			6-19-01 9:26														PCB	✓								

Sampled by (print): Mat Scheller Signature: Mat Scheller

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Mat Scheller	6-20-01	12:30	Seth P. [illegible]		
Seth P. [illegible]			Aimee L Cormier	6/20/01	13:[illegible]

~~Method of shipment:~~ Relinquished by: Stephen W. Lorrance 6/20/01 17:30 — [illegible] 6/20/01 1730

Cooler #: [illegible]
Temp @ receipt: [illegible]
Preservation/pH checked
By: [illegible] Date: [illegible]

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(P) 978-667-1400
(F) 978-667-7871

Job#: [illegible] Quote#: PO#:

Shaded areas for office use

Client: Stone + Webster

Address: 100 Technology Drive, Stoughton, MA 02072

Phone: 617-589-5216 Fax: 2160

Job #: 0813405

Project Manager: Les Tyrala

Work ID:

Contact: Mat Scheller

Analysis Requested
Check analysis and specify method and analytes in comments section.
For example:
500-series for drinking water
600-series for waste water
8000-series for haz/solid waste
Use comments section to further define.

Comments (Special Instructions)

Metals = RCRA 8 + Zn + Be

Requested Turn Around Time
15 Business Day ______ Rush ______
10 Business Day ______ Other 48

Regulatory Classification – Please Specify
NPDES ______ Drinking Water ______ MCP Other ______
RCRA ______ MCP GW1 ______ Other ______

Sample Type Codes
WW - Wellwater W - Wastewater SW - Surfacewater LW - Labwater
RW - Raw Water GW - Groundwater PW - Public Water SO - Soil
S - Solid SL - Sludge O - Oil A - Air Z - Other

Sample ID	Sample Type	Sampler's Initials	Date / Time Collected	Grab	Comp.	# Containers	Plastic (P) or Glass (G)	NaHSO4/MeOH	HNO3 to pH <2	H2SO4 to pH <2	HCl to pH <2	NaOH to pH >12	Other	4°C		Volatiles	Semivolatiles	PCB & Pesticides	EPH	VPH	DRO/GRO (circle)	Oil & Grease	Metals	General Chemistry	Bacteriological	Other PAH	
B-2-8 4-6	SO	MS	6-18-01 9:28		✓	1	G							✓				PCB	✓								PCB + EPH
B-4-1 0-.5	"	"	6-18-01 11:30		"	"	"											✓	✓				✓			✓	
B-4-1 .5-2	"	"	6-18-01 11:32		"	"	"											✓	✓				✓			✓	
B-4-1 2-4	"	"	6-18-01 11:40		"	"	"											✓	✓				✓			✓	
B-4-1 4-6	"	"	6-18-01 11:42		"	"	"											✓	✓				✓			✓	
B-4-1 0-.5	"	"	6-19-01 11:30			2	P									✓											Encores
B-4-1 .5-2	"	"	6-19-01 11:32			2	P									✓											
B-4-1 2-4	"	"	6-19-01 11:40			2	P									✓											
B-4-1 4-6	"	"	6-19-01 11:42			2	P									✓											

Sampled by (print): Mat Scheller Signature: Mat Scheller

Relinquished by: Mat Scheller Date: 6-20-01 Time: 12:30 Received by: Keith Jid [illegible] Date: Time:

Relinquished by: Keith P. Jish Date: Time: Received by: Aimee L Cormier Date: 6/20/01 Time: 13:10

Method of shipment: [illegible] Heather W. [illegible] 6/20/01 17:30 R [illegible] 6/20/01 1730

Cooler #: [illegible]
Temp @ receipt: [illegible]
Preservation pH checked
By: [illegible] Date: [illegible]

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N. Billerica, MA 01862
(P) 978-667-1400
(F) 978-667-7871

Client: Stone+ Webster
Address: 100 Technology Drive
Stoughton, Ma 02072
Phone: 617-589-5216 Fax: 2160

Job #: 0813405
Project Manager: Leo Tyrala
Work ID:
Contact: Mat Scheller

Job#: 28992
Quote#
PO#

Shaded areas for office use

Analysis Requested
Check analysis and specify method and analytes in comments section.
For example:
500-series for drinking water
600-series for waste water
8000-series for haz/solid waste
Use comments section to further define.

