ENGINEERING AND OPERATIONS SERVICES
NEW YORK STATE SUPERFUND STANDBY CONTRACT

MULTI-SITE PRELIMINARY SITE ASSESSMENTS

Wheelock Avenue (Site No. 1-30-090)
Burnside Avenue (Site No. 1-30-091)
Michael Drive Industrial Area (Site No. 1-30-092)
Empire Electric Company (Site No. 2-24-015)
BQE/Ansbacher Color and Dye Factory (Site No. 2-24-016)
Designers Woodcraft (Site No. 2-24-020)
Carbona Products (Site No. 2-24-023)
Public School 60/62 and Ozone Industries (Site No. 2-41-021)

Work Assignment No. D002676-44

WORK PLAN

Prepared for:

New York State Department of Environmental Conservation
Division of Environmental Remediation

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LAWLER, MATUSKY & SKELLY ENGINEERS LLP
ENVIRONMENTAL SCIENCE & ENGINEERING CONSULTANTS
One Blue Hill Plaza
Pearl River, New York 10965

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1.0 WORK PLAN

1.1 INTRODUCTION

Lawler, Matusky & Skelly Engineers LLP (LMS) was given the work assignment of the Multi-Site Preliminary Site Assessments (PSAs) under terms of the State Superfund Standby Contract. The objective of the work assignment is to conduct a PSA on eight individual sites to determine the source of contamination at each site, determine the extent of contamination, and recommend the proposed classification of each site on the New York State Department of Environmental Conservation (NYSDEC) Registry of Inactive Hazardous Waste Disposal Sites (the Registry).

1.2 BACKGROUND

The following paragraphs provide background information on each of the eight sites.

1.2.1 Wheelock Avenue (Site No. 1-30-090) and Burnside Avenue (Site No. 1-30-091)

These two sites are located at the intersection of Wheelock and Burnside Avenues, and are situated approximately 2,000 feet south of Jamaica Bay in a commercial/industrial section of Inwood in Nassau County. Businesses in the area include several car dealerships, an auto insurance agent, a car alarm installation shop, two freight shipping companies, and a PIP printing store. A residential neighborhood is located south of Burnside Avenue.

The NYSDEC received a memo from the Nassau County Department of Health (NCDOH) which indicated high levels of contamination in one of their monitoring wells. Specifically, N-09468 (located on the northwest corner of the intersection of concern) was found to contain 3,309 µg/l of trichloroethylene (TCE), 2,771 µg/l of cis-1,2 dichloroethylene (cis-1,2-DCE), 444 µg/l of vinyl chloride, and other related compounds. NCDOH does not have information on known releases in the vicinity of N-09468, but does possess a list of sites which use or used chlorinated solvents. Two of the addresses (10 Wheelock Avenue and 530 Burnside Avenue) are located at the intersection of concern. Based on this information, a PSA is needed at this location to identify the source(s) of groundwater contamination.

The on-site soils consist of fine to coarse sand, with some gravel and silt. Groundwater is assumed to be 3 - 5 feet below ground surface and is assumed to flow towards the north.

1.2.2 Michael Drive Industrial Area (Site No. 1-30-092)

The site is adjacent to the Long Island Railroad, and is ~1/4 mile west of the Syosset Landfill (NYSDEC ID #1-30-011). The Long Island Expressway is ~1/2 mile south of the site. This site

is in a commercial/industrial area located in the Town of Oyster Bay in Nassau County. The area is suspected to contain one or more hazardous waste disposal sites based on the results of groundwater monitoring conducted as part of the Syosset Landfill remedial investigation (RI) operable unit 2. Samples collected in late 1993 from monitoring well RW-12I (which is screened at 350 feet below ground surface) indicated the presence of chlorinated solvents at levels above the New York State Class GA groundwater standards. Specifically, tetrachloroethylene (PCE) was found at 110 µg/l, 1,1,1-trichloroethane (1,1,1-TCA) was found at 75 µg/l, 1,1-dichloroethylene (1,1-DCE) was found at 27 µg/l, 1,1-dichloroethane (1,1-DCA) was found at 17 µg/l, and TCE was found at 9.9 µg/l. (All of these contaminants have a class GA standard of 5 µg/l.)

