

**REMEDIAL REPORT  
VOLUNTARY CLEANUP PROGRAM  
INDEX NUMBER D2-0023-00-08  
INFORMATION TECHNOLOGY HIGH SCHOOL  
21-16 44<sup>TH</sup> ROAD  
LONG ISLAND CITY, NEW YORK**

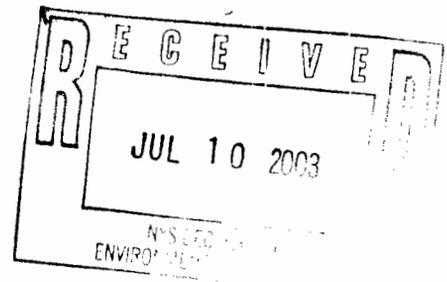
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**1.0 INTRODUCTION**

The premises located at 21-16 44<sup>th</sup> Road, Long Island City, New York ("the Site") is the subject of a Voluntary Cleanup Program (VCP), Index Number D2-0023-00-08 by Virginia S. Peterson, as Trustee, Wendy Peterson Smithson, Judy Ann Sarkisian, Arthur Corey Sarkisian, David P. Close, as Successor Executor/Trustee, Gabrielle V. Sarkisian as Successor Executor/Trustee and Frederick Hanssen, as Successor Executor/Trustee pursuant to the New York State Department of Environmental Conservation (NYSDEC) VCP. The Site consists of approximately 30,000 sq. ft. (square feet) building with a basement area of 10,000 sq. ft. and approximately 5,000 sq. ft. parking lot.

Previous uses of the Site included metal cleaning, painting, degreasing, plating and finishing. Advanced Cleanup Technologies, Inc. (ACT), 115 Rome Street, Farmingdale, New York conducted a Phase I and Phase II investigation and completed an Interim Remedial Measures (IRM) between January 2000 and January 2002. Leggette, Brashears & Graham, Inc. (LBG), 110 Corporate Park Drive, Suite 112, White Plains, New York completed additional IRM and an investigation program for determination of soil and ground-water conditions beneath the site and to obtain data for preparation of a Remedial Work Plan (RWP).

During characterization and delineation of onsite contamination (primarily tetrachloroethene (PCE), remedial measures were instituted to address the contamination. The areas of contamination, along with remedial measures completed at the site and the endpoint results, are described below.

**2.0 SOIL CONTAMINATION**

**2.1 Former Drum Storage Area**

The initial step taken to remediate the soil quality on the Site was the removal of the contaminant source area in the former drum storage area. The former drum storage area

location is shown on figure 1. On February 12, 2002, LBG supervised Tempa General Contracting Corp. (Tempa) during the excavation activities of the former drum storage area. This remedial action consisted of excavating approximately 25 cubic yards of soil contaminated with PCE. Additionally, approximately 15 cubic yards were previously excavated during a limited remedial measures conducted by ACT.

The excavation began on the eastern portion of the former drum storage area and proceeded west. The top two feet of soil was continuously screened with a photoionization detector (PID) and placed on the side of the excavation to be used as backfill. Once volatile organic compounds (VOCs) were detected in the soil with the PID, the soil was transferred to a loader and stockpiled on polyethylene plastic sheeting. The excavation was terminated at 6-7 ft bg (feet below grade) and approximately 25 cubic yards of soil was removed from the excavation. The highest PID soil readings were collected from 3-4 ft bg throughout the excavated area. As a result, the sidewall confirmation samples were collected from 3 ft bg. The excavation was terminated on each side once the PID exhibited a non-detectable response with the exception of the south sidewall. The south sidewall was terminated with a PID reading of 1.9 ppm of total volatile compounds at 3 ft bg.

Confirmation soil samples were collected from the excavation sidewalls and bottom (collected from 6 ft bg) and placed into laboratory prepared containers. The samples were placed in a cooler with ice and submitted to York Analytical Laboratories, Inc. (York), a New York Certified Laboratory located in Stamford, Connecticut. The soil samples were analyzed for VOCs by EPA Method 8260, semivolatile organic compounds (SVOCs) by EPA Method 8270, total RCRA metals and Toxicity Characterization Leaching Procedure (TCLP) RCRA metals.

Additionally, a composite sample of the newly excavated stockpile and the original ACT stockpile was collected for waste characterization and placed into laboratory prepared containers. These samples were also placed in a cooler with ice and submitted to York. They were analyzed for New Jersey method Total Petroleum Hydrocarbon (TPH), VOCs, SVOCs, PCBs, TCLP RCRA metals, flash point, reactivity, corrosivity and paint filter test in order to satisfy the analytical requirements of the disposal facility.

After collection of the sidewall and bottom samples, the excavation was lined with a felt fiber cloth to mark its extent. After the felt fiber cloth was placed around the extent of the excavation it was backfilled with gravel (approximately 25 cubic yards). Once all of the gravel was in the excavation the remaining uncompacted soil, set aside at the beginning of the excavating activities, was placed in the excavation to grade.

The laboratory results of soil samples collected from the four sidewalls and excavation bottom and analyzed for VOCs and SVOCs exhibited concentrations below NYSDEC Technical and Administrative Guidance Memorandum (TAGM) Recommended Soil Cleanup Objectives (RSCO) for all parameters. These values represent the standard required by the NYSDEC. Analysis of soil samples by TCLP indicated that all inorganics (metals) are below regulatory standards.

It should be noted that PCE was below the TAGM Recommended Soil Cleanup Objectives for all endpoint samples for the excavation.

On February 25, 2002, LBG supervised the removal of approximately 40-45 cubic yards of PCE contaminated soil from the Site. This soil, listed as hazardous due to its PCE content of 3.6 mg/kg (milligrams per kilogram) (0.5 mg/kg PCE is the non-hazardous limit), was generated under the property US EPA ID Number NYR000088377.

Freehold Cartage, Inc. of Freehold, New Jersey (US EPA ID Number NJD054126164) transported the 40 cubic yards of hazardous waste in roll-off containers to CWM Chemical Services, Inc. of Model City, New York (US EPA ID Number NYD049836679). Copies of the Bills of Lading and the Uniform Hazardous Waste Manifests were submitted in the Remedial Investigation Report, December 2002, (Appendix III) and are also on file with LBG and are available for review upon request.

## **2.2 First Floor Ash Removal**

On August 1, 2 and 5, 2002, nine geoprobe borings, GP-1 to GP-9, were drilled within the area of the first floor to depths ranging between 16 and 20 ft bg. The locations of the geoprobe borings are shown on figure 1. During the drilling continuous soil samples were collected using a 4-foot macrocore sampling device. Two soil samples per boring were

selected for laboratory analysis. The first soil sample selected for laboratory analysis was from 0-1 foot below the floor grade, while the second soil sample was selected based on the highest PID reading or, from the soil sample collected from above or at the ground-water level. Ms. Ioana Munteanu, Project Manager of NYSDEC Region II, observed the soil sampling on August 1, 2002.

The soil samples were submitted to the laboratory for analysis of VOCs (EPA Method 8260), SVOCs (EPA Method 8270), total metals, TCLP metals and pesticides and PCBs.

Based upon the laboratory results for the soil sampled from 0-1 feet below the floor grade, the fill/ash located directly beneath the concrete slab was removed from the first floor and stockpiled in the parking lot. The stockpile was placed on a 40 mil polyethylene liner. Approximately 500 cubic yards of soil/ash was removed from the first floor and placed on the stockpile.

From September 16 to 23, 2002, the first floor fill/ash stockpile was loaded onto trucks and disposed as non-hazardous petroleum contaminated soil. The trucks hauling the soil were from various trucking companies and were all coordinated by Allied Waste Services, Inc. of Merrick, New York. All of the soil was taken to Clean Earth of Philadelphia for disposal/recycling. Waste manifests were submitted in the Remedial Investigation Report, December 2002, (Appendix III) and are also on file with LBG and are available for review upon request.

### **2.3 Basement Sumps**

In 2001, ACT supervised the removal of the sediments from two sumps, SD-01 and SD-03 located inside of the building and from a drain SD-2 located outside of the building.

On February 14, 2002, LBG supervised Tempa during the excavation activities of the sump, SD-03 (B-1), located in the northeast corner of the basement. A three-foot square area of the six-inch thick concrete was removed to provide access to the soil surrounding and beneath the sump. The sediment was removed from the sump using hand tools consisting of a shovel and a post-hole digger. The sediment was screened continuously for VOCs and all PID

readings taken from the sediment were non detectable. All of the sediment was removed from SD-03 (B-1) and transferred to three United States Department of Transportation (USDOT) approved 55-gallon steel storage drums. Approximately one cubic yard of sediment was generated from SD-03 (B-1). Ground water was encountered at approximately 20 ft bg or 4 feet below the basement slab. A confirmation sediment bottom sample was collected from 4 ft bg and placed into laboratory prepared containers. The samples were placed in a cooler with ice and submitted to York. The samples were analyzed for the presence of VOCs by EPA Method 8260, SVOCs by EPA Method 8270, total RCRA metals and TCLP RCRA metals. Once the excavation and sampling activities were completed, the area was backfilled with approximately one cubic yard of pea gravel.

Additionally, a composite sample of the sump sediment contained in the three drums was collected for waste characterization and placed into laboratory prepared containers. These samples were also placed in a cooler with ice and submitted to York. They were analyzed by New Jersey method TPH, VOCs, SVOCs, PCBs, TCLP RCRA metals, flash point, reactivity, corrosivity and paint filter test in order to satisfy the analytical requirements of the disposal facility.

On February 22, 2002, LBG supervised the removal of the three drums of sediment generated from basement sump SD-03 (B-1). This waste, listed as hazardous due to its TCLP lead content of 25.8 mg/l (milligrams per liter) (5.0 mg/l TCLP lead is the non-hazardous limit), was generated under the property US EPA ID Number NYR000088377. Freehold Cartage, Inc. of Freehold, New Jersey (US EPA ID number NJD054126164) transported the drums to US Liquids of Detroit, Inc. in Detroit, Michigan (US EPA ID Number MID980991566). Copies of the Bill of Lading and the Uniform Hazardous Waste Manifest were submitted to NYSDEC in the Additional Remediation Report, March 2002 and are on file with LBG and available for review upon request.

The laboratory results of endpoint soil samples collected from the bottom of SD-03 (B-1) and analyzed for VOCs, SVOCs and total metals exhibited concentrations below NYSDEC TAGM RSCO for all parameters. These values represent the standard required by

the NYSDEC. The soil quality results for TCLP metals indicated that the concentrations are below regulatory standards.

#### **2.4 Basement Ash Removal**

Between July 16 and 18, 2002 the concrete slab was removed from the basement area, exposing the soil beneath. The concrete was broken in pieces using air powered jackhammers and transported out. After the soil was exposed, it was visually inspected for staining and screened for VOCs using a PID. It was determined that directly beneath the concrete slab a layer of approximately 0.5 to 1 foot of fill and ash was present. It was determined that the fill/ash layer had to be removed in order to evaluate the underlying soil. Prior to removal, four composite samples of the fill/ash layer were collected from the basement area and analyzed in laboratory. The laboratory analyses of fill/ash were submitted in Remedial Investigation Report, Volume 2, dated October 2002, Appendix III.

Based upon the laboratory results for the four composite samples of the fill/ash layer collected from the basement area located directly beneath the concrete slab, it was removed from the basement and stockpiled in the parking lot. The stockpile was placed on a 40-mil polyethylene liner. Approximately 400 cubic yards of soil/ash were removed from the basement and placed on the stockpile.

From August 20-22, 2002, the basement fill/ash stockpile was loaded on trucks as non-hazardous petroleum contaminated soil. The trucks hauling the fill/ash material were from various trucking companies and were coordinated by Allied Waste Services, Inc. of Merrick, New York. All of the soil was taken to Clean Earth of Philadelphia for disposal/recycling. Waste manifests were submitted in the Remedial Investigation Report, December 2002, (Appendix III) and are also on file with LBG and are available for review upon request.

#### **2.5 Parking Lot**

Lead contamination was discovered in a soil sampled collected in the parking lot at a concentration of 345 ug/l (micrograms per liter) TCLP lead from 0-2 ft bg. This soil sample was collected during the ACT installation of Monitor Well MW-03 in March of 2001.

In order to better characterize the subsurface soil and to further delineate the horizontal and vertical extent of lead impacted fill, additional geoprobe borings were advanced by LBG on April 12, 2002. Eight borings were positioned in a grid around MW-03 and advanced to 8 ft bg. The locations of the geoprobe borings drilled on April 12, 2002 are shown on figure 1 as PGP-1 to PGP-8. Samples were collected in 2-foot increments and analyzed for total lead. Of 32 samples collected, 7 were reanalyzed for TCLP lead, one of which was classified as hazardous PGP-4 (4-6 ft bg). LBG advanced additional geoprobe borings, PGP-9 to PGP-14 shown on figure 1, on August 16, 2002 to further delineate the horizontal and vertical extent of the lead contamination. Soil samples were collected continuously from grade to 16 to 20 ft bg. Each sample submitted to the laboratory was a composite of 4-foot soil samples recovered from the geoprobe macrocore. As with the previous samples, all samples submitted were analyzed for total lead; however, all of these samples were also analyzed for TCLP lead. Of these 14 samples, one was classified as hazardous, PGP-10 (10-14 ft bg).

On October 17, 2002, Tempa completed four excavations in the parking lot where soil was classified as hazardous for lead according to TCLP analysis or where total lead concentrations were greater than 5,000 mg/kg. The locations of these excavations, Numbered 1 to 4, are shown on figure 2. Excavation 1 and Excavation 4 addressed the elevated lead concentrations in PGP-1 (0-2 ft bg) and PGP-7 (4-6 ft bg), respectively. These sample points had total lead concentrations of 4,250 mg/kg (Excavation 1) and 5,260 mg/kg (Excavation 4). The dimensions for both excavations measured approximately 5 feet by 5 feet. Excavation 1 was 5 feet in depth and Excavation 4 was 8 feet in depth. Excavation 2 and Excavation 3 addressed hazardous concentrations of lead in PGP-10 (10-14 ft bg) and PGP-4 (4-6 ft bg), respectively. These sample points had TCLP lead concentrations of 12.0 mg/l in Excavation 2 and 10.4 mg/l in Excavation 3. The dimensions for both excavations measured approximately 10 feet by 10 feet. Excavation 2 was 15 feet in depth and Excavation 3 was 8 feet in depth. Sidewall samples and a bottom sample were collected from all four excavations to confirm clean endpoints. The samples were stored on ice in a cooler to maintain a constant temperature until delivery to the laboratory. The samples were sent to the laboratory and analyzed for total lead and TCLP lead. The lead concentrations of all endpoint

samples were below the TCLP hazardous classification level of 5.0 mg/l with the exception of Excavation 1. The bottom sample of Excavation 1 was hazardous for lead with a concentration of 15.1 mg/l and samples from the south and east sidewalls were greater than 1,200 mg/kg total lead. Due to the elevated endpoint samples from Excavation 1, on November 18, 2002 the size of that excavation was increased to measure approximately 8 feet by 8 feet and was 8 feet in depth. Following the excavation, new endpoint samples were collected from the east sidewall, the south sidewall and bottom of the excavation. The parameter concentrations of these new endpoint samples were below the TCLP hazardous classification level. Approximately 130 cubic yards of soil excavated from the lead contamination hot spot areas were removed and disposed of as hazardous material for lead by a licensed hazardous waste hauler. Copies of the disposal manifests are attached as Appendix IV.

## 2.6 Dry Well Remediation

On February 6, 2003, LBG continued activities in the parking lot by supervising the excavation of the onsite dry wells. The excavation was completed by Tempa. The excavation of the new dry wells are located in the center of the parking lot. The location of the dry well excavation is shown on figure 3. The excavation dimensions measured approximately 24 feet by 24 feet and totaled 14 feet deep. During the excavation, all material removed from grade to approximately 9 ft bg was stored onsite in two stockpiles. Both of these stockpiles were placed on a polyethylene liner both underneath and then covered with a liner to protect them from the elements and to prevent them from being a source of dust. The soil removed from approximately 9 ft bg to 14 ft bg excavation, was stored on a separate stockpile. This deeper soil, which appeared to be native fine sand and silt, was visually distinguishable from the fill found above it. This third stockpile was also placed on and covered with polyethylene liners. Following the completion of the dry well excavation, sidewall confirmation samples were collected from 9 ft bg. Additionally, a bottom confirmation sample was collected from 14 ft bg. The samples were stored on ice in a cooler to maintain a constant temperature until delivery to the laboratory. The samples were sent to the laboratory and analyzed for total lead, TCLP lead and cyanide. The concentrations of the tested parameters of all endpoint

confirmation samples were below the TCLP hazardous waste classification level in addition to containing less than 15 mg/kg total lead. Composite samples of the three stockpiles were collected and submitted to the laboratory for waste characterization. The concentrations in the sample from the stockpile of soil removed from approximately 9 ft bg to 14 ft bg were below all regulatory standards and the stockpile was removed from the site by Tempa. Soil samples from the two stockpiles of soil removed from grade to approximately 9 ft bg, approximately 165 cubic yards, were analyzed for waste characterization. Following classification as hazardous for lead, this material was loaded into vehicles permitted by the NYSDOT and transported offsite under manifest by a licensed waste hauler. Copies of the disposal manifests are attached as Appendix IV.

## **2.7 Pipe Trench Remediation**

On August 26 and 28, 2002, Tempa excavated the piping and soil running along the south wall of the building (from the oil pump). The trench, approximately 8 feet wide and 80 feet long, was excavated to a depth of approximately 3 ft bg. Approximately 65 cubic yards of soil stockpiled onsite along with the first floor ash were placed on a plastic liner and covered with plastic. Additionally, some sections of concrete extended from the building and into the trench. The piping and concrete was removed from the trench and disposed of offsite by Tempa. The trench was then separated into four areas (each approximately 8 feet by 20 feet), and composite bottom samples were collected from each area. A pipe trench sample location map is shown on figure 1. All soil samples were composited in a stainless steel bowl and mixed with a stainless steel spoon and then sampled. The bowl and spoon were decontaminated with Alconox and water between each sampling event. The samples were stored on ice in a cooler to maintain a constant temperature until delivery to the laboratory. All samples were sent to the laboratory and analyzed for VOCs and SVOCs. All samples were also analyzed for total metals, TCLP metals, PCBs and pesticides. Laboratory analysis of the composite soil samples collected from the pipe trench indicated that no VOCs or TCLP metals were detected in any of the soil samples. No PCBs or pesticides were detected in pipe trench Area 3. Additionally, no SVOCs were detected in soil samples collected from pipe trench

Areas 1, 2 and 3. Several SVOCs were present at concentrations that exceeded the NYSDEC RSCO in pipe trench Area 4. Also, several total metals were present in concentrations that exceeded the NYSDEC RSCO for all four pipe trench areas. Upon receipt of the laboratory results, the trench was backfilled with clean fill. On September 4, 2002, two composite soil samples were collected from the trench soil stockpile and analyzed for waste characterization. This soil, in addition to the first floor ash, was removed from the Site as non-hazardous petroleum contaminated soil. This material was loaded into vehicles permitted by the NYSDOT and transported offsite under manifest by a licensed waste hauler. Waste manifests were submitted in the Remedial Investigation Report, December 2002, (Appendix III) and are also on file with LBG and are available for review upon request.

## **2.8 Topsoil Removal**

In order to grade the parking lot to allow the completion with a finished surface, one to two feet of soil was removed from the surface. Approximately 240 cubic yards of soil was stockpiled onsite with a polyethylene liner both underneath it and covering it. On March 21, 2003, a composite soil sample was collected from the topsoil stockpile and analyzed for waste characterization. This soil was removed from the Site as non-hazardous petroleum contaminated soil. This material was loaded into vehicles permitted by the NYSDOT and transported offsite under manifest by a licensed waste hauler. Copies of the disposal manifests are attached as Appendix IV.

Following removal of this soil, the parking lot was capped with a six-inch thick concrete slab. After the concrete slab hardened a finished block surface was constructed for aesthetic purposes. Drainage for runoff was laid out throughout the parking lot and routed to the dry wells.

### 3.0 SOIL VAPOR CONTAMINATION

#### 3.1 Engineering Control

##### 3.1.1 Vapor Barrier

In order to prevent the vertical migration of VOC and SVOC vapors from the vadose zone into the building, an impermeable HDPE (high density polyethylene) liner was installed beneath the concrete slab of the entire building. Additionally, an impermeable vapor barrier was installed along the western wall of the basement to prevent the lateral migration of VOC and SVOC vapors from the vadose zone beneath the first floor into the basement.

The building is sealed from the subsurface with a 40-mil HDPE liner. The liner was installed beneath the concrete slab as one unit and all seams were heat welded. The liner was constructed above soil vapor extraction horizontal SVE pipes that were installed in a layer of pea stone. The vapor barrier was also installed beneath the elevator shafts in both the first floor and basement, and connected to their respective floors' liner. A specification sheet for a HDPE geomembrane manufactured by GSE Lining Technology, Inc. is attached as Appendix I.

The 40-mil HDPE liner covers the first floor and basement areas and the liner was secured to the existing concrete walls with stainless steel battens and sealant. The liner was secured to the columns with a banding strip and sealant. The batten is constructed of stainless steel 3/8-inch thick and 1 1/2-inch wide. The liner was secured to the batten with 3/8-inch diameter stainless steel cinch anchor bolts, 3 3/4-inch long, and installed at 6 inches on center. A 1/4-inch thick, 1 1/2-inch diameter neoprene gasket was used as the sealant which was placed between the concrete and the liner. The banding strips were prefabricated to fit the existing cylindrical columns, and were installed in the same manner as the battens.

To ensure against failure of the liner at bends between the horizontal and vertical surfaces, a 45-degree cove, filled with grout or polyfoam was formed along the corners. The cove is at least 2 inches in each the horizontal and vertical direction. The In-Line Plastics field installation quality assurance manual is attached as Appendix I.

Penetrations through the liner for plumbing or electric conduits were also sealed to the liner through installation of custom HDPE pipe boots. Pipe boots are custom-made HDPE sleeves with a lip that can be sealed to the liner. A non-woven geotextile filter fabric of 8 to 10 ounce per square yard weight, was set over the entire pea stone surface prior to the

placement of the liner to prevent potential puncture of the liner by the pea stone. After the liner was installed on the fabric it was then covered by a protection board, overlain by steel reinforcing mesh and a new concrete slab. The installation of vapor barrier was completed between November 27 and December 25, 2002.

### 3.1.2 Soil Vapor Extraction

Analysis of vapors from the temporary collection points sampled inside of the building showed the highest concentration of vapors to exist in the GP-8 and GP-6 areas. These vapor points are located inside of the first floor of the building in the immediate vicinity of the building south wall and north of the former drum storage area. In addition, the highest concentration of dissolved VOCs was detected in wells located outside of this area.

In order to remediate the impacted soils, four vertical soil-vapor extraction (SVE) wells (VE-1 to VE-4) and seventeen SVE horizontal pipes (HV-1 to HV-17) were installed between October and December 2002. The locations of these pipes and wells are shown on figure 4. All of the SVE systems were installed and constructed according to design documents reviewed and approved by the NYSDEC.

As part of the design, a SVE pilot test conducted between October 28 and November 8, 2002 was used for the Site to size the blowers and determine the necessary air/vapor flow rates for each system. As a result of the pilot test, four blowers were utilized in the SVE system. Eleven horizontal SVE pipes installed beneath the first floor are manifolded into two separate 7.5 Hp (horsepower) blowers. Six horizontal SVE pipes installed beneath the basement floor are manifolded into one 7.5 Hp blower. The four vertical SVE wells installed in the former drum storage area are manifolded into one 15 Hp blower. The SVE extraction and treatment systems are contained in a treatment building located on the south side of the building. The system layout is illustrated on figure 5.

Four separate extraction systems will be operated to remediate the Site. The first two systems include the eleven individual first floor extraction points that operate from two 7.5 Hp explosion-proof regenerative blowers. The third system includes the six individual basement extraction points that operate from a 7.5 Hp explosion-proof regenerative blower. The fourth system includes four individual excavation points that operate from a 15-Hp explosion-proof

regenerative blower. The SVE blowers used at the site are mounted on plastic skids and are equipped with moisture separators, air filters, gauges and switches to control the operation. The suction line is equipped with relief valves to avoid excessive vacuum or pressure loads on the blower.

The objectives of the horizontal systems are to induce negative pressure beneath the building to both remediate the subsurface and to protect the indoor air quality of the building by removing VOCs from beneath the vapor barrier. Additionally, the vertical SVE wells are to be utilized to induce a negative pressure on the subsurface in the former drum storage area to remediate the soil and ground water in the source area.

The vapors will flow from the four separate system manifolds to one main manifold, which in turn flows through two 500-pound vapor-phase activated carbon absorbers positioned in series. After treatment with carbon, the airstream is discharged to the atmosphere. A schematic flow diagram of the system is included in the manufacturer's manual included in Appendix I of the SVE Operation Maintenance and Monitoring (OM&M) Plan submitted separately July 2003.

All individual pipes/wells and soil vapor monitoring points will be monitored during each Site visit to monitor concentrations in separate areas beneath and outside of the building. Additionally, influent, mid-carbon and effluent vapor samples will be collected a minimum of once per month and analyzed by EPA Method TO-14. The vapor phase carbon will be changed out periodically in order to maintain proper effluent VOC concentrations as confirmed by laboratory analysis.

A Health and Safety Plan (Community Monitoring Program) is included as Appendix II.

#### **4.0 GROUND-WATER CONTAMINATION**

##### **4.1 Installation and Sampling of Ground-Water Monitoring Wells**

In order to delineate the horizontal and vertical extent of the dissolved-phase PCE and other VOCs present in the ground water beneath the Site, fifteen ground-water monitor wells were installed. Three wells, MW-1, MW-2 and MW-5 were installed by ACT while the

additional twelve wells were installed by LBG. Seven of the wells are shallow monitor wells (MW-1, MW-2, MW-5, MW-7, MW-8, MW-10 and MW-13), two of the wells are cluster monitor wells (MW-6 and MW-9), three are bedrock ground-water monitor wells (BRW-1, BRW-2 and BRW-3), two are temporary micro wells (MW-11 and MW-12) and one is a ground-water pumping well (RW-1). Seven of the wells were installed in and around the former drum storage area. The remaining wells characterize the ground water both upgradient and downgradient of the Site. All of the monitor wells, with the exception of MW-11 and MW-12, were installed using a hollow-stem auger. The bedrock wells were drilled by a combined hollow-stem auger and bedrock coring technique. MW-11 and MW-12 were installed using a track mounted geoprobe rig that was able to access the basement of the building. All of the ground-water monitor well locations are shown on figure 1.

#### **4.2 Ground-Water Sampling and Analysis**

On March 12 and 13, 2003, April 30, 2003 and June 4 and 5, 2003 after water-level measurements were recorded are ground-water samples were collected from the onsite and offsite monitor wells using the low-flow sampling method (EPA Low-Flow Ground-Water Sampling Procedures, April 1996). The Low-Flow (Minimal Drawdown) Ground-Water Sampling Procedures are included in Appendix III. The ground water was evacuated from the wells using a low-flow submersible pump fitted with dedicated polyethylene tubing. The tubing intake was set approximately 1 to 2 feet above the bottom of each overburden monitor well and was set just off of the bottom of each bedrock monitor well. For each well, ground water was purged for approximately 10 minutes prior to measuring any parameters, in an attempt to minimize turbidity.

Onsite field parameters were continually monitored by a Horiba U-22XD multiparameter water-quality monitoring system. Measurements for pH, conductivity, turbidity, dissolved oxygen (DO), temperature, and oxygen reduction potential (ORP) were obtained simultaneously as the ground water was pumped through a flow-through cell at a rate of 100-500 ml/minute. All field parameters were recorded at three-minute intervals until all parameters reached stabilization for three consecutive intervals. Additionally, as per NYSDEC

requirements, a target turbidity goal of below 50 nephelometric turbidity units prior to sampling was utilized. Due to the high amount of silt in the subsurface, the target turbidity level was not obtained in all samples. Stabilization requirements are recorded on individual low-flow sampling logs for each monitor well.

Upon reaching stabilization of all parameters, the effluent end of the polyethylene tubing was disconnected from the flow-through cell and the ground-water samples were collected in laboratory prepared sample containers. After sampling each well the submersible pump and the flow-through cell were decontaminated with Alconox and water.