Comments (Special Instructions)

Requested Turn Around Time
15 Business Day ____ Rush ____
10 Business Day ____ Other 48

Regulatory Classification – Please Specify
NPDES ____ Drinking Water ____ MCP Other ____
RCRA ____ MCP GW1 ____ Other ____

Sample Type Codes
WW - Wellwater, W - Wastewater, SW - Surfacewater, LW - Labwater
RW - Raw Water, GW - Groundwater, PW - Public Water, SO - Soil
S - Solid, SL - Sludge, O - Oil, A - Air, Z - Other

Sample ID	Sample Type	Sampler's Initials	Date / Time Collected	Grab	Comp.	# Containers	Plastic (P) or Glass (G)	NaHSO4/MeOH	HNO3 to pH <2	H2SO4 to pH <2	HCl to pH <2	NaOH to pH >12	Other	4C	pH	Volatiles	Semivolatiles	PCB & Pesticides	EPH	VPH	DRO/GRO (circle)	Oil & Grease	Metals	General Chemistry	Bacteriological	Other	Comments
B-4-2 0-.5	SO	MS	6-19-01 2:20		✓	1	G							✓				PCB	✓								PCB + EPH only
B-4-2 .5-2	SO	MS	6-19-01 2:25		✓	1	G							✓				PCB	✓								
B-4-2 2-4	SO	MS	6-19-01 2:35		✓	1	G							✓				PCB	✓								
B-4-2 4-6	SO	MS	6-19-01 2:40		✓	1	G							✓				PCB	✓								

Sampled by (print): Mat Scheller
Signature: Mat Scheller

Relinquished by: Mat Scheller Date: 6-20-01 Time: 12:30
Received by: Aimee L Cormier Date: 6/20/01 Time: 13:10

Relinquished by: Seth R. [illegible] Date: Time:
Received by: Date: Time:

~~Method of shipment~~ RELINQUISHED BY: Stephen W. Lavaine 6/20/01 17:30
R. [illegible] 6/20/01 1730

Cooler #: 5 [illegible]
Temp @ receipt: on ice
Preservation/pH checked
By: [illegible] Date: [illegible]

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STL 8245 (1000)

CASE NARRATIVE FOR REPORT NUMBER 29149

Client Name : Stone & Webster

Project Name : 0813405

Date : July 09, 2001

Sample No.	Sample ID	Comments
(177748)	B-2-6 (2-4)	
(177749)	B-2-6 (4-4.5)	

Inorganics Analysis Data Sheet

Client Name :	Stone & Webster	Report No :	29149
Project Name :	0813405	Date Collected :	6/18/01
Matrix Name :	Soil	Date Received :	6/29/01

Sample No.	Client ID	Analyte	Result	Units	Method	Date Analyzed	By
177748	B-2-6 (2-4)	Solids, percent	74.9	%	EPA 160.3	7/2/01	GRB
		Lead	1500	mg/kg dry	SW8466010B	7/9/01	BGE
177749	B-2-6 (4-4.5)	Solids, percent	75.3	%	EPA 160.3	7/2/01	GRB
		Lead	2700	mg/kg dry	SW8466010B	7/9/01	BGE

INORGANIC QUALITY CONTROL

Client Name: Stone & Webster
Project: 0813405
Job No.: 28650
Sample No: 177772

Analysis	Sample Result	C	Duplicate Result	C	Q	%RPD	Spl + Spk	Spike	%Rec.	Q	Method Blank	C
Lead	94		102			8	185	85.8	106		2.0	U

Analysis	LCS	C	LCS TRUE	C	Q	%RPD
Lead	977		1000			98

(*) Outside QC Limits
C = Concentration Qualifier
Q = QC Qualifier

Comments: ______________________________

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(P) 978-667-1400
(F) 978-667-7871

Client: Stone + Webster
Address: 100 Tech. Dr.
Stoughton MA 02072
Phone: 617-589-5216 Fax: 617-589-2922

Job #:
Project Manager: Les Tyrala
Work ID: Lawrence
Contact: Mat Scheller

Job#: [illegible] Quote#: PO#:

Shaded areas for office use

Analysis Requested
Check analysis and specify method and analytes in comments section.
For example:
500-series for drinking water
600-series for waste water
8000-series for haz/solid waste
Use comments section to further define.