Based on these results, NCDOH files were reviewed to determine whether there were any facilities directly upgradient of GW-12I that used or were using any of the compounds of concern. From this record search, five locations were determined to fit this description: (1) Emro Dry Cleaners (currently using PCE); (2) Space Machine Corp. (had discharges of 1,1,1-TCA and PCE); (3) Spiegel Associates (had discharges of 1,1,1-TCA); (4) Centroid (used 1,1,1-TCA); and (5) PMI Motors (used 1,1,1-TCA). These facilities are all located off of Michael Drive.

Based on this information the NYSDEC must conduct a PSA within this area to determine the location of the source(s) of contamination found at GW-12I. This is based on the above information as well as the NYSDEC's commitment to further investigation as stated in the 1996 Syosset Landfill record of decision (ROD).

The site is underlain by unconsolidated sand and gravel. Groundwater is located approximately 80 feet below ground surface and flows towards the north-northeast.

1.2.3 **Empire Electric Company (Site No. 2-24-015)**

This site is located approximately 0.1 mile east of Gowanus Bay (Upper New York Bay) in the Sunset Park section of Kings County, New York City. The area is primarily industrial in nature, with a potato chip manufacturer (Utz), a New York City Department of Sanitation vehicle maintenance and storage building, the former BUG - Kings County Works manufactured gas plant (MGP) site, and the waterfront (Bush Terminal docks) in the general vicinity.

The site consists of a 100' x 240' parcel that is located on the southwest corner of 1st Avenue and 52nd Street. The property contains a red brick building that completely covers the lot. This structure, which requires substantial roofing work, was built in 1900 for use by the City of New York as a power plant for the municipally-owned trolley system. This usage continued until the 1930s when the trolley system was abandoned. The equipment within the building was removed, and the building was left vacant and unused.

In 1950 the Empire Electric Company acquired the abandoned property from the City. The site was used to warehouse and re-condition electrical apparatus [including polychlorinated biphenyls (PCBs)-containing transformers]. Various functions included welding, painting, and degreasing; Empire ceased operations in 1986.

Wipe samples collected during November 1986 prior to "cleanup" contained total PCBs ranging from 2,500 to 520,000 $\mu g/100\ cm^2$. Wipe samples collected during December 1986 after "cleanup" contained total PCBs ranging from 5.71 to 8,000 $\mu g/100\ cm^2$. (The EPA cleanup standard is 10 $\mu g/100\ cm^2$.) Based on these wipe sample results, the site was added to the Registry as a Class 2 site in February 1989.

In July 1993, Bureau of Hazardous Site Control staff collected four surficial soil samples along 52nd Street from beneath the asphalt. Laboratory analysis indicated concentrations of PCBs (Aroclor-1260) ranging from 3.5 to 16 mg/kg. [The Technical and Administrative Guidance Memorandum (TAGM) #4046 cleanup guideline for PCBs in surficial soil is 1 mg/kg.]

On November 18, 1997 NYSDEC Division of Environmental Remediation (DER) staff from Region 2 and Central Office visited the site. During this visit, staff noticed that there was a movie being filmed (Row Your Boat) in the vacant lot behind the adjacent abandoned building to the west of the site. Further investigation of this property revealed the presence of stained soil in the vacant lot, and large amounts of old, miscellaneous electrical equipment in the basement of the abandoned building.

Since there is no comprehensive sampling data available for the site, additional investigation including wipe, soil, and groundwater sampling is required.

On-site soils are assumed to consist of urban fill [black sand, fine to medium gravel, brick, wood, concrete, glass, and other construction and demolition (C & D) material], underlain by silty sand with traces of gravel and organics. Groundwater depth is assumed to be 5 - 10 ft below ground surface and flows to the west.

1.2.4 **BQE/Ansbacher Color and Dye Factory (Site No. 2-24-016)**

This site is located approximately 3,500 ft southeast of the East River in the Williamsburg section of Kings County, New York City. The area consists of one and two story masonry-constructed buildings that are involved in various light to heavy industrial uses. The site is bordered by North 8th St to the northeast, by Havenmeyer St to the northwest, by North 6th St to the southwest, and Macri Triangle to the southeast. Meeker Avenue runs through the middle of the site, and the elevated Brooklyn-Queens Expressway (BQE) runs above Meeker Avenue.