Additionally, after water-level measurements were recorded, ground-water samples were collected from the temporary ground-water monitor wells located in the basement. For these sample locations, three volumes of water were purged from each well prior to sampling. Following the evacuation of water, all field parameters were recorded on individual sampling logs and samples were collected with dedicated disposable polyethylene bailers and stored in laboratory prepared sample containers.

All of the samples were stored on ice in a cooler to maintain a constant temperature until delivery to the laboratory under chain-of-custody procedures. All monitor well ground-water samples were analyzed for VOCs and for total metals.

Laboratory analysis of the water samples collected from the onsite and offsite monitor wells indicated that several VOCs were detected above the Technical and Operational Guidance Series (TOGS) Ground Water Quality Standards (GWQS). The primary contaminants are PCE and trichloroethene (TCE).

#### 4.3 Engineering Control

In order to remediate the contaminated ground water beneath the Site, a ground-water pump and treat system was designed and constructed. This system will utilize the ground-water recovery well RW-1 to pump ground water from the subsurface through a liquid carbon absorption system, prior to discharging to the New York City sanitary sewer system. As part of the development of the recovery well, approximately 922 gallons of liquid was pumped from the recovery well using a guzzler vacuum truck. The water generated during the well

development, in addition to the purge water generated from low-flow sampling activities, was disposed of offsite by a licensed contractor, American Environmental Assessment Corporation. A copy of the disposal manifest is attached as Appendix IV.

As part of the design, a ground-water pumping test was conducted at the Site to optimize the location and pumping rate for the extraction/recovery well. As a result of the pumping test one recovery well, RW-1, pumping between 10 and 20 gpm (gallons per minute) from the underlying aquifer will be used to efficiently remediate the impacted ground water in a reasonable time.

The objectives of the ground-water extraction system are: 1) to prevent any further migration of ground water containing VOCs beyond the Site; and, 2) to extract and treat impacted ground water. The primary objective of the Remedial Action (RA) is to remove ground water containing VOCs in excess of the maximum contaminant levels (MCLs) from the Site in order to restore the ground water to drinking water quality or background levels using the pump and treat technology. The secondary objective is to treat the extracted ground water to meet ground-water discharge limits specified by the New York City Department of Environmental Protection (DEP) Ground Water Discharge Permit.

Influent, mid-carbon and effluent water samples will be collected a minimum of once per month and analyzed by EPA Method 8260. The liquid phase carbon will be changed out periodically in order to maintain proper effluent VOC concentrations.

Quarterly sampling of monitor wells (including the one recovery well) will provide assessments of the extent and mobility of the VOCs. The quarterly sampling will also encompass a water-level monitoring program to demonstrate continued capture of ground water. The data generated will be used to make a demonstration for system modifications (i.e., pumping rate decrease or increase) or termination in the future.

## **5.0 REMEDIATION SYSTEM OPERATION, MAINTENANCE AND MONITORING**

After the cleanup objectives are achieved operation of the system will be discontinued but sampling will be instituted to monitor contaminant levels in order to detect whether or not a rebound of contaminant concentrations occurs. The active SVE system beneath the building

and in the former drum storage area will remain in place even if compliance is achieved. This will assure that if another spill occurs in the future, onsite or offsite, that the Site will have both a passive and active means of protection. An OM&M Plan outlining both the SVE and ground-water treatment systems is submitted as a separate document.

## **6.0 REPORTING AND NO FURTHER ACTION REQUEST**

As indicated on VCP Guide, Draft May 22, 2002, Section 8.4.2, a release is requested conditioned upon submittal and approval of the attached OM&M Plan, which includes quarterly ground-water monitoring, and maintenance of engineering controls. Following the completion of the remediation, a Site Closure Report summarizing the success of the remediation effort will be prepared.

### **6.1 Evaluation of Field and Laboratory Data**

#### **6.1.1 Closure/Backfilling of Excavation**

The Site Closure Report will include the laboratory results of the endpoint sampling in relationship to NYSDEC standards outlined in TAGM #4046, Determination of Soil Cleanup Objectives and Cleanup Levels, January 24, 1994. This information, in conjunction with a DUSR prepared for the samples, will support the approval for closure.

#### **6.1.2 Reporting of Results of Onsite Air Monitoring**

In compliance with the Site Health and Safety Plan, the Site Closure Report will include the results of the air monitoring during the remedial investigation for detectable levels of organic vapors and dust. Also included will be field logs and a discussion of those actions, if necessary, which were taken to ensure no offsite migration of detected odors/vapors that might have been generated during intrusive onsite activities.

### **6.2 Verification of Disposal Documentation**

All disposal documentation including the waste characterization results, completed waste manifests and weight tickets/quantity vouchers will be verified for accuracy, summarized and included in the Site Closure Report. Also included will be a copy of the current license

and/or permit of the waste hauler(s) and disposal facility(s) selected and approved for the project.

**6.3 Evaluation and Summary of the Remedial Action**

The report will include an evaluation and summary of the remedial efforts taken in support of the project. These efforts will include the initial tasks required for the removal of impacted soil and sediment, efforts taken to define the extent of the excavations and those activities accomplished to complete the project such as backfilling, installation of the liner and active venting system, and waste disposal.

**6.4 Ground-Water Monitoring**

Quarterly ground-water monitoring will be implemented and a report will be submitted to NYSDEC approximately one month after each sampling event. A copy of the laboratory analytical reports will also be included. Water-table elevation and flow data, including ground-water contour maps, will also be reported.

**6.5 Request for Closure**

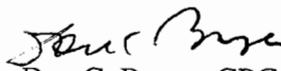
Upon completion of the remedial work, a petition to the NYSDEC for final Site closure in the form of a No Further Action Letter will be prepared and submitted.

LEGGETTE, BRASHEARS & GRAHAM, INC.

  
Sean Groszkowski  
Hydrogeologist

  
William K. Beckman, P.E.  
Vice President



  
Dan C. Buzea, CPG  
Vice President

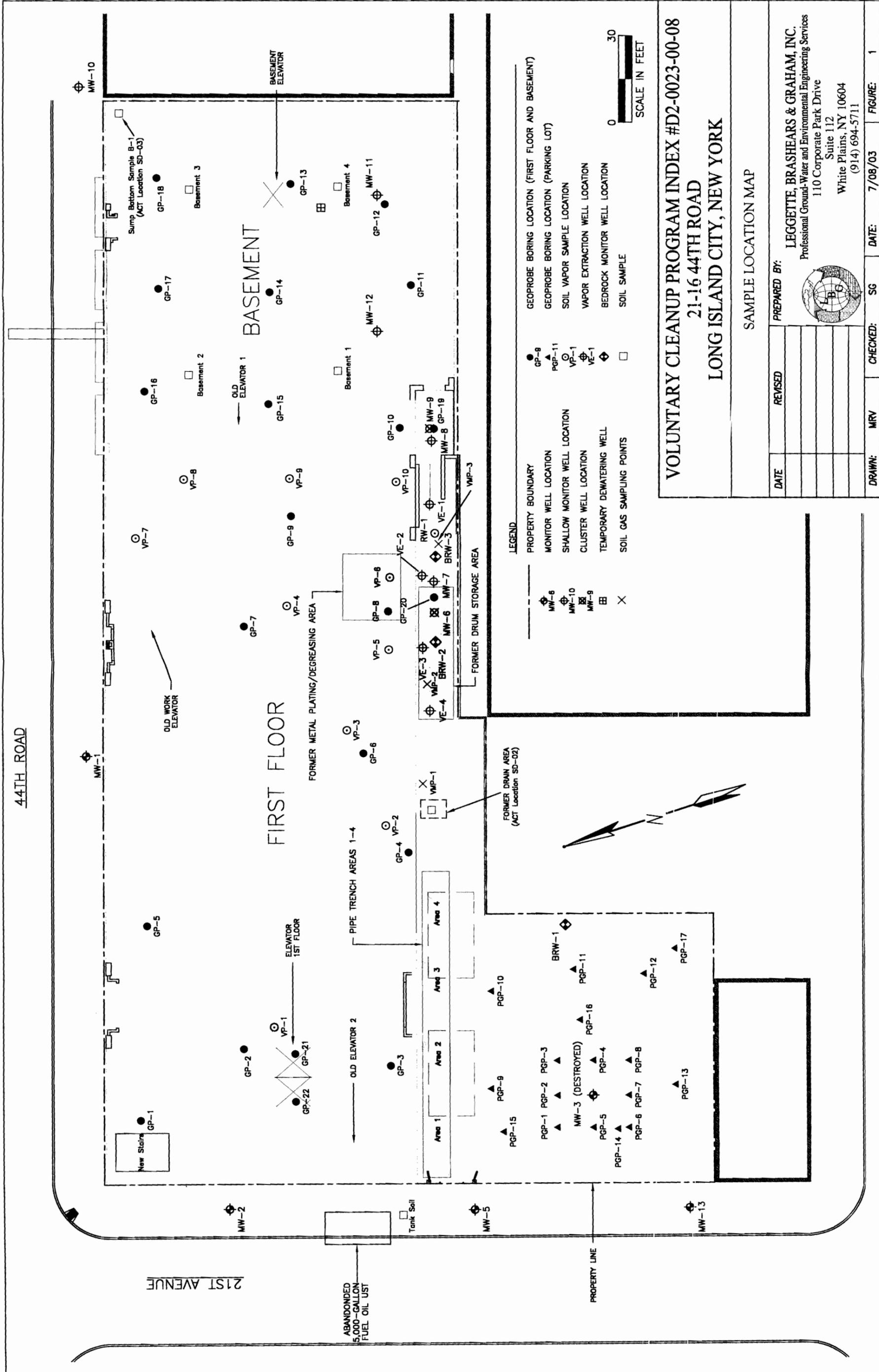
dmd  
July 9, 2003  
reports/premierstorage/Remedial Report

LEGGETTE, BRASHEARS & GRAHAM, INC.

**FIGURES**

44TH ROAD

21ST AVENUE



LEGEND

- PROPERTY BOUNDARY
- MONITOR WELL LOCATION
- SHALLOW MONITOR WELL LOCATION
- CLUSTER WELL LOCATION
- TEMPORARY DEWATERING WELL
- SOIL GAS SAMPLING POINTS
- GEOPROBE BORING LOCATION (FIRST FLOOR AND BASEMENT)
- GEOPROBE BORING LOCATION (PARKING LOT)
- SOIL VAPOR SAMPLE LOCATION
- VAPOR EXTRACTION WELL LOCATION
- BEDROCK MONITOR WELL LOCATION
- SOIL SAMPLE
- ⊕ MW-6
- ⊕ MW-10
- ⊕ MW-9
- ⊕ MW-8
- ⊕ MW-7
- ⊕ MW-6
- ⊕ MW-5
- ⊕ MW-4
- ⊕ MW-3
- ⊕ MW-2
- ⊕ MW-1
- ⊕ MW-11
- ⊕ MW-12
- ⊕ MW-13
- ⊕ MW-14
- ⊕ MW-15
- ⊕ MW-16
- ⊕ MW-17
- ⊕ MW-18
- ⊕ MW-19
- ⊕ MW-20
- ⊕ MW-21
- ⊕ MW-22
- ⊕ VP-1
- ⊕ VP-2
- ⊕ VP-3
- ⊕ VP-4
- ⊕ VP-5
- ⊕ VP-6
- ⊕ VP-7
- ⊕ VP-8
- ⊕ VP-9
- ⊕ VP-10
- ⊕ VP-11
- ⊕ VP-12
- ⊕ VP-13
- ⊕ GP-1
- ⊕ GP-2
- ⊕ GP-3
- ⊕ GP-4
- ⊕ GP-5
- ⊕ GP-6
- ⊕ GP-7
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- ⊕ PGP-20
- ⊕ PGP-21
- ⊕ PGP-22
- ⊕ BRW-1
- ⊕ BRW-2
- ⊕ BRW-3
- ⊕ WWP-1
- ⊕ WWP-2
- ⊕ WWP-3
- ⊕ WWP-4
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- ⊕ WWP-17
- ⊕ WWP-18
- ⊕ WWP-19
- ⊕ WWP-20
- ⊕ WWP-21
- ⊕ WWP-22

VOLUNTARY CLEANUP PROGRAM INDEX #D2-0023-00-08  
 21-16 44TH ROAD  
 LONG ISLAND CITY, NEW YORK

SAMPLE LOCATION MAP

DATE	REVISED	PREPARED BY:
		LEGGETTE, BRASHEARS & GRAHAM, INC.
		Professional Ground-Water and Environmental Engineering Services
		110 Corporate Park Drive
		Suite 112
		White Plains, NY 10604
		(914) 694-5711

DRAWN:	MRV	CHECKED:	SG	DATE:	7/08/03	FIGURE:	1



BUILDING

MW-5

21 STREET

Excavation 2



PGP-15  
PGP-9

PARKING LOT

Excavation 1



PGP-1  
PGP-2  
PGP-3

Excavation 3



MW-3  
SB-03  
(ACT Boring)

PGP-6  
PGP-7  
PGP-8

Excavation 4



PGP-13

PGP-16  
PGP-11

PGP-12

PGP-17

MW-13

PIZZA SHOP

**LEGEND**



MW-3

MONITORING WELL LOCATION



GP-1

GEOPROBE BORING LOCATION



EXCAVATION AREAS



SCALE IN FEET

VOLUNTARY CLEANUP PROGRAM INDEX #D2-0023-00-08  
21-16 44TH ROAD  
LONG ISLAND CITY, NEW YORK

**PARKING LOT 'HOT SPOT' EXCAVATION LOCATION MAP**

DATE	REVISED	PREPARED BY:

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(914) 694-5711



<b>DRAWN:</b> TLC	<b>CHECKED:</b> SG	<b>DATE:</b> 5/1/02	<b>FIGURE:</b> 2
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21st STREET

BUILDING

2110088P-01

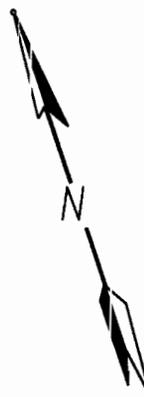
MW-5

PARKING LOT

MW-3  
(Destroyed)

MW-13

PIZZA SHOP



**LEGEND**

PROPERTY BOUNDARY

MONITOR WELL LOCATION

DRY WELL EXCAVATION



0 20



SCALE IN FEET

**VOLUNTARY CLEANUP PROGRAM INDEX #D2-0023-00-08**  
**21-16 44TH ROAD**  
**LONG ISLAND CITY, NEW YORK**

**PARKING LOT DRY WELL EXCAVATION**

DATE	REVISED

PREPARED BY:

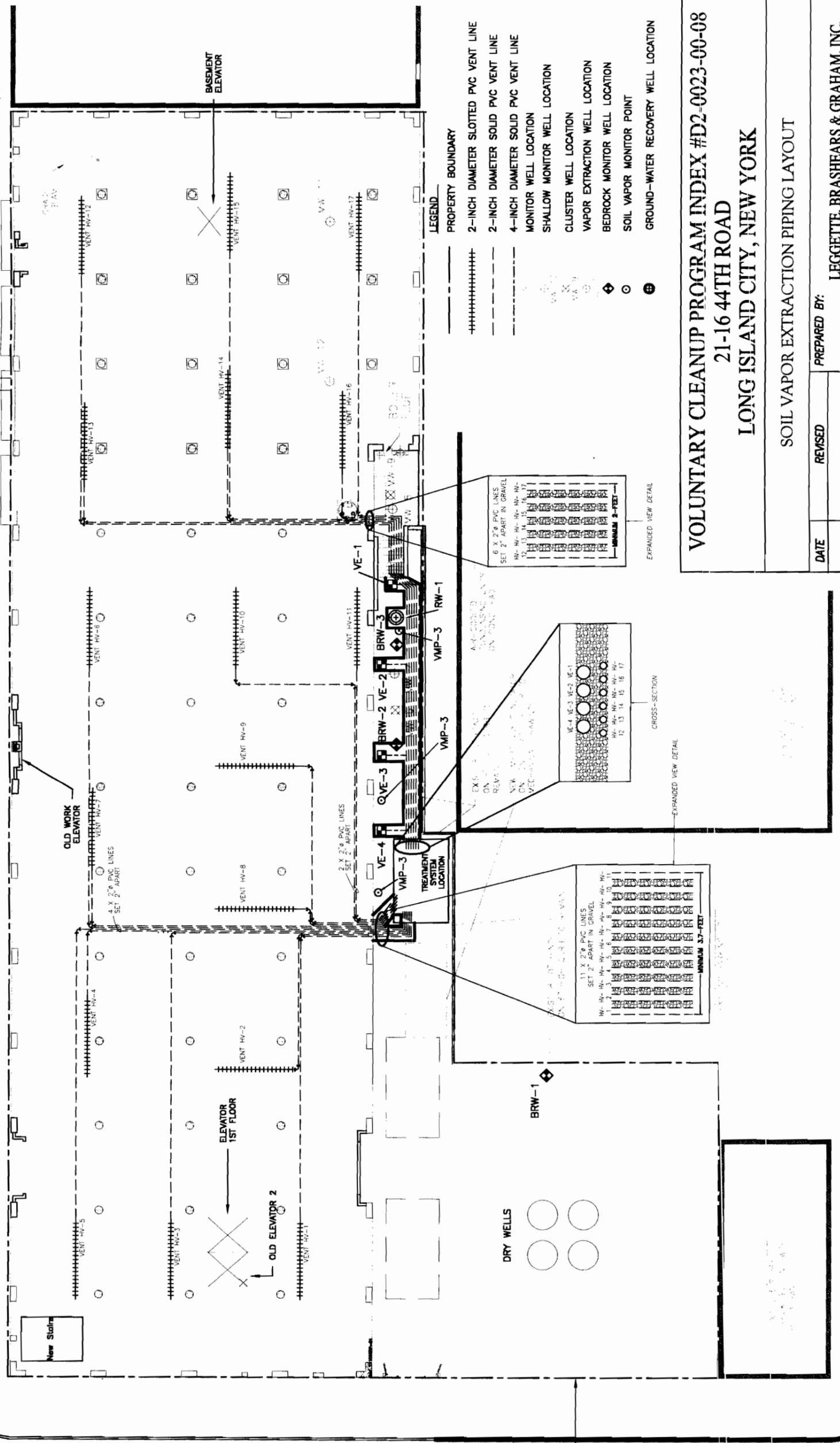
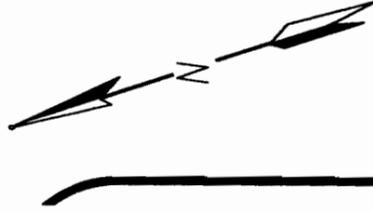


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<b>DRAWN:</b>	<b>MRV</b>	<b>CHECKED:</b>	<b>SG</b>	<b>DATE:</b>	<b>9/19/02</b>	<b>FIGURE:</b>	<b>3</b>
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44TH ROAD

21ST AVENUE



- LEGEND**
- PROPERTY BOUNDARY
  - +++++ 2-INCH DIAMETER SLOTTED PVC VENT LINE
  - 2-INCH DIAMETER SOLID PVC VENT LINE
  - 4-INCH DIAMETER SOLID PVC VENT LINE
  - SHALLOW MONITOR WELL LOCATION
  - CLUSTER WELL LOCATION
  - VAPOR EXTRACTION WELL LOCATION
  - BEDROCK MONITOR WELL LOCATION
  - SOIL VAPOR MONITOR POINT
  - ⊕ GROUND-WATER RECOVERY WELL LOCATION

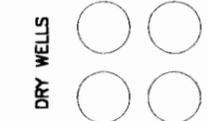
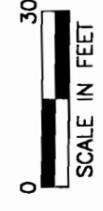
**VOLUNTARY CLEANUP PROGRAM INDEX #D2-0023-00-08**  
**21-16 44TH ROAD**  
**LONG ISLAND CITY, NEW YORK**

SOIL VAPOR EXTRACTION PIPING LAYOUT

DATE	REVISED	CHECKED:	MRV	SG	DATE:	FIGURE:
					4/11/03	4

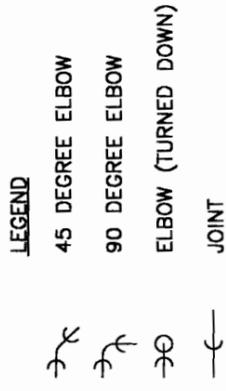
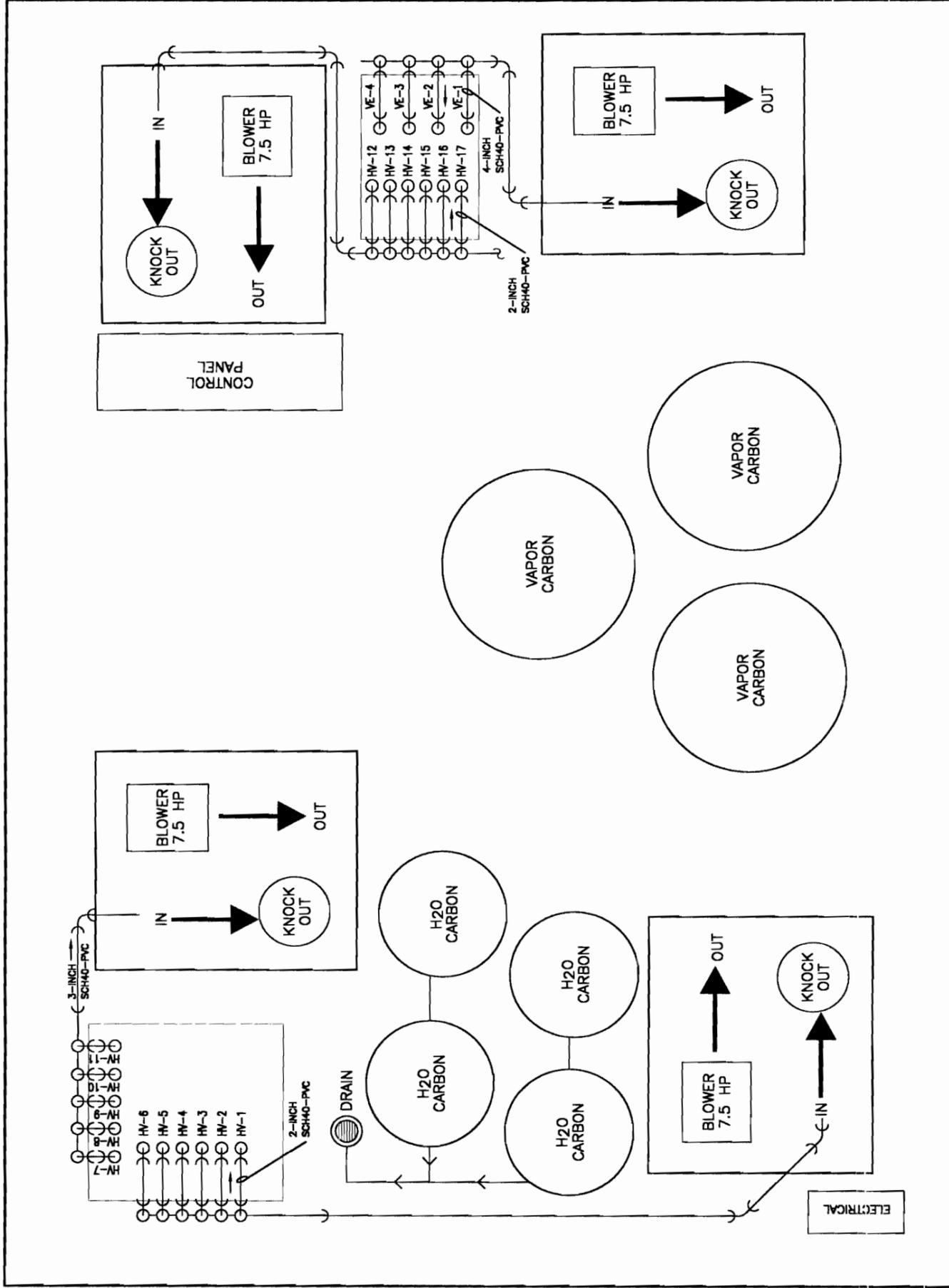


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PROPERTY LINE

SCHOOL



VOLUNTARY CLEANUP PROGRAM INDEX #D2-0023-00-08  
 21-16 44TH ROAD  
 LONG ISLAND CITY, NEW YORK

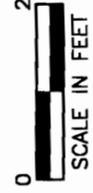
SVE AND GROUND-WATER TREATMENT SHED EQUIPMENT LAYOUT

DATE	REVISED	PREPARED BY:



**LEGGETTE, BRASHEARS & GRAHAM, INC.**  
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DRAWN:	MRV	CHECKED:	SG	DATE:	7/8/03	FIGURE:	5



**APPENDIX I**

**IN-LINE PLASTICS FIELD INSTALLATION QUALITY  
ASSURANCE MANUAL AND GEOTEXTILE SPECIFICATIONS**



**FIELD INSTALLATION**

**QUALITY ASSURANCE MANUAL**

8615 Golden Spike Lane  
Houston, Texas 77086  
Phone 281-272-1660 Fax 281-272-1673

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## **1.1.0 INTRODUCTION**

### **1.1.1 Purpose**

Quality assurance refers to means and actions employed by In-Line Plastics, LC (ILP) to assure conformity of the lining system installation with the Quality Assurance Plan, drawings and specifications.

This manual addresses the quality assurance of the installation of flexible membrane liners and other geosynthetic products used by ILP in waste disposal landfills, surface impoundments or other installations as specified by the owner and/or Engineer. This manual is a general guide and not site specific and delineates In-Line's quality procedures and standards for installation.

Commonly use geosynthetic components of a lining system is being discussed in this manual. This includes polyethylene geomembranes, geotextiles, geonets and geocomposites. This manual can be a useful guide in delineating the quality assurance procedures and requirements for the installation of all the above geosynthetic products. The site specific QA depends on job specifications and site conditions.

This manual does not address the quality assurance of soils, except in cases where soil placement may have an influence on the geosynthetics.

### **1.1.2. Scope of Quality Assurance**

The scope of this manual includes the quality assurance applicable to shipment, handling, and installation of all geosynthetics. In particular, full time quality assurance of the installation of geomembranes and the installation of other geosynthetics is essential. ( See exhibit A for QA Chart )

This manual does not address design guidelines, installation specifications, or selection of geomembranes or other geosynthetics (which includes compatibility between geosynthetic and contained material).

## **1.2.0 Construction Meetings**

### **1.2.1 Progress Meetings**

It is recommended an informal daily installation Progress Meeting be held among appropriate parties to discuss current progress.

## **1.3.0 Delivery, Storage, and handling**

Membrane delivered to the site shall be unloaded prior to In-Line crew arrival and stored with a minimum of handling. Each roll will be uniquely labeled.

Inventory shall be taken at the time of delivery. As the membrane is unloaded, it shall be inspected for damage. Any damage will be noted and repaired per specification. The "inventory Report" form will be used as material is delivered. Any shortages shall be noted as missing items ordered.

Membrane material shall be handled with equipment that will not damage the membrane. The storage area required shall be reasonably flat and well drained. The surface shall be free of sharp rocks or other objects that may damage the membrane.

The storage area must be as close as practical to the work area in order to minimize on site handling. The storage area must also be secure to prevent vandalism and theft and must be such that the membrane is not likely to be damaged by passing vehicles.

#### **1.4.0 Equipment**

##### **1.4.1 Welding Equipment**

Two practical types of welding equipment can be utilized: Wedge, and Extrusion.

###### **A. Wedge Welding**

For panel seaming with varying subgrade, the contractor shall provide automated welding equipment. The equipment shall be capable of measuring the temperature at the wedge and monitoring the automated equipment to assure it maintains a consistent pressure to achieve a passing field weld.

The power source shall be capable of providing constant voltage under a combined-line load.

###### **B. Extrusion Welding**

For extrusion welding, the contractor shall provide a field extrusion welder capable of adhering a continuous bead between the panels with a nominal width of one inch. Extrusion welders shall have a fixed preheat nozzle attached to the front of the extrusion welder.

##### **1.4.2 Generators**

Typically, a 6.5 kW or larger generator will be used at the work area and electrical extension cords will be used to power the welding equipment.

##### **1.4.3 Miscellaneous Equipment**

Small tools will include hook blade utility knives, scissors with rounded points, hand leister, grinders, and silicone or rubber rollers.

#### **2.1.0 GEOMEMBRANE INSTALLATION**

##### **2.1.1 Earthwork**

###### **A. Surface Preparation**

The Earthwork Contractor shall be responsible for preparing the subgrade according to the project specifications and the following minimum industry subgrade standard necessary to properly install the liner.