Comments (Special Instructions)

Pb only

Requested Turn Around Time
15 Business Day ____ Rush ____
10 Business Day ____ Other ____

Regulatory Classification – Please Specify
NPDES ____ Drinking Water ____ MCP Other ____
RCRA ____ MCP GW1 ____ Other ____

Sample Type Codes
WW - Wellwater W - Wastewater SW - Surfacewater LW - Labwater
RW - Raw Water GW - Groundwater PW - Public Water SO - Soil
S - Solid SL - Sludge O - Oil A - Air Z - Other

Sample ID	Sample Type	Sampler's Initials	Date / Time Collected	Grab	Comp.	# Containers	Plastic (P) or Glass (G)	NaHSO4/MeOH	HNO3 to pH <2	H2SO4 to pH <2	HCl to pH <2	NaOH to pH >12	Other	4°C	pH	Volatiles	Semivolatiles	PCB & Pesticides	EPH	VPH	DRO/GRO (circle)	Oil & Grease	Metals	General Chemistry	Bacteriological	Other
B-2-6 (2-4)			6/18/01 1345																				✓			
B-2-6 (4-4.5)			6/18/01 1352																				✓			

AMF 6/29/01

Analysis request per Mat Scheller 6/29 AMF

Sampled by (print): Signature:

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received by:	Date:	Time:

Method of shipment:

Cooler #: ____
Temp @ receipt ____
Preservation/pH checked
By ____ Date ____

Page ____ of ____

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(P) 978-667-1400
(F) 978-667-7871

Job#: 2919 | Quote#: | PO#:

Shaded areas for office use

Client: Stone + Webster

Address: 100 Tech Dr.
Stoughton MA 02072

Phone: 617-589-5216 Fax: 617-589-2922

Job #:

Project Manager: Les Tyrala

Work ID: Lawrence

Contact: Mat Scheller

Analysis Requested
Check analysis and specify method and analytes in comments section.
For example:
500-series for drinking water
600-series for waste water
8000-series for haz/solid waste
Use comments section to further define.

Comments (Special Instructions)

Pb only

Requested Turn Around Time
15 Business Day ______ Rush ______
10 Business Day ______ Other ______

Regulatory Classification – Please Specify
NPDES ______ Drinking Water ______ MCP Other ______
RCRA ______ MCP GW1 ______ Other ______

Sample Type Codes
WW - Wellwater W - Wastewater SW - Surfacewater LW - Labwater
RW - Raw Water GW - Groundwater PW - Public Water SO - Soil
S - Solid SL - Sludge O - Oil A - Air Z - Other

Sample ID	Sample Type	Sampler's Initials	Date / Time Collected	Grab	Comp.	# Containers	Plastic (P) or Glass (G)	NaHSO4/MeOH	HNO3 to pH <2	H2SO4 to pH <2	HCl to pH <2	NaOH to pH >12	Other	4°C	pH	Volatiles	Semivolatiles	PCB & Pesticides	EPH	VPH	DRO/GRO (circle)	Oil & Grease	Metals	General Chemistry	Bacteriological	Other
B-2-6 (2-4)			6/18/01 1345																				✓			
B-2-6 (4-4.5)			6/18/01 1352																				✓			

AMF 6/29/01

Analysis request per Mat Scheller 6/29 AMF

Sampled by (print): Signature:

Relinquished by: Date: Time: Received by: Date: Time:

Relinquished by: Date: Time: Received by: Date: Time:

Method of shipment:

Cooler #:
Temp @ receipt:
Preservation/pH checked
By: Date:

SAMPLE INFORMATION
Date: 03/11/2004

Job Number.: 213650
Customer...: Stone and Webster
Attn.......: Les Tyrala

Project Number.........: 20000581
Customer Project ID....: 60813405 - LAWRENCE
Project Description....: 60813405 - Lawrence

Laboratory Sample ID	Customer Sample ID	Sample Matrix	Date Sampled	Time Sampled	Date Received	Time Received
213650-1	TP2-1	Soil	03/08/2004	11:45	03/08/2004	13:45
213650-2	TP2-2	Soil	03/08/2004	11:47	03/08/2004	13:45
213650-3	TP2-3	Soil	03/08/2004	11:50	03/08/2004	13:45
213650-4	TP6-1	Soil	03/08/2004	12:15	03/08/2004	13:45
213650-5	TP6-2	Soil	03/08/2004	12:18	03/08/2004	13:45
213650-6	TP6-3	Soil	03/08/2004	12:20	03/08/2004	13:45
213650-7	TP6-4	Soil	03/08/2004	12:23	03/08/2004	13:45
213650-8	TP6-5	Soil	03/08/2004	12:26	03/08/2004	13:45
213650-9	TP6-6	Soil	03/08/2004	12:30	03/08/2004	13:45