The site was formerly occupied by Ansbacher Color and Dye Factory, which operated on-site from 1907 to 1945. Although the exact site operations are unknown, it is assumed that the facility manufactured paints and/or pigments for commercial and industrial use.

The area was first investigated by the New York State Department of Transportation (NYSDOT) during the reconstruction of the BQE in 1988. During this work, NYSDOT collected samples of soil and groundwater for laboratory analysis. The results indicated hazardous levels of arsenic (up to 48 mg/kg) and lead (up to 29 mg/kg) in the soil, and elevated levels of arsenic (220 µg/l), cyanide (820 µg/l), and lead (568 µg/l) in perched groundwater. As part of the reconstruction, NYSDOT removed contaminated soil from the project footprint. The excavation depth and amount of soil removed are unknown. No samples were collected outside the project footprint, which covers ~50% of the site area.

Since previous investigative efforts did not fully document the extent of contamination, additional soil and groundwater sampling are required in order to fully delineate the extent of contamination and confirm the presence of a consequential amount of hazardous waste.

The site is underlain by urban fill to about 20 feet, organic silt to 25 feet, and silty sand beneath this. Perched groundwater was identified between 12 and 20 feet below ground surface. An underlying aquifer (Upper Glacial) was encountered at 25 to 30 feet below ground surface. Groundwater flow direction is assumed to be towards the northwest.

1.2.5 **Designers Woodcraft (Site No. 2-24—20)**

This site is located approximately 0.25 miles east of Buttermilk Channel (Upper New York Bay) in the South Brooklyn section of Kings County, New York City. The area consists of old converted warehouses, apartment buildings, small retailers (a deli and a live poultry market), and the waterfront (New York/New Jersey Port Authority Dock 9B).

The site is occupied by a three-story red brick building totaling approximately 9,000 square feet in size. The structure has continuously served as a furniture factory since it was constructed over 100 years ago. Over that time period, facility operators have used numerous paints, stains, lacquers, thinners and other finishing products that contain various volatile and semi-volatile organic compounds.

The area was first investigated in 1993 by the New York State Office of Mental Health (NYSOMH) due to their interest in using an adjacent property (169 Columbia Street) for assisted-living housing. Groundwater samples collected in 1994 from the Columbia St property indicated high levels of 2-butanone (175,000 µg/l). Since 2-butanone or methyl ethyl ketone was not found in on-site soil samples, and the furniture factory is upgradient of the lot, it was assumed that the

Designers Woodcraft facility was the source of 2-butanone found in the groundwater. A check of material safety data sheets maintained at Designers Woodcraft indicated that 2-butanone was a major component of the products used on-site.

In 1996, NYSDEC hired a stand-by consultant (Dvirka & Bartilucci) to conduct a PSA. Activities associated with the PSA included a records search and review, a site inspection, and sampling activities. Groundwater, floor drain sediment, and subsurface soil samples were collected and analyzed for target compound list (TCL) volatile organic compounds (VOCs) and semi-volatile organic compounds (SVOCs), target analyte metals (TAL) metals, and toxicity characteristic leaching procedure (TCLP) compounds. Laboratory results indicated that 2- butanone was not present in on-site, upgradient, or downgradient soil and groundwater. However, lead was found in on-site soils and floor drain sediment, the latter of which exceeded the TCLP limit of 5 mg/l. On-site and downgradient groundwater samples indicated elevated levels of lead, but the samples were highly turbid and therefore were not indicative of true site conditions. Since the 1996 PSA was unable to confirm the presence of a consequential amount of hazardous waste, additional groundwater sampling is required.

On-site soils consist of urban fill [black sand, fine to medium gravel, brick, wood, concrete, glass, and other construction and demolition (C & D) material] down to about 6 ft, then brown silty sand with traces of gravel. Groundwater depth is approximately 8 ft and the groundwater flow direction is to the west.

1.2.6 **Carbona Products (Site No. 2-24-023)**

This site is located approximately 0.5 miles south of Newtown Creek in the Greenpoint section of Kings County, New York City. The area consists of one and two story masonry-constructed buildings that are involved in various light to heavy industrial uses. The site is bordered by Calyer St to the north, by Humboldt St to the east, by the New York City Department of Consumer Affairs - Central Testing Division to the south, and Meserole Avenue to the west.