A.1 The surface to be lined has been prepared so as to be free of irregularities, protrusions, vegetation, excessive water, loose soil or abrupt changes in grade.

A.2 The supporting surface does not contain stones or other matter of such composition, shape or size which may be damaging to the geomembrane and

A.3 There are no excessively soft surface areas

Under no circumstances shall the installer deploy any geomembrane in areas not acceptable within these guidelines. A completed surface acceptance form shall be provided to the customer specifically indicating the areas accepted for geomembrane

installation during each day's activities. This form shall be provided after installation activities within that area. If at any time during the installation of the geosynthetic lining system the prepared subgrade deteriorates, becomes damaged, or in any way is determined unacceptable by the Site Supervisor, all liner installation work shall stop in those areas and the condition of those areas brought to the attention of the appropriate party.

B. Anchor Trench

The anchor trenches shall be constructed by the Earthwork Contractor to the lines, widths and depths as shown on the drawings and specifications. This task should be performed prior to the geomembrane deployment. Pile excavated dirt away from the area to be lined.

The edges where the geosynthetics enter the trench should be free of irregularities, protrusions, etc. to avoid potential damage to the material. Backfilling of the anchor trench shall be the responsibility of the of the Earthwork Contractor in accordance with specifications. Backfilling should occur when the geosynthetic material is at its most contracted state to avoid potential bridging problems. Care must be taken to avoid damaging the geosynthetics during backfilling.

## 2.2.0 Geomembrane Deployment

The site supervisor, in conjunction with the customer shall agree upon the following issues. If any adverse situation or disagreement exists, the site supervisor shall delay deployment until issues are resolved.

### 2.2.1 Installation

The Site Supervisor shall proceed with deployment provided that:

- Deployment equipment does not damage the subgrade
- Personnel who are in contact with the liner do not smoke, wear damaging (non-soft sole) shoes or engage in other activities which risk damage to the liner

2.2.2 Use of a low ground pressure, rubber-tired all terrain vehicle (i.e. ATV) is allowed on the geosynthetic surface, provided proper care is taken to avoid damage and excessive traffic

2.2.3 Field panel placement installation sequence should take into account site drainage, wind direction, subgrade surface, access to the site, and production schedule of the project. Field panels should be seamed as soon as possible after deployment and all deployed material shall be marked with appropriate identification.

### 2.2.4 Visual Inspection

The Site Supervisor and/or the QA Technician and the designated Independent Inspector shall visually inspect each panel, as soon as possible after deployment, for damage or areas needing repair. Areas shall be marked for repair.

## 2.3.0 Field Seaming

Field seaming involves the bonding of adjacent panels using thermal methods.

### 2.3.1 Seam Layout

In general, seams shall be oriented parallel to the direction of maximum slope, i.e. oriented along, not across, the slope. In corners and odd-shaped geometric locations, the number of seams should be minimized. No horizontal seams should occur on a panel less than five lineal feet from the toe of the slope. On slopes of less than 10% (6L: 1H), this rule

shall not apply. A cross slope seam may be utilized provided the panel ends are cut at an angle of approximately 45%.

A seam is considered a separate entity if it is the principal attachment that joins two or more panels. Repairs are not considered seams in this context.

A numbering system using adjacent panel numbers shall identify each seam.

### 2.3.2 Seaming Equipment and Products

Approved processes for field seaming and repairing are extrusion welding and fusion welding. All welding equipment shall have accurate temperature monitoring devices to insure proper measurement of the welder temperatures.

#### A. Fusion Process

This process shall be used for seaming panels together and is not generally used for patching or detailed work. The apparatus shall be of hot wedge type and is commonly equipped with a "split wedge" to allow air pressure seam testing.

Fusion welding equipment shall be self-propelled devices and shall be equipped with functioning wedge temperature and seaming speed controllers to assure proper control by the Welding Technician.

#### B. Extrusion Process

This process shall be used primarily for repairs, patching, and special detail fabrication. This method is also useful to connect new panels to previously installed liner that does not have an exposed edge capable of being fusion welded.

The extrusion welding apparatus (hand welder) shall be equipped with temperature monitoring devices.

### 2.3.3 Seam Preparation

The Welding Technician shall verify that prior to seaming the seam area is free of moisture, dust, sand, or debris of any nature; the seam is properly heat tacked and abraded when extrusion welding; and seams are performed to minimize "fishmouths".

### 2.3.4 Trial Seams (Trial Welds)

Prior to production seaming, trial seams shall be made and accepted using project specified criteria. Trial seams shall be made on appropriate sized pieces of identical or equivalent geomembrane material to verify that seaming conditions and procedures are adequate. Each trial seam sample shall be assigned a number and the test results recorded in the appropriate log.

- Trial seams shall be performed for each welder to be used and by each operator of extrusion welders, and by the primary operator of each fusion welder.
- A passing trial seam shall be made prior to the beginning of each seaming period. Typically this is at the start of the day and after lunch break.
- Fusion welded trial seam samples shall be approximately six feet long by one foot wide with the seam centered lengthwise. For extrusion welding, the trial seam sample size shall be approximately three feet long by one foot wide with the seam centered lengthwise.

### 2.3.5 Panel Seams (Production Seaming)

Upon Acceptance of the trial seams, work may begin on deployed panels. All seams shall be non-destructively tested. Each completed seam shall be labeled with pertinent information.

2.3.6 Non-Destructively Seam Testing.

ILP will only non-destructively test field seams for their full length using an air pressure test or a vacuum test, if required by Engineer's specifications. The purpose of non-destructively tests is to demonstrate the leak resistance of the seam.

The Site Supervisor shall schedule all non-destructively testing operations in order to ensure prompt demonstration of weld quality and the orderly progress of the project.

The QA Technician shall instruct the testing personnel regarding marking of repairs needed, leaks and sign-off marks on seam and repairs.

a) Vacuum Testing

Vacuum testing is routinely performed on extrusion welds and can be performed on the fusion welds. The equipment shall consist of a vacuum box assembly with a vacuum gauge, a pumping device, and a soap solution.

The following procedure shall be followed:

- Wet a section of the seam with the soap solution. The seam section must be longer than the vacuum box.
- Place the vacuum box over the wetted area and apply body weight to form a seal between the gasket and the liner.
- Evacuate air to create a negative pressure of approximately 3 to 5 psig.
- Observe the seam through the viewing window for presence of soap bubbles emitting from the seam.
- If no bubbles are observed, reposition the box on the next wetted area for testing with slight overlap.
- If bubbles are detected, this indicates a leak in the seam, mark the area of the leak for repair and retest.

b) Air Pressure Testing

Air pressure testing is performed on seams made by a double-seam fusion welding apparatus.

The equipment shall be comprised of the following:

- An air pump, or air tank, capable of producing a minimum air pressure of 25 psig in the seam channel
- A sharp hollow needle to insert air into the air channel of the seam
- A hot air gun or other heating device to seal the ends of the air channel

The following procedures shall be followed:

- Seal both ends of the air channel of the seam to be tested.
- Insert the needle into the air chamber at either end of the seam to be tested.
- Pressurize the air channel to minimum of 15 psi. Allow the pressure to stabilize, and if necessary, re-pressurize to 15 psi and note the pressure.
- With a minimum pressure of 15 psi stabilized in the air channel, the time of day should be noted.
- After approximately 5 minutes, the air pressure should be read again.
- If the difference between the two readings is more than 4 psi, the seam needs to be retested
- Upon completion of the air pressure test, the seam shall be marked and points requiring repair identified.

c) Procedures for Air Pressure Test Failure

Should the seam fail the air pressure test, the following procedure shall be followed:

- Reposition the apparatus and retest the same section
- While the seam air-channel is under pressure, traverse the length of the seam and listen for the leak
- While the seam air-channel is under pressure, apply a soapy solution to the seam edge (do not trim excess material from edge of seam) and observe for bubbles formed by escaping air
- Re-test the seam in progressively smaller increments, until the area of leakage is identified
- Repair the identified leak area by extrusion welding the excess material at the edge of the seam and then vacuum test
- In areas where the air channel is closed and the integrity of the weld is not suspect, vacuum testing is acceptable

2.3.7 Destructive Seam Testing

Destructive seam testing will only be performed at selected locations, if required by Engineer's specifications. The purpose of these tests is to evaluate bonded seam strength testing shall be performed as work progresses.

- a) Location and Frequency  
The frequency of sample removal is commonly no more than one sample per 500 lineal feet of seam. The sample can be taken at the end of a seam to avoid a repair.
- b) Size of Samples  
A sample segment twelve inches by twelve inches shall be cut with the seam centered lengthwise. Additional segments may be cut for independent lab testing, archival retain or other uses.
- c) Sample Identification  
The segment shall be marked with the appropriate destructive sample (D/S) number.
- d) Field Testing  
Sample shall be tested in peel and in shear using the following procedure:
  - Ten specimens of one-inch width shall be cut.
  - Five specimens shall be tested for peel. Fusion welds shall be tested from both sides.
  - Five specimens shall be tested for shear.
  - The specimens shall be hand pulled to see if the seams exhibit a film tear bond (FTB) (see Exhibits B & C). If specified samples can also be sent to In-Line Plastics for in house testing in a tensiometer. Testing will occur at a rate of two inches per minute.
- e) Pass/Fail Criteria  
Seam shall exhibit a film tear bond (FTB) (see Exhibits B & C). For projects that utilize a tensiometer, the following table provides minimum acceptable values.

Seam Strength ASTM D 4437					
		Shear		Peel	
Product Name	Thickness ASTM D 5199 Mm (mils)	Extrusion kN/m (Lb./in)	Fusion kN/m (Lb./in)	Extrusion kN/m (Lb./in)	Fusion kN/m (Lb./in)
HDPE Smooth	0.75 (30)	9.4 (54)	9.4 (54)	6.3 (36)	7.3 (42)
HDPE Smooth	1.0 (40)	13.3 (76)	13.3 (76)	8.7 (50)	10.3 (59)
HDPE Smooth	1.5 (60)	20.4 (117)	20.4 (117)	12.7 (78)	15.9 (91)
HDPE Smooth	2.0 (80)	27.1 (155)	27.1 (155)	18.2 (104)	21.1 (121)
LLDPE Smooth	0.75 (30)	7.3 (42)	7.3 (42)	6.1 (35)	6.1 (35)
LLDPE Smooth	1.0 (40)	9.8 (56)	9.8 (56)	8.4 (48)	8.4 (48)
LLDPE Smooth	1.5 (60)	14.7 (84)	14.7 (84)	12.6 (72)	12.6 (72)
LLDPE Smooth	2.0 (80)	19.6 (112)	19.6 (112)	16.8 (96)	16.8 (96)

Seam Strength ASTM D 4437					
		Shear		Peel	
Product Name	Thickness ASTM D 5199 Mm (mils)	Extrusion kN/m (Lb./in)	Fusion kN/m (Lb./in)	Extrusion kN/m (Lb./in)	Fusion kN/m (Lb./in)
HDPE Textured	0.75 (30)	9.4 (54)	9.4 (54)	6.3 (36)	7.3 (42)
HDPE Textured	1.0 (40)	13.3 (76)	13.3 (76)	8.7 (50)	10.3 (59)
HDPE Textured	1.5 (60)	20.4 (117)	20.4 (117)	12.7 (78)	15.9 (91)
HDPE Textured	2.0 (80)	27.1 (155)	27.1 (155)	18.2 (104)	21.1 (121)
LLDPE Textured	0.75 (30)	5.9 (34)	5.9 (34)	5.0 (29)	5.0 (29)
LLDPE Textured	1.0 (40)	8.4 (48)	8.4 (48)	7.0 (40)	7.0 (40)
LLDPE Textured	1.5 (60)	13.0 (70)	13.0 (70)	11.0 (60)	11.0 (60)
LLDPE Textured	2.0 (80)	16.8 (96)	16.8 (96)	14.0 (80)	14.0 (80)

In addition to these values, the sample shall not fail within the seam area. Three out of five specimens meeting the above criteria will constitute a passing test.

If the seam fails the test, the following procedure shall be followed. Additional sample segments of the same size shall be removed approximately 10 lineal feet in each direction from the failed seam. Both of these sample segments shall be tested in accordance with the criteria listed above and each segment must pass. This procedure is repeated until a passing result is obtained. In lieu of taking an excessive number of samples, the entire seam may be repaired as outlined in Section 2.3.8.a.

#### 2.3.8 Defects and Repairs

All seams and non-seam areas of the polyethylene lining system shall be examined for identification of defects. Identification of defects or repair may be made by marking on the sheet/seam with an appropriate marking device.

##### a) Repair Procedures

Any portion of the polyethylene lining system exhibiting a defect which has been marked for repair shall be repaired with any one or combination of the following methods:

- Patching: using to repair holes, tears

- Grind and re weld: used to repair small sections of extruded seams
- Spot welding: used to repair small minor, localized flaws
- Flap welding: used to extrusion weld the flap of a fusion weld in lieu of a full cap
- Capping: used to repair failed seams
- Topping: application of extrudate bead directly to exist

The suspected defect shall be demonstrable as out of specification and detrimental to the performance of the liner.

The following conditions shall apply to all the above methods:

- Surfaces of the polyethylene which are to be repaired shall be lightly abraded to assure cleanliness
- All surfaces intended to receive extrudate must be clean and dry at the time of the repair
- All patches and caps shall extend at least four inches beyond the edge of the defect, and all patches shall have rounded corners.

- b) Verification of Repairs  
Repairs shall be non-destructively tested according to the criteria established in Section 2.3.6.e.

Repairs, which pass the non-destructive test, will be taken as an indication of an adequate repair. Failed tests indicate that the repair must be re-done and re-tested until a passing test result.

#### 2.4.0 Lining System Acceptance

After work is complete, the Site Supervisor and/or QA Technician shall conduct a final inspection (walk-down) of the area for confirmation that all repairs have been appropriately performed, all test results are acceptable and the area has all scrap, trash and debris removed. Only after careful evaluation by the Site Supervisor and acceptance by the Customer shall any material be placed upon the lining system.

The geosynthetic lining system will be accepted by the customer when:

- Installation of materials is completed.
- Verification of the adequacy of all seams and repairs, including associated testing and documentation is completed

Signing a Certificate of Acceptance (see Attached) will indicate acceptance by all parties. Partial area of the installation may be accepted in order to allow further construction of the project.

#### 3.1.0 Handling

All geotextile, geonets, and geocomposites shall be handled in such a manner as to ensure they are not damaged.

- On Slopes, the geosynthetics shall be securely anchored in the anchor trench and then rolled down the slope in such a manner as to keep the material in tension.
- Sandbags shall be used to secure the edges of the material when the potential wind damage is significant.

- Cutting the material shall be done in such a manner as to prevent damage to any underlying or adjacent geomembrane.
- Care should be taken when deploying geosynthetic materials that stones, debris or other material is not trapped by the geonet, geocomposites, geotextile or geosynthetic clay liner and which might damage the geosynthetic or geomembrane.

### 3.2.0 Deployment and Installation

#### 3.2.1 Geonet – Drainage Net

Geonet shall be overlapped approximately four inches and fastened together with plastic cable ties.

#### 3.2.2 Geotextile/ Geonet Geocomposite

The geonet component shall be overlapped approximately four inches and fastened together with plastic cable ties. The unbonded edge of the geotextile component shall remain overlapped. Bonded edge of the geocomposite shall be overlapped approximately four inches and fastened with plastic cable ties.

#### 3.2.3 Geotextile

Geotextile may be installed by overlapping, by heat bonding (spot or continual basis) as indicated in the specifications.

#### 3.2.4 Geosynthetic Clay Liner

Seaming of GCLs is achieved by overlap the GCL panels approximately six inches. End-of-roll seams shall be overlapped a minimum of 12". Supplemental granular bentonite is required for reinforced GCL. The granular bentonite shall be applied at a rate of one quarter pound per lineal foot between the overlapping panels and at end-of-roll.

### 3.3.0 Geosynthetic Repair

#### 3.3.1 Geonet – Drainage Net

Any tear larger than twelve inches shall be repaired. Patches shall extend at least six inches from all sides of the tear and shall be fastened with plastic cable ties.

#### 3.3.2 Geotextile/ Geonet Geocomposite

Holes and tears in the composite material shall be repaired with a patch of identical or similar material extending at least 6" from all sides of the hole or tear and fastened with plastic cable ties.

#### 3.3.3 Geotextile

Holes in geotextile material shall be repaired using a patch of identical or similar materials extending approximately six inches on all sides from the hole or tear and heat bonded to parent material.

#### 3.3.4 Geosynthetic Clay Liner

The area to be repaired (patched) must be free of contamination by foreign matter. Patches should have approximately twelve inches overlaps around the damaged area. For fabric-encased GCLs, the patch is to be tucked into place with excess bentonite poured over the overlap. However, temporary attachment of patches is required to ensure that the patch is not dislodged by covering with geomembrane or soil.

### 4.1.0 Exhibits

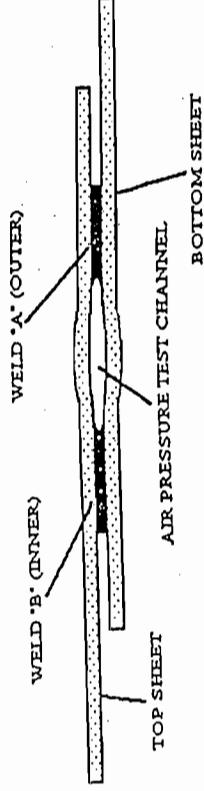
- A. QA Chart
- B. Pass / Fail Criteria – Hot Wedge Weld
- C. Pass / Fail Criteria – Extrusion Weld

**4.2.0 In-Line Plastic's Installation Forms**

- D. Subgrade Acceptance
- E. Preweld Qualification
- F. Daily Progress Report Master
- G. Destructive Sample Report
- H. Certificate of Acceptance



# DESTRUCTIVE TESTING OF DUAL HOT WEDGE WELD



## TEST STRIP

## RESULTS



FTB IN BOTTOM SHEETING  
\*\*\* (PASS)



FTB IN TOP SHEETING  
\*\*\* (PASS)



FTB IN BOTTOM SHEETING AT  
INNER EDGE OF SEAM.  
\*\*\* (PASS)

FTB = FILM TEAR BOND



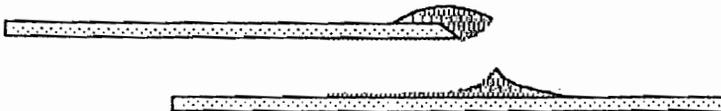
FTB SEPARATION IN TOP SHEET.  
\*\*\* (PASS)



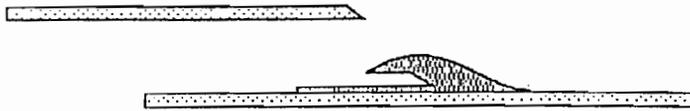
FTB SEPARATION IN BOTTOM SHEET.  
\*\*\* (PASS)



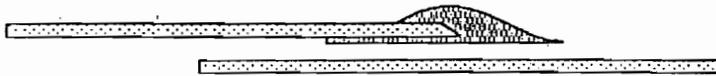
FTB SEPARATION IN BOTTOM SHEET AT OUTSIDE SEAM EDGE.  
\*\*\* (PASS)



FTB SEPARATION AT WELD (IF RECORDED STRESS MEETS SPEC).  
\*\*\* (PASS)



SEPARATION IN ADHESION.  
\*\*\* (FAILURE)



SEPARATION IN ADHESION.  
\*\*\* (FAILURE)

FTB = FILM TEAR BOND



FTB IN TOP SHEETING AT INNER  
EDGE OF SEAM.  
\*\*\* (PASS)



FTB IN TOP SHEETING OF SEAM  
AFTER SOME ADHESION FAILURE.  
\*\*\* (FAILURE)



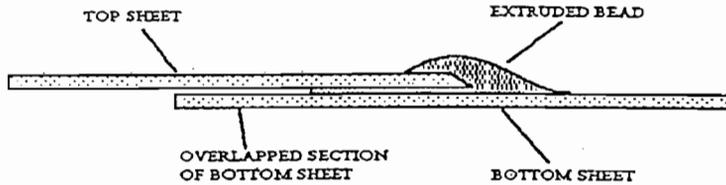
FTB IN BOTTOM SHEETING OF SEAM  
AFTER SOME ADHESION FAILURE.  
\*\*\* (FAILURE)



FAILURE IN ADHESION.  
\*\*\* (FAILURE)

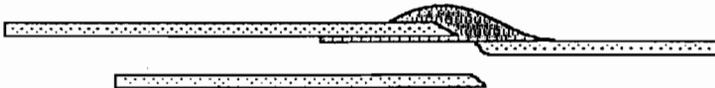
FTB = FILM TEAR BOND

VARIETIES OF SEAM FAILURES DURING  
DESTRUCTIVE TESTING OF  
EXTRUSION WELD



TEST STRIP

RESULTS

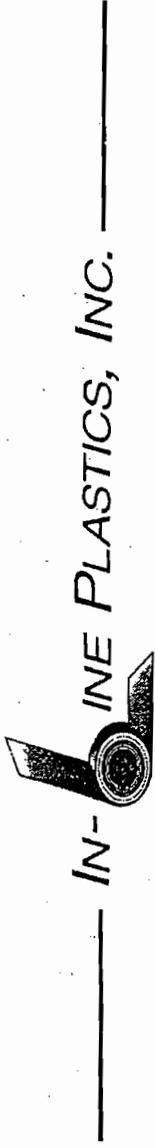


FTB SEPARATION IN  
BOTTOM SHEET AFTER  
SOME DELAMINATION.  
\*\*\* (PASS)



FTB SEPARATION IN TOP  
SHEET AT SEAM EDGE.  
\*\*\* (PASS)





**SUBGRADE SURFACE ACCEPTANCE**

Customer: \_\_\_\_\_ Date: \_\_\_\_\_  
Project Name: \_\_\_\_\_ Project Number: \_\_\_\_\_  
Location: \_\_\_\_\_ Partial: \_\_\_\_\_ Final: \_\_\_\_\_

I, the undersigned duly authorized representative of In-Line Plastics, LC, certify that upon visual inspection the subgrade surface described below meets criteria for installation of:

\_\_\_\_\_

By signing below, however, In-Line Plastics, LC acknowledges no responsibility for the subgrade design, degree of moisture or compaction, integrity, elevation, or maintenance thereof, in any way.

Approximate size of area accepted: \_\_\_\_\_

Description of the area accepted: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

In-Line Representative \_\_\_\_\_ Owner/Contractor \_\_\_\_\_ Inspector \_\_\_\_\_







**CERTIFICATE OF ACCEPTANCE**

Project Name: \_\_\_\_\_ In-Line Contract Number: \_\_\_\_\_

Description of the Project: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Total Area: \_\_\_\_\_ SF

I, the undersigned, duly authorized representative of \_\_\_\_\_  
do hereby take over and accept the work described above from the date hereof and confirm that to the best  
of my knowledge, the work has been completed in accordance with the specifications and the terms and  
conditions of the contract. There appears no damage to the plastic lining nor any unacceptable  
interference within or without the surrounding works. Scrap and off-cuts have been removed and the  
works have been in clean and tidy condition. In-Line Plastics, LC undertakes to rectify any damage  
resulting from defective materials or workmanship within compliance of contract guarantees.

Name: \_\_\_\_\_ Signature: \_\_\_\_\_

Title: \_\_\_\_\_ Date: \_\_\_\_\_

Certified and accepted by In-Line Plastics, LC Representative

Name: \_\_\_\_\_ Signature: \_\_\_\_\_

Title: \_\_\_\_\_ Date: \_\_\_\_\_

# Product Description



Engineered Solutions for an Innovative World

product

## Mirafi® N-Series NonWoven Polypropylene Geotextiles for Soil Separation, Filtration, and Protection

TC Mirafi offers a wide range of nonwoven geotextiles for soil separation, filtration and protection. These geotextiles are cost-effective reinforcement elements which improve and enhance modern construction techniques in a variety of civil engineering applications.

### PRODUCT DESCRIPTION

Mirafi® N-Series products are nonwoven geotextiles comprised of polypropylene staple fibers. Mirafi® N-Series Nonwoven Polypropylene Geotextiles provide excellent physical and hydraulic properties in addition to high tensile strengths.

### FEATURES AND BENEFITS

- **Construction.** Mirafi® N-Series geotextiles easily conform to the ground or trench surface for trouble-free installation;
- **Strength.** Mirafi® N-Series geotextiles withstand severe installation stresses with high puncture and burst resistance;
- **Filtration.** High permeability properties provide high water flow rates while providing excellent filtration properties;
- **Environmental.** Mirafi® N-Series geotextiles are chemically stable in a wide range of aggressive environments;

- **Cost effective.** Mirafi® N-Series geotextiles provide economical solutions to many civil engineering applications including a cost-effective alternative to graded aggregate filters.

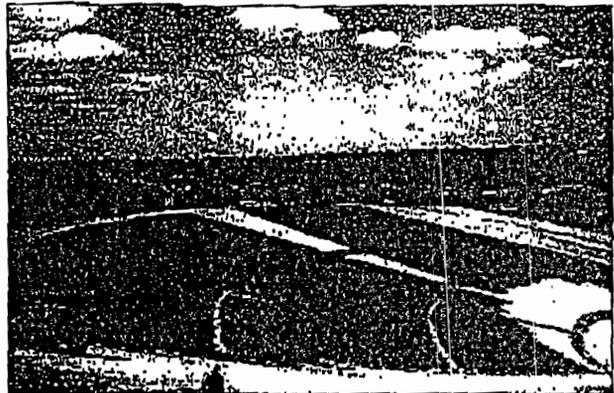
### APPLICATIONS

Mirafi® N-Series Nonwovens are used in a wide variety of applications including separation, filtration, and protection applications.

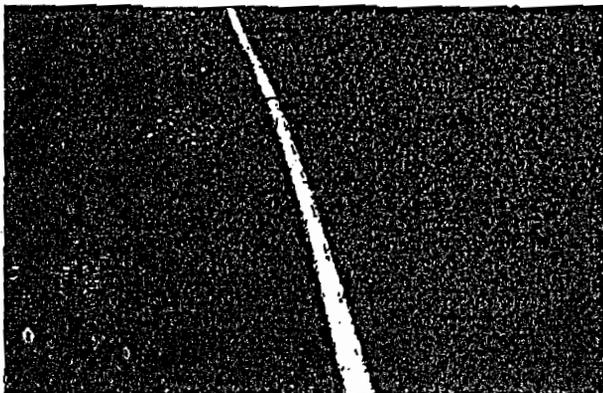
Lightweight nonwovens are predominantly used for subsurface drainage applications along highways, within embankments, under airfields, and athletic fields. For these drainage structures to be effective, they must have a properly designed protective filter. Mirafi® N-Series Nonwoven Geotextiles eliminate the problems of determining the aggregate gradation required to match soil conditions, finding a convenient and eco-

nomic source of a specific aggregate gradation, transporting and placing graded aggregate, and assuring that the in place aggregate gradation provides effective filter performance.

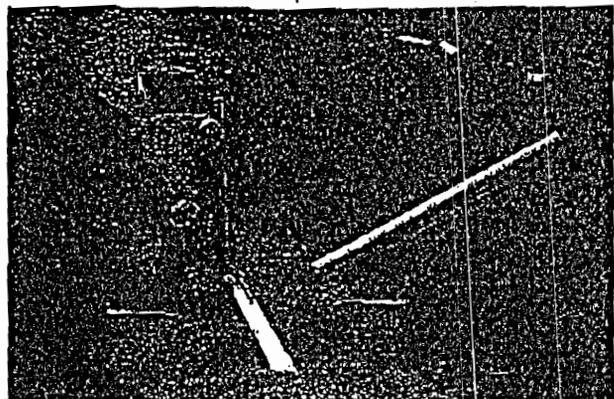
Heavyweight nonwovens are used in critical subsurface drainage systems, soil separation, permanent erosion control, and geomembrane liner protection within landfills. These geotextiles provide the required strength and abrasion resistance to withstand installation and application stresses to create an effective, long-term solution.



Mirafi® N-Series heavyweight nonwoven used as a liner protection in landfill application



Mirafi® N-Series lightweight nonwoven used as protective filter in subsurface drainage application.