LABORATORY TEST RESULTS

Job Number: 213650 | Date: 03/11/2004

CUSTOMER: Stone and Webster | PROJECT: 60813405 - LAWRENCE | ATTN: Les Tyrala

Customer Sample ID: TP2-1
Date Sampled......: 03/08/2004
Time Sampled......: 11:45
Sample Matrix.....: Soil

Laboratory Sample ID: 213650-1
Date Received.......: 03/08/2004
Time Received.......: 13:45

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	REPORTING LIMIT	UNITS	DATE	TECH
% Solids 160.3	% Solids	83.3		0.1	%	03/09/04	rwe
SW846 6010B	Metals Analysis Trace (ICP)						
	Lead (Pb)*	98		1.4	mg/Kg	03/10/04	bpg

* In Description = Dry Wgt.

L A B O R A T O R Y   T E S T   R E S U L T S

Job Number: 213650

Date: 03/11/2004

CUSTOMER: Stone and Webster   PROJECT: 60813405 - LAWRENCE   ATTN: Les Tyrala

Customer Sample ID: TP2-2
Date Sampled......: 03/08/2004
Time Sampled......: 11:47
Sample Matrix.....: Soil

Laboratory Sample ID: 213650-2
Date Received.......: 03/08/2004
Time Received.......: 13:45

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	REPORTING LIMIT	UNITS	DATE	TECH
% Solids 160.3	% Solids	83.8		0.1	%	03/09/04	rwe
SW846 6010B	Metals Analysis Trace (ICP)						
	Lead (Pb)*	130		1.4	mg/Kg	03/10/04	bpg

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 213650 | Date: 03/11/2004

CUSTOMER: Stone and Webster | PROJECT: 60813405 - LAWRENCE | ATTN: Les Tyrala

Customer Sample ID: TP2-3
Date Sampled......: 03/08/2004
Time Sampled......: 11:50
Sample Matrix.....: Soil

Laboratory Sample ID: 213650-3
Date Received.......: 03/08/2004
Time Received.......: 13:45

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	REPORTING LIMIT	UNITS	DATE	TECH
% Solids 160.3	% Solids	82.9		0.1	%	03/09/04	rwe
SW846 6010B	Metals Analysis Trace (ICP)						
	Lead (Pb)*	21		1.2	mg/Kg	03/10/04	bpg

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 213650 Date: 03/11/2004

CUSTOMER: Stone and Webster PROJECT: 60813405 - LAWRENCE ATTN: Les Tyrala

Customer Sample ID: TP6-1
Date Sampled......: 03/08/2004
Time Sampled......: 12:15
Sample Matrix.....: Soil

Laboratory Sample ID: 213650-4
Date Received.......: 03/08/2004
Time Received.......: 13:45

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	REPORTING LIMIT	UNITS	DATE	TECH
% Solids 160.3	% Solids	84.0		0.1	%	03/09/04	rwe
SW846 8082A	PCB Analysis						
	Aroclor 1016*	ND	U	118	ug/Kg	03/10/04	baf
	Aroclor 1221*	ND	U	118	ug/Kg	03/10/04	baf
	Aroclor 1232*	ND	U	118	ug/Kg	03/10/04	baf
	Aroclor 1242*	ND	U	118	ug/Kg	03/10/04	baf
	Aroclor 1248*	ND	U	118	ug/Kg	03/10/04	baf
	Aroclor 1254*	ND	U	118	ug/Kg	03/10/04	baf
	Aroclor 1260*	325		118	ug/Kg	03/10/04	baf

* In Description = Dry Wgt.