The site was occupied by a single story brick building totaling about 20,000 ft^2 in size. (This building was recently demolished and removed from the site, as it had collapsed in several locations.) This structure housed the Carbona Products Company from 1978 until 1994. Over that time period, Carbona blended and packaged household and commercial cleaning products which contained halogenated solvents. These solvents were stored in above-ground storage tanks located in the south-eastern portion of the building.

The area was first investigated by NYSDEC in 1994 as a result of some limited soil sampling performed by the property owner. The samples collected indicated elevated levels of PCE (up to

92 mg/kg) in the vicinity of the storage tanks and the production area. Based on this data, the site was given a "P" (potential hazardous waste disposal site) designation.

In 1995, NYSDEC attempted to negotiate a PSA work plan with the site owner. These negotiations broke down in early 1996. Since previous efforts to get the site owner to undertake a PSA were unsuccessful, additional soil and groundwater sampling are required in order to confirm the presence of a consequential amount of hazardous waste.

The on-site soils consist of reddish brown to black, fine to coarse sand, with some gravel, silt, and wood. Groundwater is assumed to be approximately 10-15 feet below ground surface and is assumed to flow towards the north.

1.2.7 Public School 60/62 (Former Voges Manufacturing)/Ozone Industries (Site No. 2-41-021)

These sites are located approximately 0.5 miles north of Shellbank Basin (Jamaica Bay) in a commercial/industrial portion of the Ozone Park section of Queens. A residential neighborhood is located to the west, and the area is bisected by an abandoned, elevated section of the Long Island Railroad.

Historically, the 103-22 99th St property was occupied by Voges Manufacturing from 1920 until 1995. The company initially engaged in the manufacture of plastic buttons via an extrusion molding process. More recently, the company engaged in the manufacture of component parts for helicopters. Based on historical Material Safety Data Sheets (MSDS) presented to NYSDEC by the current owner, Voges purchased PCE up until May 1991 and may have utilized it as a degreaser for machined parts.

The property has been occupied by a New York City public school since the fall of 1996. During the construction of the school, an environmental investigation was conducted. This investigation revealed the presence of TCE in the groundwater at concentrations ranging from 190 µg/l in the upgradient well to 2,600 µg/l in the downgradient well. Based on this information, the former facility's MSDS, and on allegations made to the Regional Remediation Engineer by an informant claiming that hazardous wastes were disposed within the building by Voges Manufacturing employees, the NYSDEC designated the PS 60/62 property as a potential hazardous waste disposal site in September 1996.

The Ozone Industries property was first investigated by the DER in the winter of 1997. The lawyer for the former Voges Manufacturing Company indicated that there was a facility upgradient of the school property that utilized TCE in their site operations. This claim was researched with the Spills Program in Region 2, and was found to be true. The presence of a

2,000 gallon underground storage tank (UST) containing TCE was confirmed in the Chemical Bulk Storage Program's inventory. A spill was also reported in 1987 as a result of a tank test failure. The remediation of the spill consisted of the removal of the tank from service. This was completed in October 1992. Based on the above information, a PSA is needed at these locations to identify the source(s) of groundwater contamination.

On-site soils consist of orange-brown fine to medium sand, with traces of gravel. Groundwater is located approximately 24 feet below ground surface and is assumed to flow towards the south.

1.3 TASK 1 - WORK PLAN DEVELOPMENT

1.3.1 Subtask 1.1 – Scoping

Under this subtask a 'drive by' site visit of each of the eight sites was conducted on 19 March 1999 to determine if there were any hazards or other access problems for drilling at each site. A meeting was held at the NYSDEC offices in Albany, New York on 25 March 1999 to discuss the scope of the PSAs. A task by task cost estimate for each of the eight sites was prepared, submitted to NYSDEC, and discussed. Since the exact scope at Michael Drive Industrial Area site had not been prepared previously, LMS presented the suggested scope of work for this site at the meeting. Suggested changes to some of the other sites were also discussed.