Mirafi® N-Series light weight nonwoven used as protective filter in an athletic field



TC Mirafi

Technical Data



Engineered Solutions for an Innovative World

product **Mirafi® N-Series NonWoven Polypropylene Geotextiles**  
for Soil Separation, Filtration, and Protection

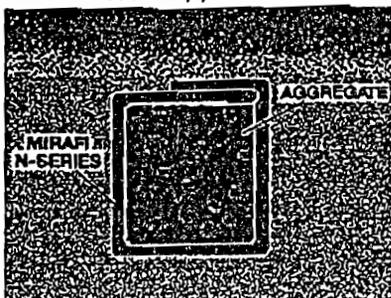
Property / Test Method	Units	140NL	140NC	140N	160N	170N	180N	1100N	1120N	1160N
<b>MECHANICAL PROPERTIES</b>										
<b>Grab Tensile Strength</b>										
ASTM D 4632										
Strength @ Ultimate	kN (lbs)	0.40 (90)	0.45 (100)	0.53 (120)	0.71 (160)	0.80 (180)	0.9 (205)	1.11(250)	1.34 (300)	1.69 (380)
Elongation @ Ultimate	%	50	60	50	50	50	50	50	50	50
<b>Mullen Burst Strength</b>	kPa	1309	1550	1654	2239	2412	2756	3514	4134	5167
ASTM D 3786	(psi)	(190)	(225)	(240)	(325)	(350)	(400)	(510)	(600)	(750)
<b>Trapezoidal Tear Strength</b>	kN	0.16	0.20	0.22	0.27	0.33	0.36	0.45	0.51	0.62
ASTM D 4355	(lbs)	(35)	(45)	(50)	(60)	(75)	(80)	(100)	(115)	(140)
<b>Puncture Strength</b>	kN	0.24	0.30	0.31	0.42	0.48	0.58	0.69	0.78	1.05
ASTM D 4833	(lbs)	(55)	(65)	(70)	(95)	(105)	(130)	(155)	(175)	(235)
<b>UV Resistance after 500 hrs.</b>	% strength	70	70	70	70	70	70	70	70	70
ASTM D 4955										
<b>HYDRAULIC PROPERTIES</b>										
<b>Apparent Opening Size (AOS)</b>	US Sieve	70	70	70	70	80	80	100	100	100
ASTM D 4751	mm	0.212	0.212	0.212	0.212	0.180	0.180	0.150	0.150	0.150
<b>Permittivity</b>	sec <sup>-1</sup>	2.0	1.9	1.8	1.4	1.4	1.2	1.0	0.8	0.7
ASTM D 4491										
<b>Flow Rate</b>	l/min/m <sup>2</sup>	6111	5698	5500	4477	4278	3886	3056	2348	2037
ASTM D 4491	(gal/min/ft <sup>2</sup> )	(150)	(140)	(135)	(110)	(105)	(95)	(75)	(55)	(50)
<b>Packaging</b>										
<b>Roll Width</b>	m(ft)	3.8 (12.5) 4.5 (15.0)	3.8 (12.5) 4.5 (15.0)	3.8 (12.5) 4.5 (15.0)	4.5 (15.0)	4.5 (15.0)	4.5 (15.0)	4.5 (15.0)	4.5 (15.0)	4.5 (15.0)
<b>Roll Length</b>	m(ft)	109.7 (360)	109.7 (360)	109.7 (360)	91.5 (300)	91.5 (300)	91.5 (300)	91.5 (300)	91.5 (300)	45.7 (150)
<b>Est. Gross Weight</b>	kg(lbs)	63 (139) 75 (165)	70 (154) 83 (184)	76 (167) 91 (200)	98 (219)	100 (225)	122 (270)	150 (330)	179 (393)	122 (269)
<b>Area</b>	m <sup>2</sup> (yd <sup>2</sup> )	418 (500) 501 (600)	418 (500) 501 (600)	418 (500) 501 (600)	418 (500)	418 (500)	418 (500)	418 (500)	418 (500)	209 (250)

NOTE: All Mechanical Properties and Hydraulic Properties shown are Minimum Average Roll Values (MARV).

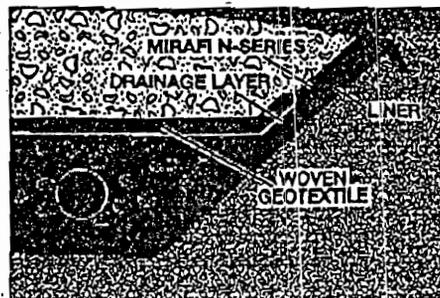
Cut-off/Inceptor drain along a roadway or other critical structure



French drain without pipe



Liner protection within a landfill



Corporate Office  
365 South Holland Drive  
Pendergrass, GA 30567  
(888) 785-0808; (706) 693-2226  
Fax (706) 693-4400

**TC Mirafi Warranty:** TC Mirafi warrants our products to be free from defects in material and workmanship when delivered to TC Mirafi's customers and that our products meet our published specifications. If a product is found to be defective, and our customer gives notice to TC Mirafi before installing the product, TC Mirafi will replace the product without charge to our customer or refund the purchase price at TC Mirafi's election. Replacing the product or obtaining a refund are the buyer's sole remedy for a breach and TC Mirafi will not be liable for any consequential damage attributed to a defective product. THIS WARRANTY IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING THE IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION OF THE PAGE HEREOF.



TC Mirafi

TECHNICAL DATA SHEET

## Mirafi 1100N

Mirafi 1100N is a nonwoven geotextile composed of polypropylene fibers, which are formed into a stable network such that the fibers retain their relative position. 1100N is inert to biological degradation and resists naturally encountered chemicals, alkalis, and acids.

Mechanical Properties	Test Method	Unit	Minimum Average Roll Value	
			MD	CD
Grab Tensile Strength	ASTM D 4632	kN (lbs)	1.11 (250)	1.11 (250)
Grab Tensile Elongation	ASTM D 4632	%	50	50
Trapezoid Tear Strength	ASTM D 4533	kN (lbs)	0.45 (100)	0.45 (100)
Mullen Burst Strength	ASTM D 3786	kPa (psi)	351.4 (510)	
Puncture Strength	ASTM D 4833	kN (lbs)	0.69 (155)	
Apparent Opening Size (AOS)	ASTM D 4751	mm (U.S. Sieve)	0.150 (100)	
Permittivity	ASTM D 4491	sec <sup>-1</sup>	1.0	
Permeability	ASTM D 4491	cm/sec	0.25	
Flow Rate	ASTM D 4491	l/min/m <sup>2</sup> (gal/min/ft <sup>2</sup> )	3056 (75)	
UV Resistance (at 500 hours)	ASTM D 4355	% strength retained	70	

Physical Properties	Test Method	Unit	Typical Value
Weight	ASTM D 5261	g/m <sup>2</sup> (oz/yd <sup>2</sup> )	339 (10.0)
Thickness	ASTM D 5199	mm (mils)	2.5 (100)
Roll Dimensions (width x length)	--	m (ft)	4.5 x 91 (15 x 300)
Roll Area	--	m <sup>2</sup> (yd <sup>2</sup> )	418 (500)
Estimated Roll Weight	--	kg (lb)	150 (331)

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TC Mirafi

TECHNICAL DATA SHEET

## Mirafi 180N

Mirafi 180N is a nonwoven geotextile composed of polypropylene fibers, which are formed into a stable network such that the fibers retain their relative position. 180N is inert to biological degradation and resists naturally encountered chemicals, alkalis, and acids.

Mechanical Properties	Test Method	Unit	Minimum Average Roll Value	
			MD	CD
Grab Tensile Strength	ASTM D 4632	kN (lbs)	0.9 (205)	0.9 (205)
Grab Tensile Elongation	ASTM D 4632	%	50	50
Trapezoid Tear Strength	ASTM D 4533	kN (lbs)	0.36 (80)	0.36 (80)
Mullen Burst Strength	ASTM D 3786	kPa (psi)	2756 (400)	
Puncture Strength	ASTM D 4833	kN (lbs)	0.58 (130)	
Apparent Opening Size (AOS)	ASTM D 4751	mm (U.S. Sieve)	0.180 (80)	
Permittivity	ASTM D 4491	sec <sup>-1</sup>	1.2	
Permeability	ASTM D 4491	cm/sec	0.28	
Flow Rate	ASTM D 4491	l/min/m <sup>2</sup> (gal/min/ft <sup>2</sup> )	3866 (95)	
UV Resistance (at 500 hours)	ASTM D 4355	% strength retained	70	

Physical Properties	Test Method	Unit	Typical Value
Weight	ASTM D 5261	g/m <sup>2</sup> (oz/yd <sup>2</sup> )	278 (8.2)
Thickness	ASTM D 5199	mm (mils)	2.3 (90)
Roll Dimensions (width x length)	--	m (ft)	4.5 x 91 (15 x 300)
Roll Area	--	m <sup>2</sup> (yd <sup>2</sup> )	418 (500)
Estimated Roll Weight	--	kg (lb)	124 (273)

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**GSE HD\***  
HDPE Geomembrane

GSE HD is a high quality, high density polyethylene (HDPE) geomembrane produced from specially formulated, virgin polyethylene resin. This polyethylene resin is designed specifically for flexible geomembrane applications. GSE HD contains approximately 97.5% polyethylene, 2.5% carbon black and trace amounts of antioxidants and heat stabilizers; no other additives, fillers or extenders are used. GSE HD has outstanding chemical resistance, mechanical properties, environmental stress crack resistance, dimensional stability and thermal aging characteristics. GSE HD has excellent resistance to UV radiation and is suitable for exposed conditions.

TESTED PROPERTY	TEST METHOD	MINIMUM VALUES		
Thickness, mils (mm)	ASTM D 5199	27 (0.69)	36 (0.91)	54 (1.4)
Density, g/cm <sup>3</sup>	ASTM D 1505	0.94	0.94	0.94
Tensile Properties (each direction)	ASTM D 638, Type IV			
Strength at Break, lb/in-width (N/mm)	Dumbell, 2 ipm	122 (21)	162 (28)	243 (43)
Strength at Yield, lb/in-width (N/mm)		63 (11)	84 (15)	130 (23)
Elongation at Break, %	G.L. 2.0 in (51 mm)	700	700	700
Elongation at Yield, %	G.L. 1.3 in (33 mm)	13	13	13
Tear Resistance, lb (N)	ASTM D 1004	21 (93)	28 (124)	42 (187)
Puncture Resistance, lb (N)	ASTM D 4833	59 (263)	79 (352)	119 (530)
Carbon Black Content, %	ASTM D 1603	2.0	2.0	2.0
Carbon Black Dispersion	ASTM D 5596	+Note 1	+Note 1	+Note 1
Notched Constant Tensile Load, hrs	ASTM D 5397, Appendix	400	400	400

REFERENCE PROPERTY	TEST METHOD	NOMINAL VALUES		
Thickness, mils (mm)	ASTM D 5199	30 (0.75)	40 (1.0)	60 (1.5)
Roll Length** (approximate), ft (m)		952 (290)	650 (198)	420 (128)
Low Temperature Brittleness, °F (°C)	ASTM D 746, Cond. B	<-107 (<-77)	<-107 (<-77)	<-107 (<-77)
Oxidative Induction Time, minutes	ASTM D 3895, 200 °C; O <sub>2</sub> , 1 atm	>100	>100	>100
Water Absorption, % wt. change	ASTM D 570	<0.01	<0.01	<0.01
Moisture Vapor Transmission, g/m <sup>2</sup> day	ASTM E 96	<0.001	<0.001	<0.001
Dimensional Stability (each direction), %	ASTM D 1204, 100 °C, 1 hr	±2	±2	±2

+Note 1: Dispersion only applies to near spherical agglomerates. 9 of 10 views shall be Category 1 or 2. No more than 1 view from Category 3.

GSE HD is available in rolls approximately 22.5 ft (6.9 m) and 34.5 ft (10.5 m) wide and weighing about 2,900 lb (1,315 kg) and 4,400 lb (1,995 kg) respectively. Other material thicknesses are available upon request.

\*\* Roll lengths correspond to the 22.5 ft (6.9 m) wide roll goods.

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**GSE HD\*  
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TESTED PROPERTY	TEST METHOD	MINIMUM VALUES		
Thickness, mils (mm)	ASTM D 5199	27 (0.69)	36 (0.91)	54 (1.4)
Density, g/cm <sup>3</sup>	ASTM D 1505	0.94	0.94	0.94
Tensile Properties (each direction)	ASTM D 638, Type IV			
Strength at Break, lb/in-width (N/mm)	Dumbell, 2 ipm	122 (21)	162 (28)	243 (43)
Strength at Yield, lb/in-width (N/mm)		63 (11)	84 (15)	130 (23)
Elongation at Break, %	G.L. 2.0 in (51 mm)	700	700	700
Elongation at Yield, %	G.L. 1.3 in (33 mm)	13	13	13
Tear Resistance, lb (N)	ASTM D 1004	21 (93)	28 (124)	42 (187)
Puncture Resistance, lb (N)	ASTM D 4833	59 (263)	79 (352)	119 (530)
Carbon Black Content, %	ASTM D 1603	2.0	2.0	2.0
Carbon Black Dispersion	ASTM D 5596	+Note 1	+Note 1	+Note 1
Notched Constant Tensile Load, hrs	ASTM D 5397, Appendix	400	400	400

REFERENCE PROPERTY	TEST METHOD	NOMINAL VALUES		
Thickness, mils (mm)	ASTM D 5199	30 (0.75)	40 (1.0)	60 (1.5)
Roll Length** (approximate), ft (m)		952 (290)	650 (198)	420 (128)
Low Temperature Brittleness, °F (°C)	ASTM D 746, Cond. B	<-107 (<-77)	<-107 (<-77)	<-107 (<-77)
Oxidative Induction Time, minutes	ASTM D 3895, 200 °C; O <sub>2</sub> , 1 atm	>100	>100	>100
Water Absorption, % wt. change	ASTM D 570	<0.01	<0.01	<0.01
Moisture Vapor Transmission, g/m <sup>2</sup> day	ASTM E 96	<0.001	<0.001	<0.001
Dimensional Stability (each direction), %	ASTM D 1204, 100 °C, 1 hr	±2	±2	±2

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TESTED PROPERTY	TEST METHOD	MINIMUM VALUES		
Thickness, mils (mm)	ASTM D 5199	27 (0.69)	36 (0.91)	54 (1.4)
Density, g/cm <sup>3</sup>	ASTM D 1505	0.94	0.94	0.94
Tensile Properties (each direction)	ASTM D 638, Type IV			
Strength at Break, lb/in-width (N/mm)	Dumbell, 2 ipm	122 (21)	162 (28)	243 (43)
Strength at Yield, lb/in-width (N/mm)		63 (11)	84 (15)	130 (23)
Elongation at Break, %	G.L. 2.0 in (51 mm)	700	700	700
Elongation at Yield, %	G.L. 1.3 in (33 mm)	13	13	13
Tear Resistance, lb (N)	ASTM D 1004	21 (93)	28 (124)	42 (187)
Puncture Resistance, lb (N)	ASTM D 4833	59 (263)	79 (352)	119 (530)
Carbon Black Content, %	ASTM D 1603	2.0	2.0	2.0
Carbon Black Dispersion	ASTM D 5596	+Note 1	+Note 1	+Note 1
Notched Constant Tensile Load, hrs	ASTM D 5397, Appendix	400	400	400

REFERENCE PROPERTY	TEST METHOD	NOMINAL VALUES		
Thickness, mils (mm)	ASTM D 5199	30 (0.75)	40 (1.0)	60 (1.5)
Roll Length** (approximate), ft (m)		952 (290)	650 (198)	420 (128)
Low Temperature Brittleness, °F (°C)	ASTM D 746, Cond. B	<-107 (<-77)	<-107 (<-77)	<-107 (<-77)
Oxidative Induction Time, minutes	ASTM D 3895, 200 °C; O <sub>2</sub> , 1 atm	>100	>100	>100
Water Absorption, % wt. change	ASTM D 570	<0.01	<0.01	<0.01
Moisture Vapor Transmission, g/m <sup>2</sup> day	ASTM E 96	<0.001	<0.001	<0.001
Dimensional Stability (each direction), %	ASTM D 1204, 100 °C, 1 hr	±2	±2	±2

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TESTED PROPERTY	TEST METHOD	MINIMUM VALUES		
Thickness, mils (mm)	ASTM D 5199	27 (0.69)	36 (0.91)	54 (1.4)
Density, g/cm <sup>3</sup>	ASTM D 1505	0.94	0.94	0.94
Tensile Properties (each direction)	ASTM D 638, Type IV			
Strength at Break, lb/in-width (N/mm)	Dumbell, 2 ipm	122 (21)	162 (28)	243 (43)
Strength at Yield, lb/in-width (N/mm)		63 (11)	84 (15)	130 (23)
Elongation at Break, %	G.L. 2.0 in (51 mm)	700	700	700
Elongation at Yield, %	G.L. 1.3 in (33 mm)	13	13	13
Tear Resistance, lb (N)	ASTM D 1004	21 (93)	28 (124)	42 (187)
Puncture Resistance, lb (N)	ASTM D 4833	59 (263)	79 (352)	119 (530)
Carbon Black Content, %	ASTM D 1603	2.0	2.0	2.0
Carbon Black Dispersion	ASTM D 5596	+Note 1	+Note 1	+Note 1
Notched Constant Tensile Load, hrs	ASTM D 5397, Appendix	400	400	400

REFERENCE PROPERTY	TEST METHOD	NOMINAL VALUES		
Thickness, mils (mm)	ASTM D 5199	30 (0.75)	40 (1.0)	60 (1.5)
Roll Length** (approximate), ft (m)		952 (290)	650 (198)	420 (128)
Low Temperature Brittleness, °F (°C)	ASTM D 746, Cond. B	<-107 (<-77)	<-107 (<-77)	<-107 (<-77)
Oxidative Induction Time, minutes	ASTM D 3895, 200 °C; O <sub>2</sub> , 1 atm	>100	>100	>100
Water Absorption, % wt. change	ASTM D 570	<0.01	<0.01	<0.01
Moisture Vapor Transmission, g/m <sup>2</sup> day	ASTM E 96	<0.001	<0.001	<0.001
Dimensional Stability (each direction), %	ASTM D 1204, 100 °C, 1 hr	±2	±2	±2

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TESTED PROPERTY	TEST METHOD	MINIMUM VALUES		
Thickness, mils (mm)	ASTM D 5199	27 (0.69)	36 (0.91)	54 (1.4)
Density, g/cm <sup>3</sup>	ASTM D 1505	0.94	0.94	0.94
Tensile Properties (each direction)	ASTM D 638, Type IV			
Strength at Break, lb/in-width (N/mm)	Dumbell, 2 ipm	122 (21)	162 (28)	243 (43)
Strength at Yield, lb/in-width (N/mm)		63 (11)	84 (15)	130 (23)
Elongation at Break, %	G.L. 2.0 in (51 mm)	700	700	700
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Carbon Black Content, %	ASTM D 1603	2.0	2.0	2.0
Carbon Black Dispersion	ASTM D 5596	+Note 1	+Note 1	+Note 1
Notched Constant Tensile Load, hrs	ASTM D 5397, Appendix	400	400	400

REFERENCE PROPERTY	TEST METHOD	NOMINAL VALUES		
Thickness, mils (mm)	ASTM D 5199	30 (0.75)	40 (1.0)	60 (1.5)
Roll Length <sup>™</sup> (approximate), ft (m)		952 (290)	650 (198)	420 (128)
Low Temperature Brittleness, °F (°C)	ASTM D 746, Cond. B	<-107 (<-77)	<-107 (<-77)	<-107 (<-77)
Oxidative Induction Time, minutes	ASTM D 3895, 200 °C; O <sub>2</sub> , 1 atm	>100	>100	>100
Water Absorption, % wt. change	ASTM D 570	<0.01	<0.01	<0.01
Moisture Vapor Transmission, g/m <sup>2</sup> day	ASTM E 96	<0.001	<0.001	<0.001
Dimensional Stability (each direction), %	ASTM D 1204, 100 °C, 1 hr	±2	±2	±2

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### TECHNICAL DATA SHEET

#### SMOOTH HDPE

#### GEOMEMBRANE

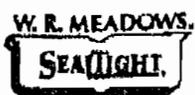
Properties	Test Method	Units (Metric/English)	SOLMAX 420	SOLMAX 430	SOLMAX 440	SOLMAX 460	SOLMAX 480	SOLMAX 500
Thickness*, Minimum Average	ASTM D5199	mm (mil)	0.50* (20)*	0.75* (30)*	1.00 (40)	1.50 (60)	2.00 (80)	2.50 (100)
Standard Roll Dimensions**	N/A	m (ft)	6.7 x 427 (22 x 1400)	6.7 x 305 (22 x 1000)	6.7 x 238 (22 x 790)	6.7 x 151 (22 x 500)	6.7 x 122 (22 x 400)	6.7 x 98 (22 x 320)
Resin Density	ASTM D1505	g/cm <sup>3</sup>	>0.932	>0.932	>0.932	>0.932	>0.932	>0.932
Melt Index	ASTM D1238 Condition E	g/10 min.	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Oxidative Induction Time	ASTM D3893	min.	>100	>100	>100	>100	>100	>100
Sheet Density	ASTM D1505	g/cm <sup>2</sup>	>0.940	>0.940	>0.940	>0.940	>0.940	>0.940
Carbon Black Content	ASTM D4218	%	2.0 to 3.0	2.0 to 3.0	2.0 to 3.0	2.0 to 3.0	2.0 to 3.0	2.0 to 3.0
Carbon Black Dispersion (10 views)	ASTM D5596	Category	1 or 2	1 or 2	1 or 2	1 or 2	1 or 2	1 or 2
Tensile Strength • Yield Strength • Yield Elongation (1.3 in. Gage Length)	ASTM D638 Type IV	kN/m	7.0	11.0	14.7	23.1	30.8	38.5
		(psi)	(40)	(83)	(84)	(132)	(176)	(220)
• Break Strength • Break Elongation (2 in. Gage Length)	ASTM D638 Type IV	%	13	12	13	13	13	13
		kN/m	13.3	20.0	28.0	42.0	56.1	70.0
		(psi)	(76)	(114)	(160)	(240)	(320)	(400)
		%	600	700	700	700	700	700
Tear Resistance	ASTM D1004	N (lbs)	88 (19)	93.5 (21)	125 (28)	167 (42)	249 (56)	311 (70)
Puncture Resistance	ASTM D4833	N (lbs)	160 (36)	248 (54)	320 (72)	481 (108)	641 (144)	801 (180)
Stress Crack Resistance (SP-NCTL)	ASTM D5597 (Appendix)	hrs	>200	>200	>200	>200	>200	>200
Dimensional Stability	ASTM D1204	%	±3	±2	±2	±2	±2	±2

\*Custom thicknesses and roll sizes are available  
 \*Thickness ±10%  
 \*\*Roll length may vary ±1%

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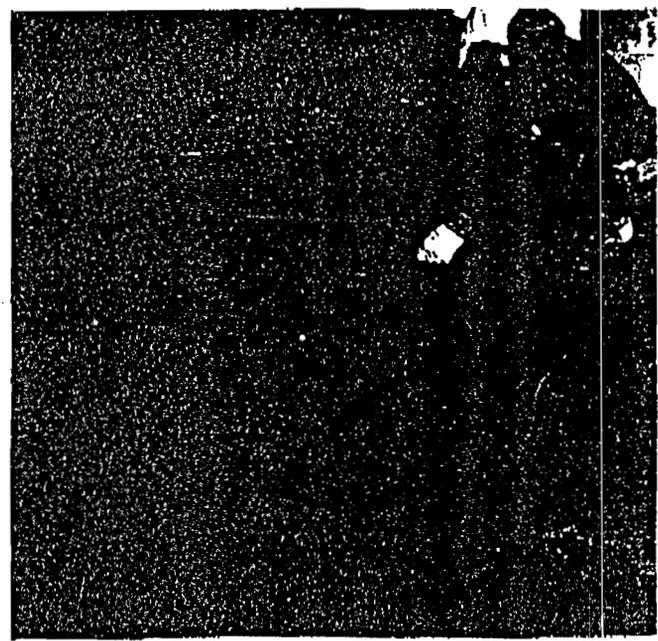
NO. 712.

# PROTECTION COURSE

## WATERPROOFING PROTECTION

Effectively protects delicate waterproofing systems on vertical and horizontal surfaces.

SEALTIGHT PROTECTION COURSE products are tough, durable, lightweight panels specifically designed to protect delicate waterproofing materials from damage by normal construction traffic, movement of adjacent substrate and backfilling.



**Technical Description**  
SEALTIGHT PROTECTION COURSE is a multi-ply semi-rigid core composed of a mineral-fortified asphaltic core formed between two outside layers of asphalt-impregnated fiberglass mat, manufactured in accordance with ASTM D 6506. When properly applied by work personnel trained in good waterproofing techniques, SEALTIGHT PROTECTION COURSE will absorb the impact of aggregate shock and normal jobsite foot traffic. It also protects the membrane waterproofing from penetration by sharp aggregate during backfilling and later settlement. SEALTIGHT PROTECTION COURSE is available in three types: PC-1, Light Duty; PC-2, Standard Duty and PC-3, Heavy Duty. All three types are economical and convenient to use.

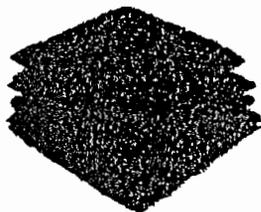
**Uses**  
SEALTIGHT PROTECTION COURSE is used in between-slab construction, such as plaza decks, roof terraces, promenade decks, pedestrian concourses, tunnels, floors of bathrooms, shower, kitchens and mechanical rooms, parking garage decks, planter boxes, reflective pools and foundation walls. SEALTIGHT PROTECTION COURSE is compatible with most currently popular dampproofing and waterproofing materials.



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W. R. MEADOWS & SONS  
Waterproofing Membranes

# PROTECTION COURSE

## WATERPROOFING PROTECTION



**Packaging**  
4' X 8' (1.22m X 2.44m) panels

**Precautions**

1. Where PROTECTION COURSE is adhered to waterproofing membrane, use the adhesive recommended by the membrane manufacturer.
2. Where taped joints are desired, use tape set in hot asphalt, consult membrane manufacturer.
3. PROTECTION COURSE is shipped on pallets with the polyethylene anti-silk sheet on the top or exposed side. PROTECTION COURSE should be stored on the pallets and placed on a level surface.
4. CAUTION... Do not apply the Protection Course over liquid waterproofing membranes containing volatile solvents until all of the solvent has evaporated. Consult membrane manufacturer for specific application details prior to placing the Protection Course. Read and follow application information and precautions. Refer to Material Safety Data Sheet for complete Health and Safety information.

**Features and Benefits**

- Tough, durable and lightweight, panels are easily handled, quickly installed
- Full width fiberglass matting improves flexural strength
- Highly resistant to chemical action
- Performance is equally effective in above or below-grade installations
- Unique dual-facings offers compatibility with most currently popular waterproofing materials
- Economical and convenient to use

applied at the end of each day's waterproofing to both horizontal and vertical surfaces.

**HORIZONTAL SURFACES:**

PROTECTION COURSE should be installed over the waterproofing membrane as soon as permissible by the membrane applicator or manufacturer. PROTECTION COURSE sheets should be butted together and cut to fit all intersecting surfaces and protrusions. If desired, joints may be covered with SEALTIGHT Crest, or a roofer's glass reinforced tape embedded in hot asphalt as a secondary waterproofing system. (See point 2 under Precautions).

**VERTICAL SURFACES:**

For damp-proofed and/or waterproofed vertical walls to receive backfill, the PROTECTION COURSE should be butted jointed and, if necessary, temporarily held in place while backfilling.

**Application**

**NOTE:** Prior to application, consult the waterproofing manufacturer to determine whether the polyethylene film facing on one side of the asphalt-impregnated fiberglass mat on the other side of SEALTIGHT PROTECTION COURSE is approved as "compatible" to the specific waterproofing product being protected.

SEALTIGHT PROTECTION COURSE is installed to form a continuous protective layer over the membrane waterproofing. The sheets can be easily cut with a roofer's knife for fitting at protrusions.

**SURFACE CONDITION:** The waterproofing membrane must be free of sharp projections, dirt and dust. If water sealing is desired, it should be made prior to placing the PROTECTION COURSE. **NOTE:** PROTECTION COURSE should be

**BACKFILLING:** Backfilling against vertical walls should be done immediately using care and caution to avoid damaging the waterproofing application. Backfill material should not be dropped against the PROTECTION COURSE in such a manner that it could drag the sheet down as the backfill dries. For horizontal applications, the waterproofing and PROTECTION COURSE should be installed just prior to the installation of the wearing surface.