L A B O R A T O R Y   T E S T   R E S U L T S

Job Number: 213650 Date: 03/11/2004

CUSTOMER: Stone and Webster PROJECT: 60813405 - LAWRENCE ATTN: Les Tyrala

Customer Sample ID: TP6-2
Date Sampled......: 03/08/2004
Time Sampled......: 12:18
Sample Matrix.....: Soil

Laboratory Sample ID: 213650-5
Date Received.......: 03/08/2004
Time Received.......: 13:45

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	REPORTING LIMIT	UNITS	DATE	TECH
% Solids 160.3	% Solids	85.1		0.1	%	03/09/04	rwe
SW846 8082A	PCB Analysis						
	Aroclor 1016*	ND	U	549	ug/Kg	03/10/04	baf
	Aroclor 1221*	ND	U	549	ug/Kg	03/10/04	baf
	Aroclor 1232*	ND	U	549	ug/Kg	03/10/04	baf
	Aroclor 1242*	ND	U	549	ug/Kg	03/10/04	baf
	Aroclor 1248*	ND	U	549	ug/Kg	03/10/04	baf
	Aroclor 1254*	ND	U	549	ug/Kg	03/10/04	baf
	Aroclor 1260*	3430		549	ug/Kg	03/10/04	baf

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 213650

Date: 03/11/2004

CUSTOMER: Stone and Webster PROJECT: 60813405 - LAWRENCE ATTN: Les Tyrala

Customer Sample ID: TP6-3
Date Sampled......: 03/08/2004
Time Sampled......: 12:20
Sample Matrix.....: Soil

Laboratory Sample ID: 213650-6
Date Received.......: 03/08/2004
Time Received.......: 13:45

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	REPORTING LIMIT	UNITS	DATE	TECH
% Solids 160.3	% Solids	82.5		0.1	%	03/09/04	rwe
SW846 8082A	PCB Analysis						
	Aroclor 1016*	ND	U	2370	ug/Kg	03/10/04	baf
	Aroclor 1221*	ND	U	2370	ug/Kg	03/10/04	baf
	Aroclor 1232*	ND	U	2370	ug/Kg	03/10/04	baf
	Aroclor 1242*	ND	U	2370	ug/Kg	03/10/04	baf
	Aroclor 1248*	ND	U	2370	ug/Kg	03/10/04	baf
	Aroclor 1254*	ND	U	2370	ug/Kg	03/10/04	baf
	Aroclor 1260*	14500		2370	ug/Kg	03/10/04	baf

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 213650

Date: 03/11/2004

CUSTOMER: Stone and Webster PROJECT: 60813405 - LAWRENCE ATTN: Les Tyrala

Customer Sample ID: TP6-4
Date Sampled......: 03/08/2004
Time Sampled......: 12:23
Sample Matrix.....: Soil

Laboratory Sample ID: 213650-7
Date Received.......: 03/08/2004
Time Received.......: 13:45

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	REPORTING LIMIT	UNITS	DATE	TECH
% Solids 160.3	% Solids	84.4		0.1	%	03/09/04	rwe
SW846 8082A	PCB Analysis						
	Aroclor 1016*	ND	U	1100000	ug/Kg	03/10/04	baf
	Aroclor 1221*	ND	U	1100000	ug/Kg	03/10/04	baf
	Aroclor 1232*	ND	U	1100000	ug/Kg	03/10/04	baf
	Aroclor 1242*	ND	U	1100000	ug/Kg	03/10/04	baf
	Aroclor 1248*	ND	U	1100000	ug/Kg	03/10/04	baf
	Aroclor 1254*	ND	U	1100000	ug/Kg	03/10/04	baf
	Aroclor 1260*	17100000		1100000	ug/Kg	03/10/04	baf

* In Description = Dry Wgt.

L A B O R A T O R Y   T E S T   R E S U L T S

Job Number: 213650   Date: 03/11/2004

CUSTOMER: Stone and Webster   PROJECT: 60813405 - LAWRENCE   ATTN: Les Tyrala

Customer Sample ID: TP6-5
Date Sampled......: 03/08/2004
Time Sampled......: 12:26
Sample Matrix.....: Soil

Laboratory Sample ID: 213650-8
Date Received.......: 03/08/2004
Time Received.......: 13:45

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	REPORTING LIMIT	UNITS	DATE	TECH
% Solids 160.3	% Solids	80.3		0.1	%	03/09/04	rwe
SW846 8082A	PCB Analysis						
	Aroclor 1016*	ND	U	234	ug/Kg	03/11/04	baf
	Aroclor 1221*	ND	U	234	ug/Kg	03/11/04	baf
	Aroclor 1232*	ND	U	234	ug/Kg	03/11/04	baf
	Aroclor 1242*	ND	U	234	ug/Kg	03/11/04	baf
	Aroclor 1248*	ND	U	234	ug/Kg	03/11/04	baf
	Aroclor 1254*	ND	U	234	ug/Kg	03/11/04	baf
	Aroclor 1260*	2930		234	ug/Kg	03/11/04	baf

* In Description = Dry Wgt.