1.3.2 Subtask 1.2 – Draft/Final Work Plans

Under this subtask LMS prepared the draft and final work plan. The work plan included a detailed description of all tasks to conduct the PSAs. The work plan also included proposed subcontractors, the minority/women-owned business enterprize (MBE/WBE) utilization plan, and the proposed project organization and staffing plan. As part of the work plan, LMS prepared a project schedule which highlighted all work activities including field work, deliverable dates, and other important project milestones. LMS will contact NYSDEC at least one week prior to the conductance of any field work.

A detailed budget was prepared for each task and subtask which provided the level of effort in terms of man-hours. The budget also provided a breakdown of the expenses associated with the tasks and subtasks. The budget was prepared utilizing the cost rates and factors in the base Standby Contract. The 2.11 series of schedules were used to prepare the cost estimate. A separate estimate was also prepared that combined the eight sites together on the 2.11 tables.

A draft Field Operations/ Drilling Plan/Sampling Plan [Field Activities Plan (FAP)] was also prepared and submitted with the draft work plan. The plan provided information on sampling locations, number of samples, analyses, and analytical method for each site. A detailed

description of the drilling method and sampling method was also provided. A site-specific health and safety plan (HASP) was also prepared for each site which provided emergency information, detailed information of the specific compounds, air monitoring requirements, and levels of protection. A quality assurance project plan (QAPjP) was also prepared which was essentially a revision to the QAPjP prepared for a similar project under terms of the standby contract. The QAPjP was revised to reflect the laboratory used, sample media, analyses to be performed, analytical methods to be used, and level of quality assurance/quality control (QA/QC) to be employed.

After receipt of comments by NYSDEC on the draft plans, LMS incorporated the comments and prepared the final work plan, HASP, QAPjP, and FAP.

1.3.3 **Subtask 1.3 - Task Management**

The administrative costs associated with the task are included under this subtask. This includes reviewing subcontractor invoices, preparation of the cost control report (CCR), and preparation of the contractors' application for payment (CAP).

1.4 TASK 2 – IMPLEMENTATION OF THE APPROVED TECHNICAL SCOPE OF WORK

1.4.1 **Subtask 2.1 – Literature Search/File Search**

This subtask will include obtaining and reviewing all appropriate relevant files on seven of the eight sites (a detailed file review of the Designers Woodcraft site has already been done and will not be repeated). The purpose of this subtask will be to assemble the necessary background data to complete the PSA. The following agencies will be contacted and their files reviewed.

- NYSDEC - Division of Environmental Enforcement
- NYSDEC - Region 1 and 2
- Nassau County Health Department
- New York City Health Department
- NYSDOH

It is hoped that this subtask will identify any unknown source areas that may exist on each of the sites. Should this occur the field investigation subtasks will be modified accordingly to adequately address these areas.

The file review will also include obtaining the tax map and property owners names and addresses for all properties to be investigated. This information will be obtained from the county or local real estate tax office.

1.4.2 Site Inpections/Mobilization/Demobilization

This subtask includes a site inspection by each site's site coordinator to locate each of the sampling points prior to the drill rig mobilizing to the site. The location of the sampling points is needed in order to do a utility markout prior to initiating drilling. This subtask also includes mobilizing any equipment needed to the site and removing this equipment at the end of the project.

1.4.3 Probe Work

This subtask includes those sites that require probe work in order to collect samples. LMS' probe rig will be used on those sites requiring probe work. A description of each of these sites follows:

- **Wheelock Avenue.** A total of 14 probe points will be installed half of which will be installed to a depth of 10 ft and half of which will be installed to 50 ft.

- **Burnside Avenue.** A total of 14 probe points will be installed half of which will be installed to a depth of 10 ft and half of which will be installed to 50 ft.

- **Empire Electric Company.** A total of six soil borings will be installed; four inside the building and two in the vacant lot behind the building.

- **Carbona Products.** A total of ten probe points will be installed half of which will be installed to a depth of 10 to 20 ft and half of which will be installed to 50 ft

- **Public School 60/62 (former Voges Manufacturing)/Ozone Industries.** A total of 23 probe points will be installed 75% of which will be installed to a depth of 30 ft and 25% of which will be installed to 60 ft.