**Application Tools**



Trowel



Rofer's knife

**ASTM D 6504**

**Protection Board Requirements**

	Type 1	Type 2	Type 3
<b>Puncture Strength (Classes A &amp; B)</b>	222 N (50 lbf) minimum	312 N (70 lbf) minimum	305 N (62 lbf) minimum
<b>Thickness (Classes A &amp; B)</b>	1.3 to 1.8mm (0.060 to 0.070in.)	2.4 to 2.9mm (0.095 to 0.153in.)	3.6 to 7.1mm (0.220 to 0.280in.)
<b>Water Absorption (Classes A &amp; B)</b>	0.0% maximum	10.0% maximum	10.0% maximum
<b>Asphalt, % by weight (Class A)</b>	65% minimum	65% minimum	65% minimum
<b>Asphalt, % by weight (Class B)</b>	40% minimum	40% minimum	40% minimum
<b>Resistance to Dyeing (Classes A &amp; B)</b>	Meets puncture requirements after completion of test	Meets puncture requirements after completion of test	Meets puncture requirements after completion of test

To assist you in the specification of this product, Guide Specifications are available through your local SEALTIGHT Distributor, or contact your nearest W. R. Meadows Branch office.  
**Phone: 1-800-342-5878**

FOR THE MOST CURRENT PRODUCT INFORMATION, VISIT OUR WEBSITE:  
[www.wrmeadows.com](http://www.wrmeadows.com)

**LIMITED WARRANTY...**

W. R. Meadows, Inc. warrants that at the time and place we make shipment, our products will be of good quality and will conform with our published specifications in force on the date of acceptance of the order. Read complete Warranty copy furnished upon request. **DISCLAIMER...** The emission contained herein is included for illustrative purposes only and, to the best of our knowledge, is accurate and reliable. W. R. Meadows, Inc. cannot, however, under any circumstance make any guarantee or assume any obligation or liability in connection with the use of this information. As W. R. Meadows, Inc. has no control over the use to which others may put its products, it is recommended that products be tested to determine if suitable for a specific application and/or circumstances. Responsibility remains with the architect or engineer, contractor and owner for the design, application and proper installation of each product. Specifier and user shall determine suitability of products for specific application and assume all responsibility in connection therewith.

**Coverage:**

TYPE	THICKNESS*	WIDTH	LENGTH
PC-1 Light Duty	62.5 mil-1/16" (1.59mm)	4' (1.22m)	8' (2.44m)
PC-2 Standard Duty	125 mil-1/8" (3.18mm)	4' (1.22m)	8' (2.44m)
PC-3 Heavy Duty	250 mil-1/4" (6.35mm)	4' (1.22m)	8' (2.44m)
*NOMINAL			

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**APPENDIX II**

**HEALTH AND SAFETY PLAN**  
**(COMMUNITY MONITORING PROGRAM)**

**SITE SPECIFIC HEALTH AND SAFETY PLAN  
21-16 44<sup>th</sup> ROAD  
LONG ISLAND CITY, NEW YORK**

Prepared For

Virginia S. Peterson, as Trustee, Wendy Peterson Smithson,  
Judy Ann Sarkisian, Arthur Corey Sarkisian, David P. Close,  
as Successor Executor/Trustee, Gabrielle V. Sarkisian  
as Successor Executor/Trustee and Frederick Hanssen,  
as Successor Executor/Trustee

October 2002

**LEGGETTE, BRASHEARS & GRAHAM, INC.**  
Professional Ground-Water and Environmental Engineering Services  
110 Corporate Park Drive, Suite 112  
White Plains, NY 10604  
(914) 694-5711

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**LEGGETTE, BRASHEARS & GRAHAM, INC.  
110 CORPORATE PARK DRIVE, SUITE 112  
WHITE PLAINS, NEW YORK 10604  
(914) 694-5711**

**SITE SPECIFIC HEALTH AND SAFETY PLAN  
21-16 44<sup>th</sup> ROAD  
LONG ISLAND CITY, NEW YORK**

This Health and Safety Plan (HASP) is intended to provide a basic framework for the Voluntary Cleanup Program (VCP), Index Number D2-0023-00-08 by Virginia S. Peterson, as Trustee, Wendy Peterson Smithson, Judy Ann Sarkisian, Arthur Corey Sarkisian, David P. Close, as Successor Executor/Trustee, Gabrielle V. Sarkisian as Successor Executor/Trustee and Frederick Hanssen, as Successor Executor/Trustee pursuant to the New York State Department of Environmental Conservation (NYSDEC) VCP. The procedures provided herein are intended as a guide for all Leggette, Brashears & Graham, Inc. (LBG) and subcontractor employees who will be involved in the performance of the project.

The primary objective of the HASP is to establish work-safety guidelines, requirements and procedures before field activities begin and during the field activities. The following information was prepared specifically for field operations by personnel to enforce and adhere to the established rules as specified in the HASP. The HASP will be provided to all personnel to aid in accomplishing the following objectives:

- monitoring the effectiveness of the HASP as it is conducted in the field by performing field operation audits;
- following up on any necessary corrective actions;
- interacting with regulatory agencies and/or client representatives regarding modifications of health and safety actions; and
- stopping work should conditions warrant such action.

All personnel will have had health and safety training in accordance with OSHA Interim Final Standard 29 CFR 1910 or as may be amended. A copy of LBG's Corporate Safety Policy and Drug and Alcohol Policy is attached in Appendix A.

## 1.0 ORGANIZATION AND RESPONSIBILITIES

The organization and responsibilities for implementing safe site-investigation procedures, and specifically for the requirements contained in this manual, are described in this section.

### 1.1 Project Manager

The LBG Project Manager will be responsible for the overall implementation and monitoring of the health and safety program by:

- ensuring appropriate protective equipment is available and properly used by all personnel, in accordance with the HASP;
- ensuring personnel health and safety awareness by providing them with proper training and familiarity with procedures and contingency plans;
- ensuring all personnel are apprised of potential hazards associated with the site conditions and operations;
- supervising and monitoring the safety performance of all personnel to ensure their work practices are conducted in accordance with the HASP;
- correcting any work practices or conditions that would expose personnel to possible injury or hazardous condition;
- communications with the onsite Health and Safety Officer (HSO);
- ensuring sufficient protective equipment is provided and used;
- promptly initiating emergency alerts; and,
- communicating with the client and/or regulatory agency representatives.

### 1.2 Onsite Health and Safety Officer

The LBG HSO will be onsite during all field activities. The HAO will be accountable for the direct supervision of personnel from the subcontractors and other LBG personnel with regard to:

- health and safety program compliance;
- maintaining a high level of health and safety consciousness among employees at the work site; and,
- reporting accidents within LBG jurisdiction and undertaking corrective action.

### 1.3 Field Personnel

All field personnel will report directly to the onsite HSO, and will be required to:

- be familiar with, and conform to, provisions of the HASP;
- ensure that they are well informed of potential hazards at the work site and exercise informed consent in their work;
- report any accidents or hazardous conditions to the onsite HSO; and,
- have complete familiarity with their job requirements and the health and safety procedures involved.

### 1.4 Reporting of Accidents and Unsafe Conditions

If an accident occurs, the HSO and the injured person(s) are to complete an Accident Report for submittal to the project manager, who will forward a copy to the principal-in-charge who should ensure that follow-up action is taken to correct the situation that caused the accident.

#### 1.4.1 Disciplinary Actions for Safety Related Infractions

If an infraction of the Health and Safety Plan is discovered by the Project Manager or the onsite HSO, each case will be dealt with individually. The infraction will be investigated and a disciplinary meeting held with the offender. Disciplinary actions may include a performance deficiency evaluation entered into the employee's personnel file, correction of problem after the disciplinary meeting or removal of the offender from the project. Repeated infractions will not be tolerated and will be dealt with accordingly.

#### 1.4.2 Safety Inspections

Safety inspections will be conducted periodically by the Project Manager. The Project Manager will be familiar with the Health and Safety Plan before performing an onsite visit. While onsite, the Project Manager will evaluate the effectiveness of the plan and offer any suggestion for improvement. Although Project Managers are responsible for periodic safety inspections and evaluation of the Health and Safety Plan, the onsite HSO is responsible for daily observation and evaluation of Health and Safety Plan effectiveness.

### 1.4.3 Safety Meetings

Prior to the start of field activities, a meeting will be held to discuss the potential hazards at the site, with a review of the required protective clothing and procedures observed at this site. As needed, daily meetings will be held to discuss any changes in the hazards. A site safety briefing form will be filled out each day the HSO holds a meeting and signed by all the attendees of the meeting.

## 2.0 HAZARD EVALUATION

The exposure limits of chemical constituents which may be encountered are listed in table 1. These constituents would possibly be encountered in ground water and/or soil and comprise the major concerns for personal health. The protection of personnel and the public from exposure to these substances by inhalation, oral ingestion, dermal absorption or eye contact is included as a primary purpose of this plan.

The onsite HSO is responsible for determining the level of personal protection equipment required. The HSO will perform a preliminary evaluation to confirm personal protective equipment requirements once the site has been entered. When work-site conditions warrant, the onsite HSO will modify the level of protection to be utilized. The existence of a situation more hazardous than anticipated will result in the suspension of work until the Project Manager and client representative has been notified and appropriate instructions have been provided to the field team.

## 3.0 COMMUNITY AIR MONITORING PLAN

A photoionization detector (PID) and a dust meter will be used to continuously monitor ambient air quality at the Site during all ground-intrusive activities. Records of these data will be maintained by the onsite HSO. During drilling operations, air quality will be monitored at each drilling or boring location, especially near the top of the boreholes as samples are taken. Work operations which involve handling of potentially hazardous substances will include continuous contaminant monitoring using the PID and the dust meter. In addition, field monitoring will be performed when work is initiated at different portions of the site, when a new operation is initiated and/or when potentially leaking drums or containers are going to be handled. When deemed

necessary or desirable by the onsite HSO, area monitoring will be used in potentially hazardous zones. Area monitoring will be performed as plans and conditions dictate, and in accordance with the HASP and with the goal of accident and hazardous condition prevention in mind. Instrument calibration information is included in Appendix B.

For the compounds previously identified to be most prevalent, the lowest 8-hour exposure limit is listed on table 1.

### 3.1 Vapor Emission Response Plan

If the ambient air concentration of organic vapors exceeds 5 ppm above background at the perimeter of the work area, activities will be halted and monitoring continued. Work activities will also be halted if the downwind particulate level is 150 ug/m<sup>3</sup> greater than the upwind particulate level. If the organic vapor level decreases below 5 ppm above background, work activities can resume. If the organic vapor levels are greater than 5 ppm over background but less than 25 ppm over background at the perimeter of the work area, activities can resume provided:

- the organic vapor level 200 feet downwind of the work area or half the distance to the nearest residential or commercial structure, whichever is less, is below 5 ppm over background.

If the organic vapor level is above 25 ppm at the perimeter of the work area, activities will be shutdown. When work shutdown occurs, downwind air monitoring as directed by the Safety Officer will be implemented to ensure that vapor emission does not impact the nearest residential or commercial structure at levels exceeding those specified in the Major Vapor Emission section.

### 3.2 Major Vapor Emission

If any organic levels greater than 5 ppm over background are identified 200 feet downwind from the work area or half the distance to the nearest residential or commercial property, whichever is less, all work activities will be halted.

If, following the cessation of the work activities, or as the result of an emergency, organic levels persist above 5 ppm above background 200 feet downwind or half the distance to the nearest

residential or commercial property from the work area, then the air quality will be monitored within 20 feet of the perimeter of the nearest residential or commercial structure (20 Foot Zone).

If efforts to abate the emission source are unsuccessful and if the following levels persist for more than 30 minutes in the 20 Foot Zone, then the Major Vapor Emission Response Plan shall automatically be placed into effect.

- if organic vapor levels are approaching 5 ppm above background.

However, the Major Vapor Emission Response Plan shall be immediately placed into effect if organic vapor levels are greater than 10 ppm above background.

### **3.3 Major Vapor Emission Response Plan**

Upon activation, the following activities will be undertaken:

1. All Emergency Response Contacts as listed in the Health and Safety Plan of the Work Plan will be notified.
2. The local police authorities will immediately be contacted by the Safety Officer and advised of the situation.
3. Frequent air monitoring will be conducted at 30 minute intervals within the 20 Foot Zone. If two successive readings below action levels are measured, air monitoring may be halted or modified by the Safety Officer.

### **4.0 LEVELS OF PROTECTION**

The level of protection anticipated to perform work on this investigation is Level D, unless otherwise upgraded. Only protective equipment deemed suitable by the onsite HSO for use at the work site will be worn. Any changes in protection levels shall be documented by the onsite HSO. Field personnel should exercise informed judgment on protective equipment requirements at active work sites or at work sites that have been repeatedly entered or occupied without apparent harm. In any case where doubt exists, the safest course of action must be taken. The protective equipment to be used by field personnel is listed below.

4.1 Level D

- hard hat;
- safety glasses, shatter-proof prescription glasses or chemical splash goggles;
- boots/shoes, leather or chemical-resistant, steel toe and shank;
- coveralls; and,
- chemical resistant gloves.

At a minimum, protective headgear, including protective hearing devices, eyewear and footwear will be worn at all times by personnel working around the drilling equipment.

4.2 Level C

- hard hat;
- boots, leather, steel toe and shank;
- outer boots, chemical resistant;
- chemical-resistant gloves (solvex);
- Tyvek or Saranex suit; and,
- Air purifying respirator with organic vapor cartridge and dust and mist filter.

4.3 Level B

- pressure-demand, self-contained breathing apparatus;
- standby escape pack;
- chemical resistant clothing (Saranex suit);
- outer gloves (Solvex);
- inner gloves (surgical);
- outer boots (chemical resistant);
- inner boots (leather, steel shank and toe); and,
- hard hat.

5.0 **SAFE WORK PRACTICES AND HYGIENE**

In addition to the use of protective equipment, other procedures will be followed to minimize risk:

- all consumptive activities including eating, drinking or smoking are prohibited during the drilling, sampling and decontamination activities;
- an adequate source of potable water for emergency use will be available at the drilling sites (two liters per person per day);
- fire extinguishers will be available at the work sites for use on equipment or small fires when appropriate; and,
- an adequately stocked first-aid kit will be maintained at the work site at all times during operational hours.

### 5.1 Heat Stress

In order to avoid heat stress several preventative measures will be observed:

- Workers will drink a 16-ounce glass of water prior to work (in the morning and after lunch). Water will be contained in a cooler, maintained at a temperature below 60°F. Workers will be encouraged to drink approximately every 20 minutes during days of extreme heat.
- Workers will be encouraged to wear long cotton underwear under the heat-retaining protective clothing required by Level C.
- In extreme hot weather, field activities will be conducted in the early mornings and late afternoons.
- Rest breaks in cool or shaded areas will be enforced as needed.
- Toilet facilities will be made available to site workers, unless transportation is readily available to nearby toilet facilities.
- Good hygiene practices will be encouraged, stressing the importance of allowing the clothing to dry during rest periods. Anyone who notices skin problems should receive medical attention immediately.
- If there are support personnel available outside the work zone, they should observe the workers in the exclusion zone to monitor signs of stress, frequency of breaks, etc.

## 5.2 Cold Stress and Exposure

In order to avoid cold stress, several preventative measures will be observed;

- work will not take place when the temperature falls below -20°F. (The wind chill factor should be a major consideration);
- clothing should be worn in layers, so that personnel can adapt to changing conditions and various levels of physical stress;
- if possible, breaks should be taken in a heated vehicle or building, but care should be taken to remove outer clothing during the break;
- have on hand extra inner clothing in case perspiration builds up;
- keep insulated containers of warm liquids available for breaks outside of the exclusion zone;
- be aware of the signs of frostbite and take immediate remedial measures; and,
- take extra precautions around areas subject to ice buildup, such as sanding slippery surfaces.

## 6.0 WORK ZONE

To prevent unauthorized personnel from entering areas where active operations are being performed, the area enclosing the operation will be marked.

Typically, VOC projects such as this one installation of monitor wells, monitoring of wells, installation and operation of treatment systems and observation of tank and trench excavation work. Safety issues with respect to this type of work are included in Appendix C.

## 7.0 DECONTAMINATION

An area will be set aside within the work zone for decontamination. The type of decontamination procedures used will be based on the level of protection required. Decontamination of Level D protective wear will consist of brushing heavily soiled boots to remove soils, rinsing gloves and safety glasses (and overboots, if worn) with water, and removing and storing coveralls in plastic bags before leaving the work zone, if heavily soiled or suspected of having been in contact with site contaminants. For detailed decontamination, equipment and procedures, refer to Appendix D.

## 8.0 CONTINGENCY PLAN FOR EMERGENCIES

In the event of a safety or health emergency, appropriate corrective measures must immediately be taken to assist those who have been injured or exposed and to protect others from hazard. The onsite HSO will be notified of the incident immediately. If necessary, first aid will be rendered.

dmd

October 24, 2002

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TABLE

TABLE 1  
Exposure Limits

COMPOUND	EXPOSURE STANDARDS			RECOGNITION QUALITIES		
	TLV/PEL (ppm) (ppm)	STEL (%) (ppm)	IDLH (ppm) (ppm)	Odor/Threshold (ppm)	IDLH (d) (%)	Ionization Potential (eV)
Gasoline <sup>1/</sup>	300	500	1,400	-	1.4	-
Alachlor <sup>2/</sup>	-	-	-	No odor	-	-
Benzene <sup>1/</sup>	0.1	1	500	12	1.2	9.24
Butane	800	-	-	2,700	1.6	10.63
Chlorobenzene	75 <sup>3/</sup>	-	1,000	Almonds	1.3	-
1,1-Dichloroethane	100	Ca <sup>4/</sup>	3,000	Chloroform	5.4	11.06
1,2-Dichloroethylene	200	-	1,000	Chloroform	5.6	9.65
EDB (Ethylene dibromide) <sup>1/</sup>	0.045	0.13	100	Sweet	-	9.45
EDC (Ethylene dichloride) <sup>1/</sup>	1	2	50	Chloroform	6.2	11.05
Ethylbenzene	100	125	800	Aromatic	0.8	8.76
Heptane	85	440	750	150	1.05	9.90
N-Hexane	50	-	1,100	Gasoline/130	1.1	10.18
Hexanes	100	510	-	Mild gasoline	-	-
Methyl ethyl ketone (MEK)	0.2 <sup>4/</sup>	-	-	Characteristic odor	-	-
Octane	75	385	1,000	Gasoline/150	1.0	9.82
Pentane	120	610	1,500	Gasoline/1000	1.5	10.34
TBA (Tert-butyl alcohol)	100	150	1,600	Camphor	2.4	9.70
Tetrachloroethylene <sup>1/</sup>	Ca <sup>4/</sup>	Ca <sup>4/</sup>	150	Chloroform	-	9.32
Tetraethyl Lead	0.075*	-	40*	Sweet	1.8	11.10
Tetramethyl Lead	0.075*	-	40*	Fruity	-	8.50
Toluene	100	150	500	Sweet benzene like/2.9	1.1	8.82

TABLE 1  
(continued)

Exposure Limits

COMPOUND	EXPOSURE STANDARDS			RECOGNITION QUALITIES		
	TLV/PEL (a) (ppm)	STEL (b) (ppm)	IDLH (c) (ppm)	Odor/Threshold (ppm)	LEL (d) (%)	Ionization Potential (eV)
1,1,2-Trichloroethane	Ca <sup>2/</sup>	10	100	Chloroform	6.0	11.00
Trichloroethylene	Ca <sup>2/</sup>	25	1,000	Chloroform	8.0	9.45
Vinyl Chloride	Ca <sup>2/</sup>	Ca <sup>2/</sup>	Not determined	Pleasant	3.6	9.99
Xylenes	100	150	900	Aromatic/1.1	0.9	8.56

Notes:

1/ Potential occupational carcinogen

2/ Alachlor manufacturer established internal exposure guideline of 10 ppb for 8-hour TWA

3/ OSHA guideline, NIOSH questions the adequacy of 75 ppm

4/ Ceiling REL, should not be exceeded at any time

5/ NIOSH recommends occupational exposures to carcinogens to be limited to the lowest feasible concentration

- = No published value

\* mg/m<sup>3</sup>

(a) The more stringent of either: (1) Occupational Safety and Health Administration (OSHA) 1989 Permissible Exposure Limit (PEL), (2) American Conference Governmental Industrial Hygienists (ACGIH) Threshold Limit Value (TLV), or (3) National Institute for Occupational Safety and Health (NIOSH) recommended exposure limits (RELs), time-weighted average concentrations for up to a 10-hour work day.

(b) Short Term Exposure Limit - 15 minute exposure.

(c) Immediately dangerous to life and health.

(d) Lower Explosive Limit.

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May 17, 2002

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FORMS

**SITE SAFETY BRIEFING**

Job Name: \_\_\_\_\_  
Date: April 2002  
Site Location: 21-16 44<sup>th</sup> Road, Long Island City, New York

SAFETY ISSUES (Circle appropriate information)

Tasks: Drilling, Ground-Water Monitoring, Treatment System  
O&M, UST or Trench Excavation

Protective Clothing/Equipment: Level D, Level C, Level B, Level A

Chemical Hazards: Gasoline, Diesel Fuel, Heating Oil, Number 2 Oil

Physical Hazards: Car Traffic, Construction Equipment, Confined Space,  
Overhead Wires

Control Methods: Cones, Restricted Access, Traffic Control Personnel

Other: \_\_\_\_\_

Hospital Name/Address: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

ATTENDEES

<u>Print Name:</u>	<u>Sign Name:</u>
_____	_____
_____	_____
_____	_____
_____	_____

Meeting conducted by: \_\_\_\_\_  
\_\_\_\_\_

# AIR MONITORING

## General Information

Name(s): \_\_\_\_\_ Background Level: \_\_\_\_\_

Date: \_\_\_\_\_ Weather Conditions: \_\_\_\_\_

Time: \_\_\_\_\_

Project: 21-16 44<sup>th</sup> Road  
Long Island City, New York

## Equipment Calibration

PID \_\_\_\_\_ CGI \_\_\_\_\_

Sample No.	Time	Location	PID Reading (ppm)	Comments	CGI Reading	
					%O <sub>2</sub>	%LEL
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						

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May 17, 2002  
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CONTACT SHEET

Client: Virginia S. Peterson, as Trustee, Wendy Peterson Smithson, Judy Ann Sarkisian, Arthur Corey Sarkisian, David P. Close, as Successor Executor/Trustee, Gabrielle V. Sarkisian as Successor Executor/Trustee and Frederick Hanssen, as Successor Executor/Trustee

Project: 21-16 44<sup>th</sup> Road

Location: Long Island City, New York

Task: \_\_\_\_\_

Client Contact: Scott Furman, Esq. and Alicia A. Weissmeier, Esq.

Leggette, Brashears & Graham, Inc.

(914) 694-5711 (914) 694-5744 (fax)

Field Supervisor (HSO): Sean Groszkowski

Project Manager: Sean Groszkowski

Principal-in-Charge: Dan C. Buzea

Local Police Headquarters: 108 Precinct, Long Island City, New York  
(718) 784-5411

Local Hospital: Elmhurst Hospital, 79-01 Broadway  
(corner of Baxter), Elmhurst, New York

Emergency Room: (718) 334-4000

State Police: State Government Police, New York Marshalls Bureau,  
80 Maiden Lane, Floor 17, New York, New York,  
(212) 825-5953

Miscellaneous: New York State Department of Environmental Conservation  
(NYSDEC) Region 2, 1 Hunters Point Plaza, 47-40-21<sup>st</sup> Street,  
Long Island City, New York (718) 482-4900

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June 12, 2002  
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**DIRECTIONS TO LOCAL HOSPITAL:**

Elmhurst Hospital  
79-01 Broadway  
Elmhurst, New York

Total Distance: 4.0 miles  
Total Estimated Time: 5 minutes

- Go east on 44<sup>th</sup> Drive to in Jackson Avenue
- Merge onto Jackson Avenue and proceed northeast
- Go east (right) on Queens Boulevard (SR 25) at the intersection
- Go northeast (left) on 45<sup>th</sup> Avenue
- Make a left onto 76<sup>th</sup> Street
- Make a right onto Woodside Avenue
- Elmhurst Hospital is located two (2) blocks on the left at 79-01 Broadway

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PLAN ACCEPTANCE FORM

PROJECT HEALTH & SAFETY PLAN

INSTRUCTIONS: This form is to be completed by each Leggette, Brashears & Graham, Inc. employee to work on the subject project work site and returned to the Office Safety Coordinator prior to site activities.

Client/Project: 21-16 44<sup>th</sup> Road, Long Island City, New York

Date: \_\_\_\_\_

I represent that I have read and understand the contents of the above Plan and agree to perform my work in accordance with it.

\_\_\_\_\_  
Signed

\_\_\_\_\_  
Signed

\_\_\_\_\_  
Print Name

\_\_\_\_\_  
Print Name

\_\_\_\_\_  
Date

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Date

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**APPENDIX III**

**LOW-FLOW (MINIMAL DRAWDOWN)**  
**GROUND-WATER SAMPLING PROCEDURES**



# Ground Water Issue

## LOW-FLOW (MINIMAL DRAWDOWN) GROUND-WATER SAMPLING PROCEDURES

by Robert W. Puls<sup>1</sup> and Michael J. Barcelona<sup>2</sup>

### Background

The Regional Superfund Ground Water Forum is a group of ground-water scientists, representing EPA's Regional Superfund Offices, organized to exchange information related to ground-water remediation at Superfund sites. One of the major concerns of the Forum is the sampling of ground water to support site assessment and remedial performance monitoring objectives. This paper is intended to provide background information on the development of low-flow sampling procedures and its application under a variety of hydrogeologic settings. It is hoped that the paper will support the production of standard operating procedures for use by EPA Regional personnel and other environmental professionals engaged in ground-water sampling.

For further information contact: Robert Puls, 405-436-8543, Subsurface Remediation and Protection Division, NRMRL, Ada, Oklahoma.

### 1. Introduction

The methods and objectives of ground-water sampling to assess water quality have evolved over time. Initially the emphasis was on the assessment of water quality of aquifers as sources of drinking water. Large water-bearing

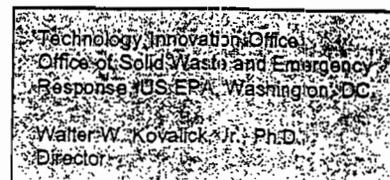
units were identified and sampled in keeping with that objective. These were highly productive aquifers that supplied drinking water via private wells or through public water supply systems. Gradually, with the increasing awareness of subsurface pollution of these water resources, the understanding of complex hydrogeochemical processes which govern the fate and transport of contaminants in the subsurface increased. This increase in understanding was also due to advances in a number of scientific disciplines and improvements in tools used for site characterization and ground-water sampling. Ground-water quality investigations where pollution was detected initially borrowed ideas, methods, and materials for site characterization from the water supply field and water analysis from public health practices. This included the materials and manner in which monitoring wells were installed and the way in which water was brought to the surface, treated, preserved and analyzed. The prevailing conceptual ideas included convenient generalizations of ground-water resources in terms of large and relatively homogeneous hydrologic units. With time it became apparent that conventional water supply generalizations of *homogeneity* did not adequately represent field data regarding pollution of these subsurface resources. The important role of *heterogeneity* became increasingly clear not only in geologic terms, but also in terms of complex physical,

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<sup>2</sup>University of Michigan



Superfund Technology Support Center for  
Ground Water

National Risk Management Research Laboratory  
Subsurface Protection and Remediation Division  
Robert S. Kerr Environmental Research Center  
Ada, Oklahoma



chemical and biological subsurface processes. With greater appreciation of the role of heterogeneity, it became evident that subsurface pollution was ubiquitous and encompassed the unsaturated zone to the deep subsurface and included unconsolidated sediments, fractured rock, and *aquitards* or low-yielding or impermeable formations. Small-scale processes and heterogeneities were shown to be important in identifying contaminant distributions and in controlling water and contaminant flow paths.

It is beyond the scope of this paper to summarize all the advances in the field of ground-water quality investigations and remediation, but two particular issues have bearing on ground-water sampling today: aquifer heterogeneity and colloidal transport. Aquifer heterogeneities affect contaminant flow paths and include variations in geology, geochemistry, hydrology and microbiology. As methods and the tools available for subsurface investigations have become increasingly sophisticated and understanding of the subsurface environment has advanced, there is an awareness that in most cases a primary concern for site investigations is characterization of contaminant flow paths rather than entire aquifers. In fact, in many cases, plume thickness can be less than well screen lengths (e.g., 3-6 m) typically installed at hazardous waste sites to detect and monitor plume movement over time. Small-scale differences have increasingly been shown to be important and there is a general trend toward smaller diameter wells and shorter screens.