LABORATORY TEST RESULTS

Job Number: 213650

Date: 03/11/2004

CUSTOMER: Stone and Webster PROJECT: 60813405 - LAWRENCE ATTN: Les Tyrala

Customer Sample ID: TP6-6
Date Sampled......: 03/08/2004
Time Sampled......: 12:30
Sample Matrix.....: Soil

Laboratory Sample ID: 213650-9
Date Received.......: 03/08/2004
Time Received.......: 13:45

TEST METHOD	PARAMETER/TEST DESCRIPTION	SAMPLE RESULT	Q	REPORTING LIMIT	UNITS	DATE	TECH
% Solids 160.3	% Solids	78.0		0.1	%	03/09/04	rwe
SW846 8082A	PCB Analysis						
	Aroclor 1016*	ND	U	598	ug/Kg	03/11/04	baf
	Aroclor 1221*	ND	U	598	ug/Kg	03/11/04	baf
	Aroclor 1232*	ND	U	598	ug/Kg	03/11/04	baf
	Aroclor 1242*	ND	U	598	ug/Kg	03/11/04	baf
	Aroclor 1248*	ND	U	598	ug/Kg	03/11/04	baf
	Aroclor 1254*	ND	U	598	ug/Kg	03/11/04	baf
	Aroclor 1260*	3220		598	ug/Kg	03/11/04	baf

* In Description = Dry Wgt.

L A B O R A T O R Y   C H R O N I C L E

Job Number: 213650 Date: 03/11/2004

CUSTOMER: Stone and Webster PROJECT: 60813405 - LAWRENCE ATTN: Les Tyrala

Lab ID: 213650-1 Client ID: TP2-1 Date Recvd: 03/08/2004 Sample Date: 03/08/2004

METHOD	DESCRIPTION	RUN#	BATCH#	PREP BT #(S)	DATE/TIME ANALYZED	DILUTION
% Solids 160.3	% Solids Determination	1	25100		03/09/2004 0000	
SW846 3050B	Acid Digestion (ICP) Solids	1	25021		03/09/2004 1000	
SW846 6010B	Metals Analysis Trace (ICP)	1	25130	25021	03/10/2004 1833	2
	QC Metals Report, Level 2	1	25133		03/11/2004 1119	
	QC Semi-Volatile Report, Level 2	1	25146		03/11/2004 0000	
	QC Wet Chemistry Report, Level 2	1	25099		03/10/2004 0000	

Lab ID: 213650-2 Client ID: TP2-2 Date Recvd: 03/08/2004 Sample Date: 03/08/2004

METHOD	DESCRIPTION	RUN#	BATCH#	PREP BT #(S)	DATE/TIME ANALYZED	DILUTION
% Solids 160.3	% Solids Determination	1	25100		03/09/2004 0000	
SW846 3050B	Acid Digestion (ICP) Solids	1	25021		03/09/2004 1000	
SW846 6010B	Metals Analysis Trace (ICP)	1	25130	25021	03/10/2004 1902	2

Lab ID: 213650-3 Client ID: TP2-3 Date Recvd: 03/08/2004 Sample Date: 03/08/2004

METHOD	DESCRIPTION	RUN#	BATCH#	PREP BT #(S)	DATE/TIME ANALYZED	DILUTION
% Solids 160.3	% Solids Determination	1	25100		03/09/2004 0000	
SW846 3050B	Acid Digestion (ICP) Solids	1	25021		03/09/2004 1000	
SW846 6010B	Metals Analysis Trace (ICP)	1	25130	25021	03/10/2004 1910	2

Lab ID: 213650-4 Client ID: TP6-1 Date Recvd: 03/08/2004 Sample Date: 03/08/2004

METHOD	DESCRIPTION	RUN#	BATCH#	PREP BT #(S)	DATE/TIME ANALYZED	DILUTION
% Solids 160.3	% Solids Determination	1	25100		03/09/2004 0000	
SW846 3550B	Extraction Ultrasonic (PCBs)	1	25080		03/10/2004 0000	
SW846 8082A	PCB Analysis	1	25126	25080	03/10/2004 1126	