1.4.4 Subtask 2.4 – Well Installation/Hydropunch

At three of the sites monitoring wells will be installed and at one of the sites either well points or hydropunching will be used to collect the groundwater samples. This work will be subcontracted to an outside drilling company, Delta Well and Pump Company, Inc. A description of each of these sites follows:

- **Michael Drive Industrial Area.** Groundwater samples will be collected using either the hydropunch sampling system or a retrievable well point system. Groundwater samples will be collected at the water table, 90, 100, 110, and 120 ft. below the ground surface. For either sample collection method the required borehole will be advanced using a truck-mounted drill rig. Each of the boreholes will be completed using 3.25-in. or 4.25-in. hollow-stem augers (HSA). If the existing site conditions indicate that the hydropunch sampling system will be the most efficient groundwater sampling method, the drilling rods will removed from the boring at each of the specified sampling depths and a steam-cleaned hydropunch tool attached to the rods. The rods will then be lowered back into the boring and the hydropunch driven to the targeted sampling depth. Once the hydropunch tool has been driven to the desired depth, it will be retracted several inches to expose the sample port. The hydropunch tool will then be allowed to fill with the groundwater sample. Once the hydropunch tool is filled, it will be returned to the surface and the groundwater sample transferred to the appropriate sample container.

  If the existing site conditions indicate that the retrievable well point sampling system will be the most efficient groundwater sampling method, the borehole will be completed to the target depth of 120 ft. At this depth a steam-cleaned 2-in. steel well point and 2-in. steel riser will be installed. Once installed the augers will be retracted and the formation allowed to cave and form a natural sandpack around the well point. The well point will then be purged until at least three borehole volumes have been removed using a 2-in submersible pump with dedicated tubing. Once the purging is completed the required groundwater sample will be collected directly from the tubing at the ground surface. The well point and riser will then be retracted to the next sampling depth and the purging and sampling repeated. This sample collection procedure will be repeated at each of the required sampling depths.

- **Empire Electric Company.** A total of six 2 in. diameter wells will be constructed, two upgradient of the site along 1st Avenue, two along the southern side of 52nd St, and two downgradient of the site in the vacant lot behind the adjacent building to the west. The wells will be constructed using the HSA system (4.25 in. I.D.) and will be drilled to about 15 to 20 ft. Each well will be constructed using 2 in. I.D. threaded/flush joint Schedule 40 PVC riser with a #10 slot Schedule 40 PVC screen. The ten ft screen will be placed such that the bottom of the screen is about seven ft below the water table.

- **BQE/Ansbacher Color and Dye Factory.** A total of eight 2 in. diameter wells will be constructed, two upgradient of the site within the Macri Triangle and six downgradient of the site along North 6th and North 7th Streets. Half of the wells are shallow (screened at 10 ft) to collect groundwater from the perched aquifer and half the wells are deep (screened at 25 ft) to

collect groundwater from the Upper Glacial Aquifer. The wells will be constructed using the HSA system (4.25 in. I.D.) and will be drilled to about 20 ft for the shallow wells and 35 ft for the deeper wells. Each well will be constructed using 2 in. I.D. threaded/flush joint Schedule 40 PVC riser with a #10 slot Schedule 40 PVC screen. The ten ft screen will be placed such that the bottom of the screen is about seven ft below the water table.

A total of five soil borings will be installed; three in the parking lot, one on the corner of North 6th St and Meeker Avenue and one on the corner of North 7th Street and Meeker Avenue. The drilling method used will be HSA with a 4.25 in. I.D. Split-spoon samples will be collected from each two ft interval down to a depth of 12 ft for each boring.

- **Designer Woodcraft.** A total of seven 2 in. diameter wells will be constructed, two upgradient of the site along Tiffany Place, one within the site immediately downgradient of floor drain 2, and four downgradient of the site along Columbia Street. The wells will be constructed using the HSA system (4.25 in. I.D.) and will be drilled to about 15 ft. Each well will be constructed using 2 in. I.D. threaded/flush joint Schedule 40 PVC riser with a #10 slot Schedule 40 PVC screen. The ten ft screen will be placed such that the bottom of the screen is about seven ft below the water table.

1.4.5 **Subtask 2.5 – Sampling.** This subtask covers the collection of the various samples form each of the sites, their analysis by the outside contract laboratory, and their validation by a third party data validator. The following summarizes the number of samples and analyses for each of the sites.