The hydrogeochemical significance of colloidal-size particles in subsurface systems has been realized during the past several years (Gschwend and Reynolds, 1987; McCarthy and Zachara, 1989; Puls, 1990; Ryan and Gschwend, 1990). This realization resulted from both field and laboratory studies that showed faster contaminant migration over greater distances and at higher concentrations than flow and transport model predictions would suggest (Buddemeier and Hunt, 1988; Enfield and Bengtsson, 1988; Penrose et al., 1990). Such models typically account for interaction between the mobile aqueous and immobile solid phases, but do not allow for a mobile, reactive solid phase. It is recognition of this third *phase* as a possible means of contaminant transport that has brought increasing attention to the manner in which samples are collected and processed for analysis (Puls et al., 1990; McCarthy and Degueldre, 1993; Backhus et al., 1993; U. S. EPA, 1995). If such a phase is present in sufficient mass, possesses high sorption reactivity, large surface area, and remains stable in suspension, it can serve as an important mechanism to facilitate contaminant transport in many types of subsurface systems.

Colloids are particles that are sufficiently small so that the surface free energy of the particle dominates the bulk free energy. Typically, in ground water, this includes particles with diameters between 1 and 1000 nm. The most commonly observed mobile particles include: secondary clay minerals; hydrous iron, aluminum, and manganese oxides; dissolved and particulate organic materials, and viruses and bacteria.

These reactive particles have been shown to be mobile under a variety of conditions in both field studies and laboratory column experiments, and as such need to be included in monitoring programs where identification of the *total* mobile contaminant loading (dissolved + naturally suspended particles) at a site is an objective. To that end, sampling methodologies must be used which do not artificially bias *naturally* suspended particle concentrations.

Currently the most common ground-water purging and sampling methodology is to purge a well using bailers or high speed pumps to remove 3 to 5 casing volumes followed by sample collection. This method can cause adverse impacts on sample quality through collection of samples with high levels of turbidity. This results in the inclusion of otherwise immobile artifactual particles which produce an overestimation of certain analytes of interest (e.g., metals or hydrophobic organic compounds). Numerous documented problems associated with filtration (Danielsson, 1982; Laxen and Chandler, 1982; Horowitz et al., 1992) make this an undesirable method of rectifying the turbidity problem, and include the removal of potentially mobile (contaminant-associated) particles during filtration, thus artificially biasing contaminant concentrations low. Sampling-induced turbidity problems can often be mitigated by using low-flow purging and sampling techniques.

Current subsurface conceptual models have undergone considerable refinement due to the recent development and increased use of field screening tools. So-called hydraulic *push* technologies (e.g., cone penetrometer, Geoprobe®, QED HydroPunch®) enable relatively fast screening site characterization which can then be used to design and install a monitoring well network. Indeed, alternatives to conventional monitoring wells are now being considered for some hydrogeologic settings. The ultimate design of any monitoring system should however be based upon adequate site characterization and be consistent with established monitoring objectives.

If the sampling program objectives include accurate assessment of the magnitude and extent of subsurface contamination over time and/or accurate assessment of subsequent remedial performance, then some information regarding plume delineation in three-dimensional space is necessary prior to monitoring well network design and installation. This can be accomplished with a variety of different tools and equipment ranging from hand-operated augers to screening tools mentioned above and large drilling rigs. Detailed information on ground-water flow velocity, direction, and horizontal and vertical variability are essential baseline data requirements. Detailed soil and geologic data are required prior to and during the installation of sampling points. This includes historical as well as detailed soil and geologic logs which accumulate during the site investigation. The use of borehole geophysical techniques is also recommended. With this information (together with other site characterization data) and a clear understanding of sampling

objectives, then appropriate location, screen length, well diameter, slot size, etc. for the monitoring well network can be decided. This is especially critical for new in situ remedial approaches or natural attenuation assessments at hazardous waste sites.

In general, the overall goal of any ground-water sampling program is to collect water samples with no alteration in water chemistry; analytical data thus obtained may be used for a variety of specific monitoring programs depending on the regulatory requirements. The sampling methodology described in this paper assumes that the monitoring goal is to sample monitoring wells for the presence of contaminants and it is applicable whether mobile colloids are a concern or not and whether the analytes of concern are metals (and metalloids) or organic compounds.

## II. Monitoring Objectives and Design Considerations

The following issues are important to consider prior to the design and implementation of any ground-water monitoring program, including those which anticipate using low-flow purging and sampling procedures.

### A. Data Quality Objectives (DQOs)

Monitoring objectives include four main types: detection, assessment, corrective-action evaluation and resource evaluation, along with *hybrid* variations such as site-assessments for property transfers and water availability investigations. Monitoring objectives may change as contamination or water quality problems are discovered. However, there are a number of common components of monitoring programs which should be recognized as important regardless of initial objectives. These components include:

- 1) Development of a conceptual model that incorporates elements of the regional geology to the local geologic framework. The conceptual model development also includes initial site characterization efforts to identify hydrostratigraphic units and likely flow-paths using a minimum number of borings and well completions;
- 2) Cost-effective and well documented collection of high quality data utilizing simple, accurate, and reproducible techniques; and
- 3) Refinement of the conceptual model based on supplementary data collection and analysis.

These fundamental components serve many types of monitoring programs and provide a basis for future efforts that evolve in complexity and level of spatial detail as purposes and objectives expand. High quality, reproducible data collection is a common goal regardless of program objectives.

High quality data collection implies data of sufficient accuracy, precision, and completeness (i.e., ratio of valid analytical results to the minimum sample number called for by the program design) to meet the program objectives. Accuracy depends on the correct choice of monitoring tools and procedures to minimize sample and subsurface disturbance from collection to analysis. Precision depends on the repeatability of sampling and analytical protocols. It can be assured or improved by replication of sample analyses including blanks, field/lab standards and reference standards.

### B. Sample Representativeness

An important goal of any monitoring program is collection of data that is truly representative of conditions at the site. The term *representativeness* applies to chemical and hydrogeologic data collected via wells, borings, piezometers, geophysical and soil gas measurements, lysimeters, and temporary sampling points. It involves a recognition of the statistical variability of individual subsurface physical properties, and contaminant or major ion concentration levels, while explaining extreme values. Subsurface temporal and spatial variability are facts. Good professional practice seeks to maximize representativeness by using proven accurate and reproducible techniques to define limits on the distribution of measurements collected at a site. However, measures of representativeness are dynamic and are controlled by evolving site characterization and monitoring objectives. An evolutionary site characterization model, as shown in Figure 1, provides a systematic approach to the goal of consistent data collection.

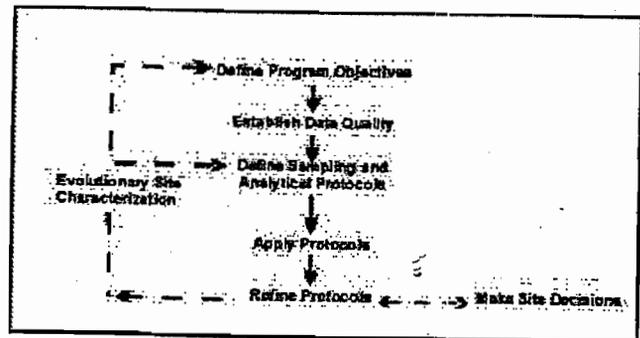


Figure 1. Evolutionary Site Characterization Model

The model emphasizes a recognition of the causes of the variability (e.g., use of inappropriate technology such as using bailers to purge wells; imprecise or operator-dependent methods) and the need to control avoidable errors.

## 1) Questions of Scale

A sampling plan designed to collect representative samples must take into account the potential scale of changes in site conditions through space and time as well as the chemical associations and behavior of the parameters that are targeted for investigation. In subsurface systems, physical (i.e., aquifer) and chemical properties over time or space are not statistically independent. In fact, samples taken in close proximity (i.e., within distances of a few meters) or within short time periods (i.e., more frequently than monthly) are highly auto-correlated. This means that designs employing high-sampling frequency (e.g., monthly) or dense spatial monitoring designs run the risk of redundant data collection and misleading inferences regarding trends in values that aren't statistically valid. In practice, contaminant detection and assessment monitoring programs rarely suffer these *over-sampling* concerns. In corrective-action evaluation programs, it is also possible that too little data may be collected over space or time. In these cases, false interpretation of the spatial extent of contamination or underestimation of temporal concentration variability may result.

## 2) Target Parameters

Parameter selection in monitoring program design is most often dictated by the regulatory status of the site. However, background water quality constituents, purging indicator parameters, and contaminants, all represent targets for data collection programs. The tools and procedures used in these programs should be equally rigorous and applicable to all categories of data, since all may be needed to determine or support regulatory action.

### C. Sampling Point Design and Construction

Detailed site characterization is central to all decision-making purposes and the basis for this characterization resides in identification of the geologic framework and major hydro-stratigraphic units. Fundamental data for sample point location include: subsurface lithology, head-differences and background geochemical conditions. Each sampling point has a proper use or uses which should be documented at a level which is appropriate for the program's data quality objectives. Individual sampling points may not always be able to fulfill multiple monitoring objectives (e.g., detection, assessment, corrective action).

#### 1) Compatibility with Monitoring Program and Data Quality Objectives

Specifics of sampling point location and design will be dictated by the complexity of subsurface lithology and variability in contaminant and/or geochemical conditions. It should be noted that, regardless of the ground-water sampling approach, few sampling points (e.g., wells, drive-points, screened augers) have zones of influence in excess of a few

feet. Therefore, the spatial frequency of sampling points should be carefully selected and designed.

## 2) Flexibility of Sampling Point Design

In most cases *well-point* diameters in excess of 1 7/8 inches will permit the use of most types of submersible pumping devices for low-flow (minimal drawdown) sampling. It is suggested that *short* (e.g., less than 1.6 m) screens be incorporated into the monitoring design where possible so that comparable results from one device to another might be expected. *Short*, of course, is relative to the degree of vertical water quality variability expected at a site.

## 3) Equilibration of Sampling Point

Time should be allowed for equilibration of the well or sampling point with the formation after installation. Placement of well or sampling points in the subsurface produces some disturbance of ambient conditions. Drilling techniques (e.g., auger, rotary, etc.) are generally considered to cause more disturbance than *direct-push* technologies. In either case, there may be a period (i.e., days to months) during which water quality near the point may be distinctly different from that in the formation. Proper development of the sampling point and adjacent formation to remove fines created during emplacement will shorten this water quality *recovery* period.

### III. Definition of Low-Flow Purging and Sampling

It is generally accepted that water in the well casing is non-representative of the formation water and needs to be purged prior to collection of ground-water samples. However, the water in the screened interval may indeed be representative of the formation, depending upon well construction and site hydrogeology. Wells are purged to some extent for the following reasons: the presence of the air interface at the top of the water column resulting in an oxygen concentration gradient with depth, loss of volatiles up the water column, leaching from or sorption to the casing or filter pack, chemical changes due to clay seals or backfill, and surface infiltration.

Low-flow purging, whether using portable or dedicated systems, should be done using pump-intake located in the middle or slightly above the middle of the screened interval. Placement of the pump too close to the bottom of the well will cause increased entrainment of solids which have collected in the well over time. These particles are present as a result of well development, prior purging and sampling events, and natural colloidal transport and deposition. Therefore, placement of the pump in the middle or toward the top of the screened interval is suggested. Placement of the pump at the top of the water column for sampling is only recommended in unconfined aquifers, screened across the water table, where this is the desired sampling point. Low-

flow purging has the advantage of minimizing mixing between the overlying stagnant casing water and water within the screened interval.

### A. Low-Flow Purging and Sampling

Low-flow refers to the velocity with which water enters the pump intake and that is imparted to the formation pore water in the immediate vicinity of the well screen. It does not necessarily refer to the flow rate of water discharged at the surface which can be affected by flow regulators or restrictions. Water level drawdown provides the best indication of the stress imparted by a given flow-rate for a given hydrological situation. The objective is to pump in a manner that minimizes stress (drawdown) to the system to the extent practical taking into account established site sampling objectives. Typically, flow rates on the order of 0.1 - 0.5 L/min are used, however this is dependent on site-specific hydrogeology. Some extremely coarse-textured formations have been successfully sampled in this manner at flow rates to 1 L/min. The effectiveness of using low-flow purging is intimately linked with proper screen location, screen length, and well construction and development techniques. The reestablishment of natural flow paths in both the vertical and horizontal directions is important for correct interpretation of the data. For high resolution sampling needs, screens less than 1 m should be used. Most of the need for purging has been found to be due to passing the sampling device through the overlying casing water which causes mixing of these stagnant waters and the dynamic waters within the screened interval. Additionally, there is disturbance to suspended sediment collected in the bottom of the casing and the displacement of water out into the formation immediately adjacent to the well screen. These disturbances and impacts can be avoided using dedicated sampling equipment, which precludes the need to insert the sampling device prior to purging and sampling.

Isolation of the screened interval water from the overlying stagnant casing water may be accomplished using low-flow minimal drawdown techniques. If the pump intake is located within the screened interval, most of the water pumped will be drawn in directly from the formation with little mixing of casing water or disturbance to the sampling zone. However, if the wells are not constructed and developed properly, zones other than those intended may be sampled. At some sites where geologic heterogeneities are sufficiently different within the screened interval, higher conductivity zones may be preferentially sampled. This is another reason to use shorter screened intervals, especially where high spatial resolution is a sampling objective.

### B. Water Quality Indicator Parameters

It is recommended that water quality indicator parameters be used to determine purging needs prior to sample collection in each well. Stabilization of parameters such as pH, specific conductance, dissolved oxygen, oxida-

tion-reduction potential, temperature and turbidity should be used to determine when formation water is accessed during purging. In general, the order of stabilization is pH, temperature, and specific conductance, followed by oxidation-reduction potential, dissolved oxygen and turbidity. Temperature and pH, while commonly used as purging indicators, are actually quite insensitive in distinguishing between formation water and stagnant casing water; nevertheless, these are important parameters for data interpretation purposes and should also be measured. Performance criteria for determination of stabilization should be based on water-level drawdown, pumping rate and equipment specifications for measuring indicator parameters. Instruments are available which utilize in-line flow cells to continuously measure the above parameters.

It is important to establish specific well stabilization criteria and then consistently follow the same methods thereafter, particularly with respect to drawdown, flow rate and sampling device. Generally, the time or purge volume required for parameter stabilization is independent of well depth or well volumes. Dependent variables are well diameter, sampling device, hydrogeochemistry, pump flow rate, and whether the devices are used in a portable or dedicated manner. If the sampling device is already in place (i.e., dedicated sampling systems), then the time and purge volume needed for stabilization is much shorter. Other advantages of dedicated equipment include less purge water for waste disposal, much less decontamination of equipment, less time spent in preparation of sampling as well as time in the field, and more consistency in the sampling approach which probably will translate into less variability in sampling results. The use of dedicated equipment is strongly recommended at wells which will undergo routine sampling over time.

If parameter stabilization criteria are too stringent, then minor oscillations in indicator parameters may cause purging operations to become unnecessarily protracted. It should also be noted that turbidity is a very conservative parameter in terms of stabilization. Turbidity is always the last parameter to stabilize. Excessive purge times are invariably related to the establishment of too stringent turbidity stabilization criteria. It should be noted that natural turbidity levels in ground water may exceed 10 nephelometric turbidity units (NTU).

### C. Advantages and Disadvantages of Low-Flow (Minimum Drawdown) Purging

In general, the advantages of low-flow purging include:

- samples which are representative of the *mobile* load of contaminants present (dissolved and colloid-associated);
- minimal disturbance of the sampling point thereby minimizing sampling artifacts;
- less operator variability, greater operator control;

- reduced stress on the formation (minimal drawdown);
- less mixing of stagnant casing water with formation water;
- reduced need for filtration and, therefore, less time required for sampling;
- smaller purging volume which decreases waste disposal costs and sampling time;
- better sample consistency; reduced artificial sample variability.

Some disadvantages of low-flow purging are:

- higher initial capital costs,
- greater set-up time in the field,
- need to transport additional equipment to and from the site,
- increased training needs,
- resistance to change on the part of sampling practitioners,
- concern that new data will indicate a *change in conditions* and trigger an *action*.

#### IV. Low-Flow (Minimal Drawdown) Sampling Protocols

The following ground-water sampling procedure has evolved over many years of experience in ground-water sampling for organic and inorganic compound determinations and as such summarizes the authors' (and others) experiences to date (Barcelona et al., 1984, 1994; Barcelona and Helfrich, 1986; Puls and Barcelona, 1989; Puls et al. 1990, 1992; Puls and Powell, 1992; Puls and Paul, 1995). High-quality chemical data collection is essential in ground-water monitoring and site characterization. The primary limitations to the collection of *representative* ground-water samples include: mixing of the stagnant casing and *fresh* screen waters during insertion of the sampling device or ground-water level measurement device; disturbance and resuspension of settled solids at the bottom of the well when using high pumping rates or raising and lowering a pump or bailer; introduction of atmospheric gases or degassing from the water during sample handling and transfer, or inappropriate use of vacuum sampling device, etc.

##### A. Sampling Recommendations

Water samples should not be taken immediately following well development. Sufficient time should be allowed for the ground-water flow regime in the vicinity of the monitoring well to stabilize and to approach chemical equilibrium with the well construction materials. This lag time will depend on site conditions and methods of installation but often exceeds one week.

Well purging is nearly always necessary to obtain samples of water flowing through the geologic formations in the screened interval. Rather than using a general but arbitrary guideline of purging three casing volumes prior to

sampling, it is recommended that an in-line water quality measurement device (e.g., flow-through cell) be used to establish the stabilization time for several parameters (e.g., pH, specific conductance, redox, dissolved oxygen, turbidity) on a well-specific basis. Data on pumping rate, drawdown, and volume required for parameter stabilization can be used as a guide for conducting subsequent sampling activities.

The following are recommendations to be considered before, during and after sampling:

- use low-flow rates (<0.5 L/min), during both purging and sampling to maintain minimal drawdown in the well;
- maximize tubing wall thickness, minimize tubing length;
- place the sampling device intake at the desired sampling point;
- minimize disturbances of the stagnant water column above the screened interval during water level measurement and sampling device insertion;
- make proper adjustments to stabilize the flow rate as soon as possible;
- monitor water quality indicators during purging;
- collect unfiltered samples to estimate contaminant loading and transport potential in the subsurface system.

##### B. Equipment Calibration

Prior to sampling, all sampling device and monitoring equipment should be calibrated according to manufacturer's recommendations and the site Quality Assurance Project Plan (QAPP) and Field Sampling Plan (FSP). Calibration of pH should be performed with at least two buffers which bracket the expected range. Dissolved oxygen calibration must be corrected for local barometric pressure readings and elevation.

##### C. Water Level Measurement and Monitoring

It is recommended that a device be used which will least disturb the water surface in the casing. Well depth should be obtained from the well logs. Measuring to the bottom of the well casing will only cause resuspension of settled solids from the formation and require longer purging times for turbidity equilibration. Measure well depth after sampling is completed. The water level measurement should be taken from a permanent reference point which is surveyed relative to ground elevation.

##### D. Pump Type

The use of low-flow (e.g., 0.1-0.5 L/min) pumps is suggested for purging and sampling all types of analytes. All pumps have some limitation and these should be investigated with respect to application at a particular site. Bailers are inappropriate devices for low-flow sampling.

## 1) General Considerations

There are no unusual requirements for ground-water sampling devices when using low-flow, minimal drawdown techniques. The major concern is that the device give consistent results and minimal disturbance of the sample across a range of low flow rates (i.e., < 0.5 L/min). Clearly, pumping rates that cause minimal to no drawdown in one well could easily cause significant drawdown in another well finished in a less transmissive formation. In this sense, the pump should not cause undue pressure or temperature changes or physical disturbance on the water sample over a reasonable sampling range. Consistency in operation is critical to meet accuracy and precision goals.

## 2) Advantages and Disadvantages of Sampling Devices

A variety of sampling devices are available for low-flow (minimal drawdown) purging and sampling and include peristaltic pumps, bladder pumps, electrical submersible pumps, and gas-driven pumps. Devices which lend themselves to both dedication and consistent operation at definable low-flow rates are preferred. It is desirable that the pump be easily adjustable and operate reliably at these lower flow rates. The peristaltic pump is limited to shallow applications and can cause degassing resulting in alteration of pH, alkalinity, and some volatiles loss. Gas-driven pumps should be of a type that does not allow the gas to be in direct contact with the sampled fluid.

Clearly, bailers and other grab type samplers are ill-suited for low-flow sampling since they will cause repeated disturbance and mixing of stagnant water in the casing and the dynamic water in the screened interval. Similarly, the use of inertial lift foot-valve type samplers may cause too much disturbance at the point of sampling. Use of these devices also tends to introduce uncontrolled and unacceptable operator variability.

Summaries of advantages and disadvantages of various sampling devices are listed in Herzog et al. (1991), U. S. EPA (1992), Parker (1994) and Thumblad (1994).

## E. Pump Installation

Dedicated sampling devices (left in the well) capable of pumping and sampling are preferred over any other type of device. Any portable sampling device should be slowly and carefully lowered to the middle of the screened interval or slightly above the middle (e.g., 1-1.5 m below the top of a 3 m screen). This is to minimize excessive mixing of the stagnant water in the casing above the screen with the screened interval zone water, and to minimize resuspension of solids which will have collected at the bottom of the well. These two disturbance effects have been shown to directly affect the time required for purging. There also appears to be a direct correlation between size of portable sampling devices relative to the well bore and resulting purge volumes and times. The key is to minimize disturbance of water and solids in the well casing.

## F. Filtration

Decisions to filter samples should be dictated by sampling objectives rather than as a fix for poor sampling practices, and field-filtering of certain constituents should not be the default. Consideration should be given as to what the application of field-filtration is trying to accomplish. For assessment of truly dissolved (as opposed to operationally dissolved [i.e., samples filtered with 0.45 µm filters]) concentrations of major ions and trace metals, 0.1 µm filters are recommended although 0.45 µm filters are normally used for most regulatory programs. Alkalinity samples must also be filtered if significant particulate calcium carbonate is suspected, since this material is likely to impact alkalinity titration results (although filtration itself may alter the CO<sub>2</sub> composition of the sample and, therefore, affect the results).

Although filtration may be appropriate, filtration of a sample may cause a number of unintended changes to occur (e.g. oxidation, aeration) possibly leading to filtration-induced artifacts during sample analysis and uncertainty in the results. Some of these unintended changes may be unavoidable but the factors leading to them must be recognized. Deleterious effects can be minimized by consistent application of certain filtration guidelines. Guidelines should address selection of filter type, media, pore size, etc. in order to identify and minimize potential sources of uncertainty when filtering samples.

In-line filtration is recommended because it provides better consistency through less sample handling, and minimizes sample exposure to the atmosphere. In-line filters are available in both disposable (barrel filters) and non-disposable (in-line filter holder, flat membrane filters) formats and various filter pore sizes (0.1-5.0 µm). Disposable filter cartridges have the advantage of greater sediment handling capacity when compared to traditional membrane filters. Filters must be pre-rinsed following manufacturer's recommendations. If there are no recommendations for rinsing, pass through a minimum of 1 L of ground water following purging and prior to sampling. Once filtration has begun, a filter cake may develop as particles larger than the pore size accumulate on the filter membrane. The result is that the effective pore diameter of the membrane is reduced and particles smaller than the stated pore size are excluded from the filtrate. Possible corrective measures include prefiltering (with larger pore size filters), minimizing particle loads to begin with, and reducing sample volume.

## G. Monitoring of Water Level and Water Quality Indicator Parameters

Check water level periodically to monitor drawdown in the well as a guide to flow rate adjustment. The goal is minimal drawdown (<0.1 m) during purging. This goal may be difficult to achieve under some circumstances due to geologic heterogeneities within the screened interval, and may require adjustment based on site-specific conditions and personal experience. In-line water quality indicator parameters should be continuously monitored during purging. The water quality

indicator parameters monitored can include pH, redox potential, conductivity, dissolved oxygen (DO) and turbidity. The last three parameters are often most sensitive. Pumping rate, drawdown, and the time or volume required to obtain stabilization of parameter readings can be used as a future guide to purge the well. Measurements should be taken every three to five minutes if the above suggested rates are used. Stabilization is achieved after all parameters have stabilized for three successive readings. In lieu of measuring all five parameters, a minimum subset would include pH, conductivity, and turbidity or DO. Three successive readings should be within  $\pm 0.1$  for pH,  $\pm 3\%$  for conductivity,  $\pm 10$  mv for redox potential, and  $\pm 10\%$  for turbidity and DO. Stabilized purge indicator parameter trends are generally obvious and follow either an exponential or asymptotic change to stable values during purging. Dissolved oxygen and turbidity usually require the longest time for stabilization. The above stabilization guidelines are provided for rough estimates based on experience.

#### **H. Sampling, Sample Containers, Preservation and Decontamination**

Upon parameter stabilization, sampling can be initiated. If an in-line device is used to monitor water quality parameters, it should be disconnected or bypassed during sample collection. Sampling flow rate may remain at established purge rate or may be adjusted slightly to minimize aeration, bubble formation, turbulent filling of sample bottles, or loss of volatiles due to extended residence time in tubing. Typically, flow rates less than 0.5 L/min are appropriate. The same device should be used for sampling as was used for purging. Sampling should occur in a progression from least to most contaminated well, if this is known. Generally, volatile (e.g., solvents and fuel constituents) and gas sensitive (e.g.,  $\text{Fe}^{2+}$ ,  $\text{CH}_4$ ,  $\text{H}_2\text{S}/\text{HS}^-$ , alkalinity) parameters should be sampled first. The sequence in which samples for most inorganic parameters are collected is immaterial unless filtered (dissolved) samples are desired. Filtering should be done last and in-line filters should be used as discussed above. During both well purging and sampling, proper protective clothing and equipment must be used based upon the type and level of contaminants present.

The appropriate sample container will be prepared in advance of actual sample collection for the analytes of interest and include sample preservative where necessary. Water samples should be collected directly into this container from the pump tubing.

Immediately after a sample bottle has been filled, it must be preserved as specified in the site (QAPP). Sample preservation requirements are based on the analyses being performed (use site QAPP, FSP, RCRA guidance document [U. S. EPA, 1992] or EPA SW-846 [U. S. EPA, 1982]). It may be advisable to add preservatives to sample bottles in a controlled setting prior to entering the field in order to reduce the chances of improperly preserving sample bottles or

introducing field contaminants into a sample bottle while adding the preservatives.

The preservatives should be transferred from the chemical bottle to the sample container using a disposable polyethylene pipet and the disposable pipet should be used only once and then discarded.

After a sample container has been filled with ground water, a Teflon™ (or tin)-lined cap is screwed on tightly to prevent the container from leaking. A sample label is filled out as specified in the FSP. The samples should be stored inverted at 4°C.

Specific decontamination protocols for sampling devices are dependent to some extent on the type of device used and the type of contaminants encountered. Refer to the site QAPP and FSP for specific requirements.

#### **I. Blanks**

The following blanks should be collected:

- (1) field blank: one field blank should be collected from each source water (distilled/deionized water) used for sampling equipment decontamination or for assisting well development procedures.
- (2) equipment blank: one equipment blank should be taken prior to the commencement of field work, from each set of sampling equipment to be used for that day. Refer to site QAPP or FSP for specific requirements.
- (3) trip blank: a trip blank is required to accompany each volatile sample shipment. These blanks are prepared in the laboratory by filling a 40-mL volatile organic analysis (VOA) bottle with distilled/deionized water.

#### **V. Low-Permeability Formations and Fractured Rock**

The overall sampling program goals or sampling objectives will drive how the sampling points are located, installed, and choice of sampling device. Likewise, site-specific hydrogeologic factors will affect these decisions. Sites with very low permeability formations or fractures causing discrete flow channels may require a unique monitoring approach. Unlike water supply wells, wells installed for ground-water quality assessment and restoration programs are often installed in low water-yielding settings (e.g., clays, silts). Alternative types of sampling points and sampling methods are often needed in these types of environments, because low-permeability settings may require extremely low-flow purging (<0.1 L/min) and may be technology-limited. Where devices are not readily available to pump at such low flow rates, the primary consideration is to avoid dewatering of

the well screen. This may require repeated recovery of the water during purging while leaving the pump in place within the well screen.