Lab ID: 213650-5 Client ID: TP6-2 Date Recvd: 03/08/2004 Sample Date: 03/08/2004

METHOD	DESCRIPTION	RUN#	BATCH#	PREP BT #(S)	DATE/TIME ANALYZED	DILUTION
% Solids 160.3	% Solids Determination	1	25100		03/09/2004 0000	
SW846 3550B	Extraction Ultrasonic (PCBs)	1	25080		03/10/2004 0000	
SW846 8082A	PCB Analysis	1	25126	25080	03/10/2004 1712	5

Lab ID: 213650-6 Client ID: TP6-3 Date Recvd: 03/08/2004 Sample Date: 03/08/2004

METHOD	DESCRIPTION	RUN#	BATCH#	PREP BT #(S)	DATE/TIME ANALYZED	DILUTION
% Solids 160.3	% Solids Determination	1	25100		03/09/2004 0000	
SW846 3550B	Extraction Ultrasonic (PCBs)	1	25080		03/10/2004 0000	
SW846 8082A	PCB Analysis	1	25126	25080	03/10/2004 1731	20

Lab ID: 213650-7 Client ID: TP6-4 Date Recvd: 03/08/2004 Sample Date: 03/08/2004

METHOD	DESCRIPTION	RUN#	BATCH#	PREP BT #(S)	DATE/TIME ANALYZED	DILUTION
% Solids 160.3	% Solids Determination	1	25100		03/09/2004 0000	
SW846 3550B	Extraction Ultrasonic (PCBs)	1	25080		03/10/2004 0000	
SW846 8082A	PCB Analysis	1	25126	25080	03/10/2004 1750	10000

Lab ID: 213650-8 Client ID: TP6-5 Date Recvd: 03/08/2004 Sample Date: 03/08/2004

METHOD	DESCRIPTION	RUN#	BATCH#	PREP BT #(S)	DATE/TIME ANALYZED	DILUTION
% Solids 160.3	% Solids Determination	1	25100		03/09/2004 0000	
SW846 3550B	Extraction Ultrasonic (PCBs)	1	25080		03/10/2004 0000	
SW846 8082A	PCB Analysis	1	25142	25080	03/11/2004 1040	2

Lab ID: 213650-9 Client ID: TP6-6 Date Recvd: 03/08/2004 Sample Date: 03/08/2004

METHOD	DESCRIPTION	RUN#	BATCH#	PREP BT #(S)	DATE/TIME ANALYZED	DILUTION
% Solids 160.3	% Solids Determination	1	25100		03/09/2004 0000	
SW846 3550B	Extraction Ultrasonic (PCBs)	1	25080		03/10/2004 0000	
SW846 8082A	PCB Analysis	1	25142	25080	03/11/2004 1100	5

STL WESTFIELD
DATA REPORTING QUALIFIERS AND TERMINOLOGY

A number of data qualifiers are widely used within the environmental testing industry and may be utilized in our data reports. The majority of the qualifiers have evolved from the EPA Contract Laboratory Program (CLP).

Report Comments:

All pages of this report are integral parts of the analytical data. Therefore, this report should be reproduced only in its entirety.

Soil, sediment and sludge sample results are reported on a "dry weight" basis.

Reporting limits are adjusted for sample size used, dilutions and moisture content, if applicable.

The test results for the noted analytical method(s) meet the requirements of NELAC. Lab Cert.ID# 10843.

STL-Westfield Certifications: MADEP MA014, CT DPH 0494, NH DES 253901-A, NY DOH 10843, RI DOH 57, VT DECWSD.
FL NELAC E87912 (TOX)

According to 40CFR Part 136.3, pH, Total Residual Chlorine and Dissolved Oxygen analyses are to be performed immediately after aqueous sample collection. When these parameters are not indicated as field analyses, they were not analyzed immediately, but as soon as possible on laboratory receipt.

Analytical result(s) reported as "ND", indicates that the analyte was analyzed for but "not detected."
Analytical result(s) reported as "TNTC" indicates that the microbiological test was "too numerous to count."

Glossary of Qualifiers:

Inorganic Qualifiers (Q-column):
- U Indicates that the analyte was analyzed for but not detected.
- E Indicates an estimated value due to the presence of interference. When applied to GFAA analysis, indicates the one-point method of addition recovered between 40-85 percent.
- B Indicates an estimated result value. The result was measured between the reporting limit and the method detection limit (MDL).