- **Wheelock Avenue.** At each probe location (14 in all) a groundwater sample will be collected at the water table and analyzed for TCL VOCS using NYSDEC Analytical Services Protocol (ASP) 95-1. At the deeper probe locations (half of the probes) a sample will also be collected at 25 ft and 50 ft and analyzed for TCL VOCS. Therefore the total number of samples collected for the site will be 28 with an additional two duplicates.

- **Burnside Avenue.** At each probe location (14 in all) a groundwater sample will be collected at the water table and analyzed for TCL VOCS using NYSDEC ASP 95-1. At the deeper probe locations (half of the probes) a sample will also be collected at 25 ft and 50 ft and analyzed for TCL VOCS. Therefore the total number of samples collected for the site will be 28 with an additional two duplicates.

- **Michael Drive Industrial Area.** A total of up to 10 sampling points will be completed at the Michael Drive Site to collect groundwater samples at several depths below the site. The objective of the sampling is to determine which of the suspected properties in the area is the

source of the known groundwater contamination. Groundwater samples will be collected at the water table [80-85 ft below ground surface (bgs)], 90, 100, 110, and 120 ft. bgs Each of the groundwater samples will be collected using either the hydropunch sampling system or a retrievable well point system. The completion depth, sampling depths, and sampling system at each of the sampling locations will depend on the actual field conditions encountered during the drilling.

A total of 50 groundwater samples will be collected (5 samples from each of the 10 locations) plus two duplicates and these samples will be analyzed for TCL VOCs using NYSDEC ASP 95-1 by the LMS contract laboratory.

Any drilling cuttings generated during the sampling activities will be containerized in a low profile hazardous waste roll-off. These cuttings will then be tested for full TCLP analysis and hazardous characteristics to determine the best disposal method for them. In LMS' experience this is the most cost effective and easy way to dispose of the cuttings in an urban industrial area. Typically, the drilling cuttings will be classified as uncontaminated soils and will be appropriately reused by the waste hauler.

- **Empire Electric Company.** At each soil boring location two soil samples will be collected – one from the 0-2 ft layer and one from the 2-4 ft layer and analyzed for TCL VOCs using EPA Method 8260 and PCBs using EPA Method 8082. The total number of soil samples collected is 12 plus one duplicate. One groundwater sample will be collected from each monitoring well and analyzed for TCL VOCs using EPA Method 8260 and PCBs using EPA Method 8082. The total number of groundwater samples collected is six plus one duplicate. total of twelve wipe samples (plus one duplicate) will be collected inside the building, two in each wall, and four on the floor using a 100 cm^2 pad soaked in hexane. The wipe samples will analyzed for PCBs using EPA Method 8082.

- **BQE/Ansbacher Color and Dye Factory.** A total of three shallow soil samples (plus one duplicate) will be collected within the Macri Triangle and analyzed for TAL metals using NYSDEC ASP CLP-M, total and amendable cyanide using EPA Method 9010, and TCLP metals using EPA Method 1311, 6000/7000. A total of six subsurface soil samples will be collected from each of the five soil borings for a total of 30 samples plus two duplicates. Each sample will be analyzed for TAL metals using NYSDEC ASP CLP-M, total and amendable cyanide using EPA Method 9010, and TCLP metals using EPA Method 1311, 6000/7000. A total of eight groundwater samples will be collected from each of the eight monitoring wells (plus one duplicate) and analyzed for TAL metals using NYSDEC ASP CLP-M and cyanide using EPA Method 9010.

Any drilling cuttings generated during the sampling activities will be containerized in a low profile hazardous waste roll-off. These cuttings will then be tested for full TCLP analysis and hazardous characteristics to determine the best disposal method for them. In LMS' experience this is the most cost effective and easy way to dispose of the cuttings in an urban industrial area. Typically, the drilling cuttings will be classified as uncontaminated soils and will be appropriately reused by the waste hauler.

- **Designers Woodcraft.** Two groundwater samples (one filtered and one unfiltered) will be collected from each of the seven monitoring wells and analyzed for lead using NYSDEC ASP Method CLP-M: 239.1. The total number of samples collected is 14 plus one duplicate for lead. One sample will be collected from each of the seven monitoring wells and analyzed for TCL VOCs using NYSDEC ASP 95-1. The total number of VOC samples collected is seven plus one duplicate.