Use of low-flow techniques may be impractical in these settings, depending upon the water recharge rates. The sampler and the end-user of data collected from such wells need to understand the limitations of the data collected; i.e., a strong potential for underestimation of actual contaminant concentrations for volatile organics, potential false negatives for filtered metals and potential false positives for unfiltered metals. It is suggested that comparisons be made between samples recovered using low-flow purging techniques and samples recovered using passive sampling techniques (i.e., two sets of samples). Passive sample collection would essentially entail acquisition of the sample with no or very little purging using a dedicated sampling system installed within the screened interval or a passive sample collection device.

#### **A. Low-Permeability Formations (<0.1 L/min recharge)**

##### **1. Low-Flow Purging and Sampling with Pumps**

- a. "portable or non-dedicated mode" - Lower the pump (one capable of pumping at <0.1 L/min) to mid-screen or slightly above and set in place for minimum of 48 hours (to lessen purge volume requirements). After 48 hours, use procedures listed in Part IV above regarding monitoring water quality parameters for stabilization, etc., but do not dewater the screen. If excessive drawdown and slow recovery is a problem, then alternate approaches such as those listed below may be better.
- b. "dedicated mode" - Set the pump as above at least a week prior to sampling; that is, operate in a dedicated pump mode. With this approach significant reductions in purge volume should be realized. Water quality parameters should stabilize quite rapidly due to less disturbance of the sampling zone.

##### **2. Passive Sample Collection**

Passive sampling collection requires insertion of the device into the screened interval for a sufficient time period to allow flow and sample equilibration before extraction for analysis. Conceptually, the extraction of water from low yielding formations seems more akin to the collection of water from the unsaturated zone and passive sampling techniques may be more appropriate in terms of obtaining "representative" samples. Satisfying usual sample volume requirements is typically a problem with this approach and some latitude will be needed on the part of regulatory entities to achieve sampling objectives.

#### **B. Fractured Rock**

In fractured rock formations, a low-flow to zero purging approach using pumps in conjunction with packers to isolate the sampling zone in the borehole is suggested. Passive multi-layer sampling devices may also provide the most "representative" samples. It is imperative in these settings to identify flow paths or water-producing fractures prior to sampling using tools such as borehole flowmeters and/or other geophysical tools.

After identification of water-bearing fractures, install packer(s) and pump assembly for sample collection using low-flow sampling in "dedicated mode" or use a passive sampling device which can isolate the identified water-bearing fractures.

#### **VI. Documentation**

The usual practices for documenting the sampling event should be used for low-flow purging and sampling techniques. This should include, at a minimum: information on the conduct of purging operations (flow-rate, drawdown, water-quality parameter values, volumes extracted and times for measurements), field instrument calibration data, water sampling forms and chain of custody forms. See Figures 2 and 3 and "Ground Water Sampling Workshop - A Workshop Summary" (U. S. EPA, 1995) for example forms and other documentation suggestions and information. This information coupled with laboratory analytical data and validation data are needed to judge the "useability" of the sampling data.

#### **VII. Notice**

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## LOW-FLOW PURGING AND SAMPLING/MICROPURGING

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**APPENDIX IV**  
**Disposal Manifests**

**SOIL MANIFESTS**  
**PARKING LOT SOIL - EXCAVATIONS 1-4**



115 JACOPUS AVE  
SOUTH KEARNY  
NJ 07032  
(973) 344-4004

CUSTOMER # 990001  
CUSTOMER ~~ALLIED WASTE INC.~~  
CONTACT ~~STU BERRY~~  
PHONE ~~516-867-6452~~

JOB SITE ~~CDI 2151 LTD~~  
24-10 44 ROAD  
LONG ISLAND CITY  
NY 10000  
EPA ID. # NYR000088377  
ZONE BE

DRIVER *Ronald Campbell*

RECEIVED BY: [Signature]  
DATE: [Blank]

WASTE: [Blank]  
DATE RECEIVED: [Blank]  
NUMBER OF DRUMS/GALS/YARDS: [Blank]

PULL  PICK-UP  PULL/REPLACE  PUMP TANK  OTHER  
 DELIVER  INWITH  DELIVER/WAIT & PULL  PUMP DRUMS

PURCHASE ORDER # 3036

CLEAN EARTH TO PROVIDE	YES	NO	#	CLEAN EARTH TO PROVIDE	YES	NO	#	CLEAN EARTH TO PROVIDE	YES	NO	#
MANIFEST	Y			LINER		N		LIFT		N	
HAZ LABEL	Y			MT. DRUM		N		XTRA HOSE		N	
CL LABEL	Y			OVERPACK		N		HELPER		N	

DEPARTED BY: [Blank] ARRIVED BY: [Blank] DEPARTED TIME: [Blank] ARRIVED TIME: [Blank]

NET WEIGHT: [Blank]  
REQ. E.T.A. [Blank] POS. E.T.A. [Blank]

NO. AND TYPES CONT.	WASTE DESCRIPTION	APP.#	PRC.#	NO. AND TYPES CONT.	WASTE DESCRIPTION	APP.#	PRC.#
I 20.00 YD	LEAD SOIL D008	201		III			
II				IV			

COMMENTS: J&D DWL  
STE J & D TRUCKING INC. TRANSPORTING FOR B&W SCHEDULED DATE 02/13/03

DRIVER SIGNATURE: [Blank] PRINTED NAME: [Blank] DATE: [Blank]



State of New Jersey  
 Department of Environmental Protection  
 Hazardous Waste Regulation Program  
 Manifest Section



P.O. Box 414, Trenton, NJ 08625-0414 EMERGENCY CONTACT: 800-966-3478

4134068

Please type or print in block letters. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved.

OMB No. 2050-0039.

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator's US EPA ID No. NYR000008837788820		Manifest Document No.		2. Page 1 of 1		information in the shaded areas is not required by Federal law.					
3. Generator's Name and Mailing Address CDI 21ST LIC, LLC 525 NORTHERN BOULEVARD GREAT NECK NY 11021						A. State Manifest Document Number NJ 4134068							
4. Generator's Phone (201) 512-1244						B. State Generator's ID (Gen. Site Address) 21-16 44 ROAD LONG ISLAND CITY NY 10000							
5. Transporter 1 Company Name J & D TRUCKING INC.				6. US EPA ID Number NJR0000029967		C. State Trans. ID-N:IDEP 50183		Decal No. - 088837					
7. Transporter 2 Company Name						8. US EPA ID Number		D. Transporter's Phone (609) 691-5145					
9. Designated Facility Name and Site Address CLEAN EARTH OF NORTH JERSEY, INC. 105 JACOBUS AVENUE SOUTH KEARNY NJ 07032						10. US EPA ID Number NJID991291105		E. State Trans. ID-N:IDEP					
11. US DOT Description (Including Proper Shipping Name, Hazard Class or Division, ID Number and Packing Group) HM a. X RQ HAZARDOUS WASTE SOLID, NOS (EPA LEAD) 9 NA 3077 PKG: III						12. Containers No. Type		13. Total Quantity EST		14. Unit W/Vol		Waste No. DOT 010108	
J. Additional Descriptions for Materials Listed Above E/S ALSO DOGS; 100% SOIL						K. Handling Status for Wastes Listed Above COF STABILIZATION							
15. Special Handling Instructions and Additional Information (a)													
16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.  If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable, and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.													
Printed/Typed Name AS AGENT FOR FPSS OF LIC SEAN GROSZKOWSKI				Signature		Month Day Year 02/13/03							
17. Transporter 1 Acknowledgement of Receipt of Materials Printed/Typed Name Boyd Campbell				Signature		Month Day Year 02/13/03							
18. Transporter 2 Acknowledgement of Receipt of Materials Printed/Typed Name				Signature		Month Day Year							
19. Discrepancy Indication Space RECEIVED PENDING MANIFEST REVIEW AND QUALITY CONTROL 502606													
20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19. Printed/Typed Name				Signature		Month Day Year 02/13/03							

SIGNATURE AND INFORMATION MUST BE LEGIBLE ON ALL COPIES

Emergency occurred in and the N.J. Dept. of Environmental Protection. (609) 292-7172

GENERATOR

TRANSPORTER

FACILITY

NJ04154UB8



IN

GENERATOR *CDT*

MAN. NO. *4134068*

TRANSPORTER *JTD*

VEHICLE ID. *17*

DRIVER ON OFF

REMARKS:

*RT 88820*

**WEIGH-TRONIX®**



76540 LB

01:43 PM 02/13/03

OUT

26280 LB

02:02 PM 02/13/03

*50260*

WEIGHER

*50260*

115 JACOBUS AVE  
SOUTH KEARNY  
NJ 07032  
(973) 344-4004

CUSTOMER # 111111  
CUSTOMER BELLE WASTE INC.  
CONTACT BOB BERRY  
PHONE 516-357-7472

JOB SITE 111111  
111111 ROAD  
LONG ISLAND CITY  
NY 10000

DIVER

EPA ID. # NYR000000000  
ZONE BE

IN  
OUT

MANIFEST  
NUMBER OF  
DRUMS/GALS/YARDS

- PULL
- PICK-UP
- PULL/REPLACE
- PUMP TANK
- OTHER
- DELIVER
- IN/WITH
- DELIVER/WAIT & PULL
- PUMP DRUMS

PURCHASE ORDER # 2056

CLEAN EARTH TO PROVIDE	YES	NO	#	CLEAN EARTH TO PROVIDE	YES	NO	#	CLEAN EARTH TO PROVIDE	YES	NO	#
MANIFEST				LINER				LIFT			
H Z LABEL				MT. DRUM				XTRA HOSE			
T LABEL				OVERPACK				HELPER			

NET WEIGHT

AM  
PM

REQ. E.T.A.  
PCS. E.T.A.

NO. AND TYPES CONT.	WASTE DESCRIPTION	APP.#	PRC.#	NO. AND TYPES CONT.	WASTE DESCRIPTION	APP.#	PRC.#
I	LEAD COIL			III			
II				IV			

COMMENTS: 100 LBS  
SCHEDULED DATE 02/13/03

OPERATIONS DEPARTMENT SIGNOFF: PRINTED NAME: DATE:

NO. OF CONTAINERS	CONT. TYPE	PROPER D.O.T. SHIPPING NAME	WASTE TYPE	DISPOSAL SITE(S)	T <sub>RA</sub>	MANIFEST # (S)	DISPOSAL SITE(S)	T <sub>RA</sub>	MANIFEST # (S)
A		NO HAZARDOUS WASTE SOLID, HUS	D001						
COMPLETED ON: BY:									
B									
COMPLETED ON: BY:									
C									
COMPLETED ON: BY:									
D									
COMPLETED ON: BY:									

DATE COMPLETED: OPERATIONS DEPARTMENT SIGNOFF:



116 JACOBUS AVE  
SOUTH KEARNY  
NJ 07032  
(973) 344-4004

CUSTOMER # 25001  
CUSTOMER ALLIANT WASTE INTL.  
CONTACT JIM WELBY  
PHONE 973-344-4004

JOB SITE

1000 ISLAND CREEK

RIVER DAN WOODS

EPA ID. #

ZONE

IN	OUT	MANIFESTS	DATE RECEIVED
		NUMBER OF CIRCLES ONLY	DRUMS/GALS/YARDS

- PULL     PICK-UP     PULL/REPLACE     PUMP TANK     OTHER  
 DELIVER     INWITH     DELIVER/WAIT & PULL     PUMP DRUMS

OTHER

PURCHASE ORDER # 5036

CLEAN EARTH TO PROVIDE	YES			NO			#	CLEAN EARTH TO PROVIDE	YES			NO			#	CLEAN EARTH TO PROVIDE	YES			NO			#
	Y	N		Y	N				Y	N		Y	N				Y	N					
MANIFEST	Y							LINER								LIFT							
1" Z LABEL	Y							MT. DRUM								XTRA HOSE							
1" T LABEL	Y							OVERPACK								HELPER							

REQ. E.T.A.

PCS. E.T.A.

NO. AND TYPES CONT.	WASTE DESCRIPTION	APP.#	PRC.#	NO. AND TYPES CONT.	WASTE DESCRIPTION	APP.#	PRC.#
I 20.00 YD	LEAD SOIL FOOB	101		III			
II				IV			

COMMENTS: J&D DWL

WASTE

J & D TRUCKING INC. TRANSPORTING FOR S&W

SCHEDULED DATE 02/13/03

SIGNATURE	PRINTED NAME	DATE
-----------	--------------	------



State of New Jersey  
Department of Environmental Protection  
Hazardous Waste Regulation Program  
Manifest Section



P.O. Box 414, Trenton, NJ 08625-0414 EMERGENCY CONTACT: 800-966-3478

4134070

Please type or print in block letters. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved.

OMB No. 2050-0039.

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator's US EPA ID No. NYR000008837788822		Manifest Document No.		2. Page 1 of 1		Information in the shaded areas is not required by Federal law.	
3. Generator's Name and Mailing Address CDI 21ST LIC, LLC 525 NORTHERN BOULEVARD GREAT NECK NY 11021						A. State Manifest Document Number NJA 4134070			
4. Generator's Phone (201) 512-1244						B. State Generator's ID (Gen. Site Address) 21-16 44 ROAD LONG ISLAND CITY NY 10000			
5. Transporter 1 Company Name J & D TRUCKING INC.						6. US EPA ID Number NJR0000029967		C. State Trans. ID-NJDEP 50181	
7. Transporter 2 Company Name						8. US EPA ID Number		Decal No. - 06046	
9. Designated Facility Name and Site Address CLEAN EARTH OF NORTH JERSEY, INC. 105 JACOBUS AVENUE SOUTH KEARNY, NJ 07032						10. US EPA ID Number NJ0991291105		D. Transporter's Phone (609) 591-5145	
11. US DOT Description (Including Proper Shipping Name, Hazard Class or Division, ID Number and Packing Group) HM a. X RQ HAZARDOUS WASTE SOLID, NOS (EPA LEAD) 9 NA 3077 PKG: III						12. Containers No. Type X X 1 D T		13. Total Quantity 20 T	
								14. Unit Wt/Vol P D O O B	
15. Special Handling Instructions and Additional Information (a) E/S ALSO D008; 100% SOIL						CENJ APP.990001 (a):201		K. Handling Codes for Wastes Listed Above T04 STABILIZATION	
16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.  If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.						Printed/Typed Name AS AGENT FOR FPSS OF LEL SEAN GROSZKOWSKI		Signature <i>[Signature]</i>	
17. Transporter 1 Acknowledgement of Receipt of Materials						Printed/Typed Name DANIEL WOOD		Signature <i>[Signature]</i>	
18. Transporter 2 Acknowledgement of Receipt of Materials						Printed/Typed Name		Signature	
19. Discrepancy Indication Space SECTION 13 ITEM A SHOULD READ RECEIVED PENDING MANIFEST SECTION 14 ITEM A SHOULD READ WQ AND QUALITY CONTROL								51940/b	
20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.						Printed/Typed Name <i>[Signature]</i>		Signature <i>[Signature]</i>	

NJ04154070

Emergency or spill immediately call this state the emergency occurred in and the N.J. Dept. of Environmental Protection. (609) 292-7172

Reorder From: **PRINTSTIX** - 502 SOUTH AVENUE, GARWOOD, NJ 07027 - (908) 928-1222 #3405

①

JDD  
#18



IN

GENERATOR CDT

MAN. NO. NJA 4134023

73340 LB

TRANSPORTER JD

09:06 AM 02/13/03

VEHICLE ID. 18

DRIVER ON OFF

OUT

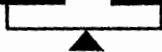
REMARKS:

RT 88824

25580 LB

10:02 AM 02/13/03

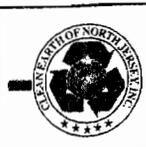
**WEIGH-TRONIX®**



47780

WEIGHER

47780.



115 JACOBUS AVE  
SOUTH KEARNY  
NJ 07032  
(973) 344-4004

CUSTOMER # 98001  
CUSTOMER ALLIANT ENERGY INC.  
CONTACT BOB BERRY  
PHONE 973-344-6052

JOB SITE 10000  
1-16 74 ROAD  
LONG ISLAND CITY  
NY 10000

EPA ID. # NJ-PUR-0000000000 ZONE 8F

PULL     PICK-UP     PULL/REPLACE     PUMP TANK     OTHER  
 DELIVER     IN/WITH     DELIVER/WAIT & PULL     PUMP DRUMS

CLEAN EARTH TO PROVIDE	YES	NO	#	CLEAN EARTH TO PROVIDE	YES	NO	#	CLEAN EARTH TO PROVIDE	YES	NO	#
MANIFEST				LINER				LIFT			
MT LABEL				MT. DRUM				XTRA HOSE			
CL LABEL				OVERPACK				HELPER			

MANIFEST DATE RECEIVED  
 NUMBER OF DRUMS/GALS/YARDS  
 PURCHASE ORDER # 3056  
 GROSS WEIGHT  
 NET WEIGHT  
 REQ. E.T.A.    POS. E.T.A.

ARRIVED AT SITE    DEPARTED SITE    ARRIVED AT S & W    DEPARTED S & W

NO. AND TYPES CONT.	WASTE DESCRIPTION	APP.#	PRC.#	NO. AND TYPES CONT.	WASTE DESCRIPTION	APP.#	PRC.#
I	LEAD SOIL		III				
II			IV				

COMMENTS:   
 SCHEDULED DATE 02/13/03  
 T & E TRUCKING INC. TRANSPORTING FOR S&W

UNDETERMINED/ABERRANT BEHAVIOR THE ABOVE SERVICE INFORMATION IS CORRECT  
 SIGNATURE    PRINTED NAME    DATE

NO. OF CONTAINERS	CONT. TYPE	PROPER D.O.T. SHIPPING NAME	WASTE TYPE	DISPOSAL SITE(S)	T <sub>RA</sub>	MANIFEST # (S)	DISPOSAL SITE(S)	T <sub>RA</sub>	MANIFEST # (S)
A		PO HAZARDOUS WASTE SOLID, NOS	1000						
COMPLETED ON:    BY:									
COMPLETED ON:    BY:									
COMPLETED ON:    BY:									
COMPLETED ON:    BY:									

DATE COMPLETED:    OPERATIONS DEPARTMENT SIGNOFF:



115 JACOBUS AVE  
SOUTH KEARNY  
NJ 07032  
(973) 344-4004

CUSTOMER #  
CUSTOMER  
CONTACT  
PHONE

JOB SITE  
EPA ID. # \_\_\_\_\_ ZONE # \_\_\_\_\_

DRIVER *ace*

TRAILER # \_\_\_\_\_

MANIFEST # \_\_\_\_\_ DATE RECEIVED \_\_\_\_\_  
NUMBER OF DRUMS/GALS/YARDS \_\_\_\_\_

PULL  PICK-UP  PULL/REPLACE  PUMP TANK  OTHER  
 DELIVER  IN/WITH  DELIVER/WAIT & PULL  PUMP DRUMS

PURCHASE ORDER # 3056

CLEAN EARTH TO PROVIDE	YES	NO	#	CLEAN EARTH TO PROVIDE	YES	NO	#	CLEAN EARTH TO PROVIDE	YES	NO	#
MANIFEST				LINER				LIFT			
MT LABEL				MT. DRUM				XTRA HOSE			
CT LABEL				OVERPACK				HELPER			

NET WEIGHT \_\_\_\_\_  
GROSS WEIGHT \_\_\_\_\_  
NET WEIGHT \_\_\_\_\_

ARRIVED AT \_\_\_\_\_ DEPARTED AT \_\_\_\_\_  
ARRIVED AT \_\_\_\_\_ DEPARTED AT \_\_\_\_\_

REQ. E.T.A. \_\_\_\_\_ POS. E.T.A. \_\_\_\_\_

NO. AND TYPES CONT.	WASTE DESCRIPTION	APP.#	PRC.#	NO. AND TYPES CONT.	WASTE DESCRIPTION	APP.#	PRC.#
I 20.00 YD	LEAD SOIL DOOB			III			
II				IV			

COMMENTS: J&D DWL  
SITE J & D TRUCKING INC. TRANSPORTING FOR S&U SCHEDULED DATE 02/13/05

WINDRISKING ADDRESS FROM THE SERVICE INFORMATION IS CORRECT  
PRINTED NAME \_\_\_\_\_ DATE \_\_\_\_\_



State of New Jersey  
Department of Environmental Protection  
Hazardous Waste Regulation Program  
Manifest Section



P.O. Box 414, Trenton, NJ 08625-0414 EMERGENCY CONTACT: 800-966-3478

Please type or print in block letters. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039.

<b>UNIFORM HAZARDOUS WASTE MANIFEST</b>		1. Generator's US EPA ID No. NYR000008837788823		Manifest Document No.		2. Page 1 of 1		Information in the shaded areas is not required by Federal law.					
3. Generator's Name and Mailing Address CDI 21ST LIC, LLC 525 NORTHERN BOULEVARD GREAT NECK NY 11021						A. State Manifest Document Number NJ 4134072							
4. Generator's Phone (201) 512-1244						B. State Generator ID (Gen. Site Address) 21-16 44 ROAD LONG ISLAND CITY NY 10000							
5. Transporter 1 Company Name J & D TRUCKING INC.						C. State Trans. ID-NJDEF 50181							
6. US EPA ID Number NJR0000029967						Decal No. 080854							
7. Transporter 2 Company Name						D. Transporter's Phone (609-691-5145)							
8. US EPA ID Number						E. State Trans. ID-NJDEF							
9. Designated Facility Name and Site Address CLEAN EARTH OF NORTH JERSEY, INC. 105 JACOBUS AVENUE SOUTH KEARNY, NJ 07032						10. US EPA ID Number NJID9911291105							
11. US DOT Description (Including Proper Shipping Name, Hazard Class or Division, ID Number and Packing Group) HM a. X RQ HAZARDOUS WASTE SOLID, NOS (EPA LEAD) 9 NA 3077 PKG: III						12. Containers No. Type		13. Total Quantity		14. Unit W/Vol		15. Waste No.	
						XX 1 D T		20 4		D O D 8			
J. Additional Descriptions for Materials Listed Above E/S ALSO D008; 100% SOIL						K. Handling Codes for Wastes Listed Above 704 a. STABILIZATION							
15. Special Handling Instructions and Additional Information (a)						AG 700-A NJ							
16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations. If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable, and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.													
Printed/Typed Name AS AGENT FOR FPSS OR LIC SEAN GROSZKOWSKI				Signature				Month Day Year 02/13/03					
17. Transporter 1 Acknowledgement of Receipt of Materials Printed/Typed Name Calvin Mantley				Signature				Month Day Year 02/13/03					
18. Transporter 2 Acknowledgement of Receipt of Materials Printed/Typed Name				Signature				Month Day Year					
19. Discrepancy Indication Space <b>RECEIVED PENDING MANIFEST REVIEW AND QUALITY CONTROL</b>													
20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19. Printed/Typed Name Kay Muroka				Signature				Month Day Year 02/13/03					

In case of an emergency or spill immediately call the state the emergency occurred in and the N.J. Dept. of Environmental Protection. (609) 292-7172

GENERATOR

TRANSPORTER

FACILITY

NJ4134072



IN

GENERATOR *CDI*

66700 LB

MAN. NO. *4134072*

02:32 PM 02/13/03

TRANSPORTER *JAD*

*782000*

VEHICLE ID. *5*

*02:32 PM 02/13/03*

DRIVER ON *OFF*

OUT

REMARKS:

24930 LB

*RT 88823*

10:51 AM 02/13/03

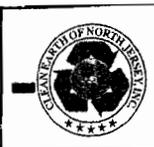
**WEIGH-TRONIX®**



*41720*

WEIGHER

*41720.*



115 JACOBUS AVE  
SOUTH KEARNY  
NJ 07032  
(973) 344-4004

CUSTOMER #  
CUSTOMER  
CONTACT  
PHONE

JOB SITE  
LONG ISLAND CITY

TRAILER #  
IN  
OUT

EPA ID. #  
ZONE

PULL  PICK-UP  PULL/REPLACE  PUMP TANK  OTHER  
 DELIVER  IN/WITH  DELIVER/WAIT & PULL  PUMP DRUMS

MANIFEST #  
DATE RECEIVED  
NUMBER OF  
DRUMS/GALS/YARDS  
OTHER

PURCHASE ORDER # 3056

CLEAN EARTH TO PROVIDE	YES	NO	#	CLEAN EARTH TO PROVIDE	YES	NO	#	CLEAN EARTH TO PROVIDE	YES	NO	#
MANIFEST				LINER				LIFT			
HAZ LABEL				MT. DRUM				XTRA HOSE			
HAZ LABEL				OVERPACK				HELPER			

WEIGHT  
GROSS WEIGHT  
TRAILER WEIGHT  
NET WEIGHT

DEPARTED (M) (S) (M) (S) ARRIVED (M) (S) (M) (S)  
 AM  PM  AM  PM

REQ. E.T.A. POS. E.T.A.

NO. AND TYPES CONT.	WASTE DESCRIPTION	APP.#	PRC.#	NO. AND TYPES CONT.	WASTE DESCRIPTION	APP.#	PRC.#
I	LEAD BATTERY	01		III			
II				IV			

COMMENTS:   
 WASTE TRANSPORTING INC. TRANSPORTING FOR SCW SCHEDULED DATE 02/15/03

SIGNATURE: \_\_\_\_\_ PRINTED NAME: \_\_\_\_\_ DATE: \_\_\_\_\_

NO. OF CONTAINERS	CONT. TYPE	PROPER D.O.T. SHIPPING NAME	WASTE TYPE	DISPOSAL SITE(S)	T <sub>RA</sub>	MANIFEST # (S)	DISPOSAL SITE(S)	T <sub>RA</sub>	MANIFEST # (S)
A		HAZARDOUS WASTE SOLID, NON	D004						
COMPLETED ON: _____ BY: _____									
B									
COMPLETED ON: _____ BY: _____									
C									
COMPLETED ON: _____ BY: _____									
D									
COMPLETED ON: _____ BY: _____									

DATE COMPLETED: \_\_\_\_\_ OPERATIONS DEPARTMENT SIGNOFF: \_\_\_\_\_

115 JACOBUS AVE  
SOUTH KEARNY  
NJ 07032  
(973) 344-4004

CUSTOMER #  
CUSTOMER ALLIANT WASTE INC.  
CONTACT  
PHONE

JOB SITE  
21-15 40 ROAD  
LORD ISLAND CITY  
NY 10040

LEACH

EPA ID. # ZONE

IN  
OUT

MANIFEST  
NUMBER OF  
CIRCLE ONE DRUMS GALS YARDS

PULL  PICK-UP  PULL/REPLACE  PUMP TANK  OTHER  
 DELIVER  WITH  DELIVER/WAIT & PULL  PUMP DRUMS

OTHER: PURCHASE ORDER # 3056

CLEAN EARTH TO PROVIDE	YES	NO	#	CLEAN EARTH TO PROVIDE	YES	NO	#	CLEAN EARTH TO PROVIDE	YES	NO	#
MANIFEST				LINER				LIFT			
H LABEL				MT. DRUM				XTRA HOSE			
D LABEL				OVERPACK				HELPER			

DATE RECEIVED  
GROSS WEIGHT  
TARE WEIGHT  
NET WEIGHT

DEPARTED AT  
ARRIVED AT

REQ. E.T.A. POS. E.T.A.

NO. AND TYPES CONT.	WASTE DESCRIPTION	APP.#	PRC.#	NO. AND TYPES CONT.	WASTE DESCRIPTION	APP.#	PRC.#
20.00 YD	LEAD SOIL D008	01	III				
			IV				

COMMENTS: J&D DWL  
SITE J & D TRUCKING INC. TRANSPORTING FOR S&W SCHEDULED DATE 02/13/03

UNDESIGNED AREAS THAT THE ABOVE SERVICE INFORMATION IS CORRECT  
SIGNATURE DATE

State of New Jersey  
 Department of Environmental Protection  
 Hazardous Waste Regulation Program  
 Manifest Section

P.O. Box 414, Trenton, NJ 08625-0414 **EMERGENCY CONTACT: 800-966-3478**

Use type or print in block letters. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039.