Organic Qualifiers (Q-column):
- U Indicates that the compound was analyzed for but not detected.
- J Indicates an estimated result value. This qualifier is used when mass spectral data indicated the presence of a compound that meets the identification criteria and the result is less than the specified quantitation limit, but greater than the method detection limit (MDL).
- B Indicates that the compound was found in both the sample and its associated laboratory blank. Indicates possible/probable blank contamination and warns the data user to exercise caution when applying the results to this compound.
- D Indicates all compounds identified in an analysis at a secondary dilution factor.
- E Indicates that the compound in an analysis has exceeded the instrument linear calibration range.

Glossary of Terms:

Surrogates (Surrogate Standards): An organic compound, which is similar to the target analyte(s) in chemical composition and behavior in the analytical process, but are not normally found in environmental samples. For semi-volatiles and pesticides/Arochlors, surrogate compounds are added to every blank, sample, matrix spike, matrix spiked duplicate, matrix spike blank (LCS), and standard. These compounds are used to evaluate analytical efficiency by measuring recovery. Poor surrogate recovery may indicate a problem with the sample composition.

QUALITY ASSURANCE METHODS

REFERENCES AND NOTES

Report Date: 03/11/2004

Internal Standard: An organic compound, which is similar to the target analyte(s) in chemical composition and behavior in the analytical process. For GC/MS semi-volatiles and volatiles, internal standards are added to every blank, sample, matrix spike, matrix spike duplicate, matrix spike blank (LCS), and standard. Internal standard responses outside of established limits will adversely affect the quantitation and final concentration of target compounds.

Matrix Spike (MS): An aliquot of a sample (water or soil) fortified (spiked) with known quantities of specific compounds (target analytes) and subjected to the entire analytical procedure in order to indicate the appropriateness of the method for matrix interference by measuring recovery. The spiking occurs prior to sample preparation and analysis. Poor spike recovery may indicate a problem with the sample composition.

Laboratory Control Sample (LCS): An aliquot of analyte-free reagent water or sand fortifed (spiked) with known quantities of specific compounds (target analytes) and subjected to the entire analytical procedure in order to indicate the appropriateness of the method efficiency.

Blank: An artificial sample of analyte-free water or solvent, designed to monitor the introduction of contaminates into the analytical process.

Method Dectection Limit (MDL): The minimum concentration of an analyte or compound that can be measured and reported with 99% confidence that the result concentration is greater than zero.

Petroleum Hydrocarbon Comments:

The following comments are specific to Diesel Range Organics (DRO), by GC/FID:

Results for DRO are based on chromatographable portions of the petroleum product. The Carbon Range refers to the approximate chromatographic region covered by the specified petroleum product in straight-chain carbon units between C9-C36.

Quantitation is based on the average response factors for a series of hydrocarbons standards. The sample result from the DRO fraction is independent of the target compound assignment.

Samples yielding chromatographic patterns that do not agree with any of the method targets are reported as "unmatched".

S U R R O G A T E   R E C O V E R I E S   R E P O R T

Job Number.: 213650

Report Date.: 03/11/2004

CUSTOMER: Stone and Webster   PROJECT: 60813405 - LAWRENCE   ATTN: Les Tyrala

Method........: PCB Analysis
Batch(s)......: 25126 25142

Method Code...: 8082DC
Test Matrix...: Water

Prep Batch....: 25080
Equipment Code:

Lab ID	DT	Sample ID	Date	DCB	TCX
LCD			03/10/2004	63.0	67.5
LCS			03/10/2004	68.8	83.2
MB			03/10/2004	60.2	85.7
213650- 4		TP6-1	03/10/2004	51.2	66.8
213650- 5		TP6-2	03/10/2004	107.9	94.7
213650- 6		TP6-3	03/10/2004	104.8	104.2
213650- 7		TP6-4	03/10/2004	Dil*	Dil*
213650- 8		TP6-5	03/11/2004	101.1	102.8
213650- 9		TP6-6	03/11/2004	97.3	95.2

Test	Test Description	Limits
DCB	Decachlorobiphenyl (surr)	30.0 - 150.
TCX	Tetrachloro-m-xylene (surr)	30.0 - 150.