  Any drilling cuttings generated during the sampling activities will be containerized in a low profile hazardous waste roll-off. These cuttings will then be tested for full TCLP analysis and hazardous characteristics to determine the best disposal method for them. In LMS' experience this is the most cost effective and easy way to dispose of the cuttings in an urban industrial area. Typically, the drilling cuttings will be classified as uncontaminated soils and will be appropriately reused by the waste hauler.

- **Carbona Products.** The Greenpoint section of Kings County is known to have extensive petroleum contamination in the form of free product on the water table. It is suspected that a layer of petroleum may be present at the water table in the vicinity of the site. In order to determine if petroleum is present beneath the site, the ten shallow groundwater samples will be collected from temporary 1.5-in. diameter piezometers installed several feet into the water table. The piezometers will be allowed to stabilize overnight and then gauged with an interface probe for the presence and thickness of free product. If product is encountered, samples will be collected from both the product and the water immediately below the product for TCL VOCS analyses using NYSDEC ASP 95-1. The sample will be collected from the product since the solvents of concern have an affinity for petroleum products, and solvent releases to the aquifer may be more concentrated within the petroleum layer. At the deeper probe locations (half the locations) a sample will also be collected at 25 and 50 ft and analyzed for TCL VOCS. Therefore the total number of groundwater samples collected for the site will range between 20 to 30 with an additional two to three duplicates depending on the presence or absence of a petroleum layer on the water table.

  A background soil sample will also be collected from GP-2 at the water table. Two additional soil samples will be collected from both GP-4 and GP-5 at the following locations:

1) in areas exhibiting staining, odors, or elevated photo-ionization detector (PID) readings, or 2) at 1 to 3 ft and just above the water table. The soil samples will be analyzed for TCL VOCs using NYSDEC ASP 95-1. A total of five soil samples will be collected and analyzed plus one duplicate.

- **Public School 60/62 (former Voges Manufacturing)/Ozone Industries.** A total of 23 probe points will be installed 75% of which will be installed to a depth of 30 ft and 25% of which will be installed to 60 ft. At each location (23 total) a groundwater sample will be collected at the water table and analyzed for TCL VOCs using NYSDEC ASP 95-1. At the deeper probe locations (6 in all) a sample will also be collected at 45 ft and 60 ft and analyzed for TCL VOCs. Therefore the total number of samples for the site will be 35 with an additional three duplicates.

1.4.6 Subtask 2.6 - Additional Investigations.

At three of the sites-Wheelock Avenue, Burnside Avenue, and Michael Drive Industrial Area, LMS believes that additional work may be required. LMS has included additional probing at the Wheelock and Burnside Avenue sites with appropriate additional analytical samples and additional samples at Michael Drive. This task will not be used unless it is necessary in order to complete the report.

1.4.7 Subtask 2.7 – Task Management

The administrative costs associated with the task are included under this subtask. This includes reviewing subcontractor invoices, preparation of the CCR, preparation of the CAP, and monthly progress report.

1.5 TASK 3 – FINAL REPORT

1.5.1 Subtask 3.1 – Draft Report

The draft report for each site consists of the preparation of the Site Investigation Information (SII) form and the EPA Questionnaire which will present the findings of the investigation. The Designers Woodcraft site only requires preparation of the SII form since the EPA Questionnaire has already been completed. The report will include site maps showing sampling locations, tabular summaries of the analytical data, Form Is, the data validation report, relevant information garnered through the records search, soil boring logs, monitoring well completion logs, purging and sampling logs, field measurements and notes. The draft reports for each site will be prepared

using Word Perfect 7 and submitted on a 3.5 in. disk along with four copies. The reports will be submitted as they are completed

1.5.2 Subtask 3.2 – Final Report

After receipt of comments from NYSDEC, each report will be revised and seven copies of the final report will be submitted to the NYSDEC within 14 calendar days.

1.5.3 Subtask 3.3 – Task Management

The administrative costs associated with the task are included under this subtask. This includes reviewing subcontractor invoices, preparation of the CCR, preparation of the CAP, and monthly progress report.