<b>UNIFORM HAZARDOUS WASTE MANIFEST</b>		1. Generator's US EPA ID No. NJ R 0 0 0 0 6 6 3 7 7 8 8 8 2 4		Manifest Document No. 24		2. Page 1 of 1		Information in the shaded areas is not required by Federal law.			
3. Generator's Name and Mailing Address <b>CDI 21ST LLC, 525 NORTHERN BOULEVARD GREAT NECK NY 11021</b>				A. State Manifest Document Number <b>NJA 4134073</b>		B. State Generator ID Number <b>21-05-01-0001</b>		C. State Generator Address <b>LONG ISLAND CDR</b>			
4. Generator's Phone (201) 512-1244		6. US EPA ID Number NJ R 0 0 0 0 2 9 9 6 7		C. State Transfer ID Number DECLINE		D. Transfer Date		E. Transfer Status			
5. Transporter 1 Company Name <b>J &amp; D TRUCKING INC.</b>		8. US EPA ID Number		F. Transfer Facility		G. State Facility ID		H. Facility's Phone			
7. Transporter 2 Company Name		10. US EPA ID Number		I. Transfer Date		J. Transfer Status		K. Handling Code			
9. Designated Facility Name and Site Address <b>CLEAN EARTH OF NORTH JERSEY, INC. 105 JACOBUS AVENUE SOUTH KEARNY, NJ 07032</b>				11. US DOT Description (Including Proper Shipping Name, Hazard Class or Division, ID Number and Packing Group) HM a. <b>X</b> <b>NO HAZARDOUS WASTE SOLID, NOS (EPA LEAD) 9 NA 3077 PKG: III</b>		12. Containers No. Type		13. Total Quantity		14. Unit Wt/Vol	
				X X 1 0		X X X 2 0		T X			
b.											
c.											
d.											
15. Special Handling Instructions and Additional Information				K. Handling Code		L. Manifest Date		M. Manifest Time			
16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.  If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.				N. Manifest Date		O. Manifest Time		P. Manifest Location			
Printed/Typed Name <b>SEAN GROSEWSKI</b>		Signature 		Month Day Year <b>02/13/03</b>		17. Transporter 1 Acknowledgement of Receipt of Materials		Signature 			
Printed/Typed Name <b>CENCA E.L.</b>		Signature 		Month Day Year <b>02/13/03</b>		18. Transporter 2 Acknowledgement of Receipt of Materials		Signature 			
Printed/Typed Name		Signature		Month Day Year		19. Discrepancy Indication Space		RECEIVED PENDING MANIFEST REVIEW AND QUALITY CONTROL. 47780/b			
Printed/Typed Name <b>Ryan Mrozka</b>		Signature 		Month Day Year <b>02/13/03</b>		20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.					

GENERATOR

NJA 4134073

①

JDD  
#18



IN

GENERATOR CDT

MAN. NO. ~~NJA~~ 4134023

73340 LB

TRANSPORTER JD

09:06 AM 02/13/03

VEHICLE ID. 18

DRIVER ON OFF

OUT

REMARKS:

RT 88824

25560 LB

10:02 AM 02/13/03

**WEIGH-TRONIX®**



47780

WEIGHER

47780.





115 JACOBUS AVE  
SOUTH KEARNY  
NJ 07032  
(973) 344-4004

CUSTOMER #  
CUSTOMER  
CONTACT  
PHONE

JOB SITE  
EPA ID. #  
ZONE

DRIVER *CEYLA*

TRAILER #  
VIN

MANIFEST  
NO. OF DRUMS/GALS  
APDS

- PULL  PICK-UP  PULL/REPLACE  PUMP TANK  OTHER
- DELIVER  IN/WITH  DELIVER/WAIT & PULL  PUMP DRUMS

PURCHASE ORDER # *3056*

CLEAN EARTH TO PROVIDE	YES		NO		#	CLEAN EARTH TO PROVIDE	YES		NO		#	CLEAN EARTH TO PROVIDE	YES		NO		#
MANIFEST						LINER						LIFT					
P Z LABEL						MT. DRUM						XTRA HOSE					
T LABEL						OVERPACK						HELPER					

NO. OF DRUMS/GALS	APDS

DEPARTED 3:10 PM ARRIVED 4:05 PM DEPARTED 4:15 PM ARRIVED 5:00 PM

REQ. E.T.A. POS. E.T.A.

NO. AND TYPES CONT.	WASTE DESCRIPTION	APP.#	PRC.#	NO. AND TYPES CONT.	WASTE DESCRIPTION	APP.#	PRC.#
I 20.00 YD	LEAD BATT DOOR			III			
II				IV			

COMMENTS: *J&D DM*

J & D TRUCKING INC. TRANSPORTING FOR S&W

SCHEDULED DATE 02/13/93

CUSTOMER SIGNATURE \_\_\_\_\_ DRIVER NAME \_\_\_\_\_ DATE \_\_\_\_\_



State of New Jersey  
 Department of Environmental Protection  
 Hazardous Waste Regulation Program  
 Manifest Section



P.O. Box 414, Trenton, NJ 08625-0414 EMERGENCY CONTACT: 800-966-3478

4134074

Please type or print in block letters. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039.

<b>UNIFORM HAZARDOUS WASTE MANIFEST</b>		1. Generator's US EPA ID No. NYR000008837788825		Manifest Document No. 88825		2. Page 1 of 1		Information in the shaded areas is not required by Federal law.							
3. Generator's Name and Mailing Address CDI 21ST LIC, LLC 525 NORTHERN BOULEVARD GREAT NECK NY 11021						A. State Manifest Document Number <b>NJA 4134074</b>									
4. Generator's Phone (201) 512-1244						B. State Generator's ID (Gen. Site Address) 21-16 44 ROAD LONG ISLAND CITY NY 10000									
5. Transporter 1 Company Name J & D TRUCKING INC.				6. US EPA ID Number NJR0000029967		C. State Trans. ID-NIDEP 50181		Decal No. - 088038							
7. Transporter 2 Company Name						8. US EPA ID Number		D. Transporter's Phone (609) 691-5145							
9. Designated Facility Name and Site Address CLEAN EARTH OF NORTH JERSEY, INC. 105 JACOBUS AVENUE SOUTH KEARNY, NJ 07032						10. US EPA ID Number NJID991291105		E. State Trans. ID-NIDEP							
11. US DOT Description (Including Proper Shipping Name, Hazard Class or Division, ID Number and Packing Group) HM a. X RQ HAZARDOUS WASTE SOLID, NOS (EPA LEAD) 9 NA 3077 PKG: III						12. Containers No. Type		13. Total Quantity		14. Unt Wt/Vol		Waste No.			
J. Additional Descriptions for Materials Listed Above E/S ALSO D008; 100% SOIL						K. Handling Codes for Wastes Listed Above TO4 STABILIZATION									
15. Special Handling Instructions and Additional Information (a)															
16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.  If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.															
Printed/Typed Name AS AGENT FOR FPSS OF LLC SEAN GROZKOWSKI						Signature <i>[Signature]</i>				Month Day Year 02/13/03					
17. Transporter 1 Acknowledgement of Receipt of Materials Printed/Typed Name LEACH, E.L.						Signature <i>[Signature]</i>				Month Day Year 02/13/03					
18. Transporter 2 Acknowledgement of Receipt of Materials Printed/Typed Name						Signature				Month Day Year					
19. Discrepancy Indication Space SECTION 14 ITEM A SHOULD READ "Y"						<b>RECEIVED PENDING MANIFEST REVIEW AND QUALITY CONTROL</b>								5/1/80	
20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19. Printed/Typed Name Ruan Misoka						Signature <i>[Signature]</i>				EMERGENCY CONTACT: 800-966-3478 Month Day Year 02/13/03					

EPA Form 8700-22

NJ04154004

SIGNATURE AND INFORMATION MUST BE LEGIBLE ON ALL COPIES



IN

GENERATOR **CDI**  
MAN. NO. **4134074**  
TRANSPORTER **JXD**

76480 LB

VEHICLE ID.

01:07 PM 02/13/03

DRIVER ON OFF

OUT

REMARKS:

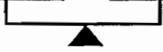
**RT 88825**

25300 LB

01:32 PM 02/13/03

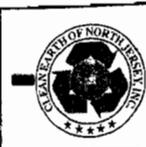
**51180**

**WEIGH-TRONIX®**



**WEIGHER**

**51180.**



115 JACOBUS AVE  
SOUTH KEARNY  
NJ 07032  
(973) 344-4004

CUSTOMER # 40001  
CUSTOMER JETTED WASTE INC.  
CONTACT STEBBY  
PHONE 973-344-4004

JOB SITE 021 2003  
1 10 34 ROAD  
1000 1000 000  
NY 10000

TRUCKER  
TRAILER  
IN  
OUT

EPA ID. # N100000000  
ZONE 00

PULL  PICK-UP  PULL/REPLACE  PUMP TANK  OTHER  
 DELIVER  IN/WITH  DELIVER/WAIT & PULL  PUMP DRUMS

PURCHASE ORDER # 3056

CLEAN EARTH TO PROVIDE	YES	NO	#	CLEAN EARTH TO PROVIDE	YES	NO	#	CLEAN EARTH TO PROVIDE	YES	NO	#
MANIFEST				LINER		N		LIFT			
F LABEL				MT. DRUM		N		XTRA HOSE			
E LABEL				OVERPACK		N		HELPER			

MANIFESTS  
NUMBER OF (CIRCLE ONE)  
OTHER  
DRUMS/GALS/YARDS  
GROSS WEIGHT  
NET WEIGHT

ARRIVED ON: 1/10/03  
DEPARTED ON: 1/10/03  
NO. AND TYPES CONT. 1000

REQ. E.T.A. POS. E.T.A.

NO. AND TYPES CONT.	WASTE DESCRIPTION	APP.#	PRC.#	NO. AND TYPES CONT.	WASTE DESCRIPTION	APP.#	PRC.#
I	LEAD SOIL	201	III				
II			IV				

COMMENTS: 1000 PUL

J & P TRUCKING INC. TRANSPORTING FOR S&W

SCHEDULED DATE 02/10/03

DATE COMPLETED: OPERATIONS DEPARTMENT SIGNOFF:

NO. OF CONTAINERS	CONT. TYPE	PROPER D.O.T. SHIPPING NAME	WASTE TYPE	DISPOSAL SITE(S)	T <sub>RA</sub>	MANIFEST # (S)	DISPOSAL SITE(S)	T <sub>RA</sub>	MANIFEST # (S)
A		HAZARDOUS WASTE SOLID, NOS	D008						
		APP 201							
		COMPLETED ON:	BY:						
B									
		COMPLETED ON:	BY:						
C									
		COMPLETED ON:	BY:						
D									
		COMPLETED ON:	BY:						

DATE COMPLETED:

OPERATIONS DEPARTMENT SIGNOFF:

REVENUE TICKET 88826

PAGE # OF

115 JACOBUS AVE  
SOUTH KEARNY  
NJ 07032  
(973) 344-4004

CUSTOMER # 990001  
CUSTOMER ALLIED WASTE INC.  
CONTACT STU BERRY  
PHONE 516-867-6452

JOB SITE  
21-16 44 ROAD  
LONG ISLAND CITY  
NY 10006

EPA ID. # NY1000000000 ZONE DC

RIVER DCA W 100

PULL     PICK-UP     PUMP/REPLACE     PUMP TANK     OTHER  
 DELIVER     IN/WITH     DELIVER/WAIT & PULL     PUMP DRUMS

CLEAN EARTH TO PROVIDE	YES	NO	#	CLEAN EARTH TO PROVIDE	YES	NO	#	CLEAN EARTH TO PROVIDE	YES	NO	#
MANIFEST	Y			LINER		N		LIFT		N	
HAZ LABEL	Y			MT. DRUM		N		XTRA HOSE		N	
DOT LABEL	Y			OVERPACK		N		HELPER		N	

NUMBER OF DRUMS/GALS/YARDS  
 PURCHASE ORDER # 5056

NO. AND TYPES CONT.	WASTE DESCRIPTION	APP.#	PRC.#	NO. AND TYPES CONT.	WASTE DESCRIPTION	APP.#	PRC.#
I 20.00 YD	LEAD SOIL D008	201		III			
II				IV			

COMMENTS: J&D DML

STE J & D TRUCKING INC. TRANSPORTING FOR S&W

SCHEDULED DATE 02/13/03



State of New Jersey  
 Department of Environmental Protection  
 Hazardous Waste Regulation Program  
 Manifest Section



P.O. Box 414, Trenton, NJ 08625-0414 EMERGENCY CONTACT: 800-966-3478

In case of an emergency or spill immediately call the state the emergency occurred in and the N.J. Dept. of Environmental Protection, (609) 292-7172

Please type or print in block letters. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039.

<b>UNIFORM HAZARDOUS WASTE MANIFEST</b>		1. Generator's US EPA ID No. NYR00008837788826		Manifest Document No.		2. Page 1 of 1		Information in the shaded areas is not required by Federal law.					
3. Generator's Name and Mailing Address CDI 21ST LIC, LLC 525 NORTHERN BOULEVARD GREAT NECK NY 11021						A. State Manifest Document Number NJ 4134076							
4. Generator's Phone (201) 512-1244						B. State Generator's ID (Gen. Site Address) 21-16 44 ROAD LONG ISLAND CITY NY 10000							
5. Transporter 1 Company Name J & D TRUCKING INC.			6. US EPA ID Number NJR0000029967			C. State Trans. ID-NJDEP 50181		Decal No. 06046					
7. Transporter 2 Company Name						8. US EPA ID Number		D. Transporter's Phone (609) 691-5145					
9. Designated Facility Name and Site Address CLEAN EARTH OF NORTH JERSEY, INC. 105 JACOBUS AVENUE SOUTH KEARNY, NJ 07032						10. US EPA ID Number NJ D991291105		E. State Trans. ID-NJDEP					
11. US DOT Description (Including Proper Shipping Name, Hazard Class or Division, ID Number and Packing Group) HM a. X RQ HAZARDOUS WASTE SOLID, NOS (EPA LEAD) 9 NA 3077 PKG: III						12. Containers No. Type		13. Total Quantity		14. Unit Wt/Vol		Waste No.	
						X X 1 D T		ESTOP		D O O B			
J. Additional Descriptions for Materials Listed Above E/S ALSO D008; 100% SOIL						K. Handling Codes for Wastes Listed Above T04 STABILIZATION							
15. Special Handling Instructions and Additional Information													
16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations. If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable, and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.													
Printed/Typed Name SEAN GROSZKOWSKI						Signature				Month Day Year 02/13/03			
17. Transporter 1 Acknowledgement of Receipt of Materials													
Printed/Typed Name DANIEL WOODS						Signature				Month Day Year 02/13/03			
18. Transporter 2 Acknowledgement of Receipt of Materials													
Printed/Typed Name						Signature				Month Day Year			
19. Discrepancy Indication Space SECTION 13 ITEM A SHOULD READ "20"													
<b>RECEIVED PENDING MANIFEST REVIEW AND QUALITY CONTROL 49960</b>													
20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.													
Printed/Typed Name						Signature				Month Day Year 02/13/03			

NJ04134U1B



IN

GENERATOR *CDT*

MAN. NO. *4134076*

TRANSPORTER *JLD*

VEHICLE ID. *1*

DRIVER ON OFF

REMARKS:

*RT 88826*

76060 LB  
10:29 AM 02/13/03

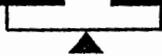
OUT

26100 LB

10:45 AM 02/13/03

*49960*

**WEIGH-TRONIX®**



**WEIGHER**

*49960.*



115 JACOBUS AVE  
SOUTH KEARNY  
NJ 07032  
(973) 344-4004

CUSTOMER # 00001  
CUSTOMER ALLIED WASTE INT.  
CONTACT STEVE HERNANDEZ  
PHONE 516 867 6952

JOB SITE 001 21ST LIP  
21 16 04 ROAD  
LONG ISLAND CITY  
NY 10006

EPA ID. # NYR000003377

ZONE  
DE



MANIFEST NUMBER OF DRUMS/GALS/YARDS  
DATE RECEIVED

PULL     PICK-UP     PULL/REPLACE     PUMP TANK     OTHER  
 DELIVER     INWITH     DELIVER/WAIT & PULL     PUMP DRUMS

CLEAN EARTH TO PROVIDE	YES	NO	#	CLEAN EARTH TO PROVIDE	YES	NO	#	CLEAN EARTH TO PROVIDE	YES	NO	#
MANIFEST				LINER				LIFT			
MT. LABEL				MT. DRUM				XTRA HOSE			
MT. LABEL				OVERPACK				HELPER			

PURCHASE ORDER # 3056

NO. AND TYPES CONT.     WASTE DESCRIPTION     APP.#     PRC.#     NO. AND TYPES CONT.     WASTE DESCRIPTION     APP.#     PRC.#

NO. AND TYPES CONT.	WASTE DESCRIPTION	APP.#	PRC.#	NO. AND TYPES CONT.	WASTE DESCRIPTION	APP.#	PRC.#
I	LIQUID WASTE	001		III			
II				IV			

COMMENTS:

WASTE

J & D TRUCKING INC. TRANSPORTING FOR S&W

SCHEDULED DATE 02-13-03

INDEPENDENT AGENTS THAT THE ABOVE SERVICE INFORMATION IS CORRECT  
 PRINTED NAME: DATE:

NO. OF CONTAINERS	CONT. TYPE	PROPER D.O.T. SHIPPING NAME	WASTE TYPE	DISPOSAL SITE(S)	T <sub>RA</sub>	MANIFEST # (S)	DISPOSAL SITE(S)	T <sub>RA</sub>	MANIFEST # (S)
A		NO HAZARDOUS WASTE SOLID, NUC	0000						
COMPLETED ON: BY:									
COMPLETED ON: BY:									
COMPLETED ON: BY:									
COMPLETED ON: BY:									

DATE COMPLETED:

OPERATIONS DEPARTMENT SIGNOFF:



115 JACOBUS AVE  
SOUTH KEARNY  
NJ 07032  
(973) 344-4004

CUSTOMER # 00000  
CUSTOMER ADDED WASTE INC.  
CONTACT STY BERRY  
PHONE 516 867-4457

JOB SITE  
21 15 74 ROAD  
LONG ISLAND CITY  
NY 11106

DELIVER  MANIFEST  DATE RECEIVED  ZONE 81

TRAILER  IN  OUT  MANIFEST  DATE RECEIVED

PULL  PICK-UP  PULL/REPLACE  PUMP TANK  OTHER  
 DELIVER  WITH  DELIVER/WAIT & PULL  PUMP DRUMS

CLEAN EARTH TO PROVIDE		YES	NO	#	CLEAN EARTH TO PROVIDE		YES	NO	#	CLEAN EARTH TO PROVIDE		YES	NO	#
MANIFEST		Y			LINER		N			LIFT		N		
NET LABEL		Y			MT. DRUM		N			XTRA HOSE		N		
NET LABEL		Y			OVERPACK		N			HELPER		N		

PURCHASE ORDER # 3026

REQ. E.T.A. POS. E.T.A.  
GROSS WEIGHT  
NET WEIGHT

NO. AND TYPES CONT.	WASTE DESCRIPTION	APP.#	PRC.#	NO. AND TYPES CONT.	WASTE DESCRIPTION	APP.#	PRC.#
I 20.00 YD	LEAD SOIL DOOB			III			
II				IV			

COMMENTS: J&D DWL

WASTE J & D TRUCKING INC. TRANSPORTING FOR SAW SCHEDULED DATE 02/13/03

UNDESIGNED ACTIVITIES BEYOND THE ABOVE SPECIFIED INFORMATION IS FORBIDDEN  
SIGNED: \_\_\_\_\_ DATE: \_\_\_\_\_



State of New Jersey  
Department of Environmental Protection  
Hazardous Waste Regulation Program  
Manifest Section



P.O. Box 414, Trenton, NJ 08625-0414 EMERGENCY CONTACT: 300-966-3478

Please type or print in block letters. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039.

<b>UNIFORM HAZARDOUS WASTE MANIFEST</b>		1. Generator's US EPA ID No. NYR000008837788828		Manifest Document No. 88828		2. Page 1 of 1		Information in the shaded areas is not required by Federal law.					
3. Generator's Name and Mailing Address CDI 21ST LIC, LLC 525 NORTHERN BOULEVARD GREAT NECK NY 11021						A. State Manifest Document Number <b>NJA 4134078</b>							
4. Generator's Phone ( 201 ) 512-1244						B. State Generator (Gen. Site Address) 21-18 41 ROAD LONG ISLAND CITY NY 10000							
5. Transporter 1 Company Name J & D TRUCKING INC.			6. US EPA ID Number NJR0000029967			C. State Trans. ID-NJDEP 50181		Decal No. - 080899					
7. Transporter 2 Company Name						D. Transporter's Phone ( 609-691-5145		E. State Trans. ID-NJDEP					
9. Designated Facility Name and Site Address CLEAN EARTH OF NORTH JERSEY, INC. 105 JACOBUS AVENUE SOUTH KEARNY, NJ 07032						10. US EPA ID Number NJ09911291105							
11. US DOT Description ( Including Proper Shipping Name, Hazard Class or Division, ID Number and Packing Group) HM a. X RQ HAZARDOUS WASTE SOLID, NOS (EPA LEAD) 9 NA 3077 PKG: III						12. Containers No. Type		13. Total Quantity		14. Unit Wt/Vol		15. Waste No.	
						XX1D1A9T20T						D O O B	
J. Additional Descriptions for Materials Listed Above E/S ALSO D008; 100% SOIL						CENJ APP.990001 (a):201		K. Handling Codes for Wastes Listed Above T04 Stabilization					
17. Special Handling Instructions and Additional Information													
16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations. If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.													
Printed/Typed Name SEAN GROSZKOWSKI AS AGENT FOR FASS OF LIC				Signature <i>[Signature]</i>				Month Day Year 02/23/03					
17. Transporter 1 Acknowledgement of Receipt of Materials Printed/Typed Name DAN M HOOVER				Signature <i>[Signature]</i>				Month Day Year 02/23/03					
18. Transporter 2 Acknowledgement of Receipt of Materials Printed/Typed Name				Signature				Month Day Year					
19. Discrepancy Indication Space SECTION 13 ITEM A SHOULD READ "20"						RECEIVED PENDING MANIFEST REVIEW AND QUALITY CONTROL 49560							
20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19. Printed/Typed Name Luz Munka				Signature <i>[Signature]</i>				Month Day Year 02/30					

In case of an emergency or spill immediately call the state the emergency occurred in and the N.J. Dept. of Environmental Protection. (609) 292-7172

GENERATOR

TRANSPORTER

FACILITY

NJ04134078

2



IN

GENERATOR CDJ  
MAN. NO. NJA 4134078  
TRANSPORTER J2D  
VEHICLE ID. 2

75800 LB

09:46 AM 02/13/03

DRIVER ON OFF

OUT

REMARKS:

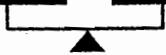
RT-88828.

26240 LB

10:07 AM 02/13/03

4 9560  
49560.  
WEIGHER

**WEIGH-TRONIX®**







115 JACOBUS AVE  
SOUTH KEARNY  
NJ 07032  
(973) 344-4004

CUSTOMER #  
CUSTOMER  
CONTACT  
PHONE

JOB SITE  
EPA ID. #

RIVER *Branch of Hudson*

ZONE

- PULL
- PICK-UP
- PULL/REPLACE
- PUMP TANK
- OTHER
- DELIVER
- IN/WITH
- DELIVER/WAIT & PULL
- PUMP DRUMS

PURCHASE ORDER # *3056*

CLEAN EARTH TO PROVIDE	YES	NO	#	CLEAN EARTH TO PROVIDE	YES	NO	#	CLEAN EARTH TO PROVIDE	YES	NO	#
MANIFEST				LINER				LIFT			
Z LABEL				MT. DRUM				XTRA HOSE			
T LABEL				OVERPACK				HELPER			

REQ. E.T.A. POS. E.T.A.

NO. AND TYPES CONT.	WASTE DESCRIPTION	APP.#	PRC.#	NO. AND TYPES CONT.	WASTE DESCRIPTION	APP.#	PRC.#
I 20.00 YD	LEAD SOIL D008			III			
II				IV			

COMMENTS: J&D D&L

J & D TRUCKING INC. TRANSPORTING FOR S&W

SCHEDULED DATE 02/13/03



State of New Jersey  
Department of Environmental Protection  
Hazardous Waste Regulation Program  
Manifest Section



P.O. Box 414, Trenton, NJ 08625-0414 EMERGENCY CONTACT: 800-966-3478

Please type or print in block letters. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved.

OMB No. 2050-0039.

<b>UNIFORM HAZARDOUS WASTE MANIFEST</b>		1. Generator's US EPA ID No. NYR000008837788829		Manifest Document No. 29		2. Page 1 of 1		Information in the shaded areas is not required by Federal law.					
3. Generator's Name and Mailing Address CDI 21ST LIC, LLC 525 NORTHERN BOULEVARD GREAT NECK NY 11021						A. State Manifest Document Number <b>NJA 4134079</b>							
4. Generator's Phone ( 201 ) 512-1244						B. State Generator's ID (Gen. Site Address) 21-16 44 ROAD LONG ISLAND CITY NY 11000							
5. Transporter 1 Company Name J & D TRUCKING INC. #17				6. US EPA ID Number NJR0000029967		C. State Trans. ID-NJDEP 50681 Decal No. - 088937							
7. Transporter 2 Company Name				8. US EPA ID Number		D. Transporter's Phone ( 609-691-5145							
9. Designated Facility Name and Site Address CLEAN EARTH OF NORTH JERSEY, INC. 105 JACOBUS AVENUE SOUTH KEARNY, NJ 07032						E. State Trans. ID-NJDEP Decal No. -							
10. US EPA ID Number NJ D 9 9 1 2 9 1 1 0 5						F. Transporter's Phone ( )							
11. US DOT Description ( Including Proper Shipping Name, Hazard Class or Division, ID Number and Packing Group) HM a. X RQ HAZARDOUS WASTE SOLID, NOS (EPA LEAD) 9 NA 3077 PKG: III						12. Containers No. Type		13. Total Quantity EST		14. Unit Wt/Vol 210 Ton		15. Waste No. 01-01-08	
J. Additional Descriptions for Materials Listed Above E/S ALSO D008; 100% SOIL						K. Handling Codes for Wastes Listed Above TOX STABILIZATION							
15. Special Handling Instructions and Additional Information (8)													
16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations. If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable, and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.													
Printed/Typed Name AS AGENT FOR FPS OF LLC SEAN GROSZKOWSKI				Signature <i>[Signature]</i>				Month Day Year 07/13/03					
17. Transporter 1 Acknowledgement of Receipt of Materials Printed/Typed Name Boyd Campbell				Signature <i>[Signature]</i>				Month Day Year 02/13/03					
18. Transporter 2 Acknowledgement of Receipt of Materials Printed/Typed Name				Signature <b>RECEIVED PENDING MANIFEST REVIEW AND QUALITY CONTROL</b>				Month Day Year 46,660 lbs					
19. Discrepancy Indication Space													
20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19. Printed/Typed Name Kathy Mroka				Signature <i>[Signature]</i>				Month Day Year 02/13/03					

SIGNATURE AND INFORMATION MUST BE LEGIBLE ON ALL COPIES

In case of an emergency or spill immediately call the state the emergency occurred in and the N.J. Dept. of Environmental Protection. (609) 292-7172

GENERATOR

TRANSPORTER

FACILITY

NJ 4134079



IN

GENERATOR *CDJ*

MAN. NO. ~~XA~~ *4134079*

TRANSPORTER *J&D*

VEHICLE ID. *17*

DRIVER ON OFF

REMARKS:

*RT 88829*



73480 LB

09:48 AM 02/13/03

OUT

26920 LB

10:19 AM 02/13/03

*46660*  
WEIGHER  
*46660.*



 115 JACOBUS AVE SOUTH KEARNY NJ 07032 (973) 344-4004	CUSTOMER #	JOB SITE
	CUSTOMER	
	CONTACT	
	PHONE	

DRIVER	EPA ID. #	ZONE
--------	-----------	------

TRAILER #	MANIFEST #	NUMBER OF DRUMS / GALS / TONS	DATE RECEIVED
-----------	------------	-------------------------------	---------------

PULL     PICK-UP     PULL/REPLACE     PUMP TANK     OTHER  
 DELIVER     IN WITH     DELIVER/WAIT & PULL     PUMP DRUMS

PURCHASE ORDER # 3056

CLEAN EARTH TO PROVIDE	YES	NO	#	CLEAN EARTH TO PROVIDE	YES	NO	#	CLEAN EARTH TO PROVIDE	YES	NO	#
MANIFEST				LINER				LIFT			
H LABEL				MT. DRUM				XTRA HOSE			
D LABEL				OVERPACK				HELPER			

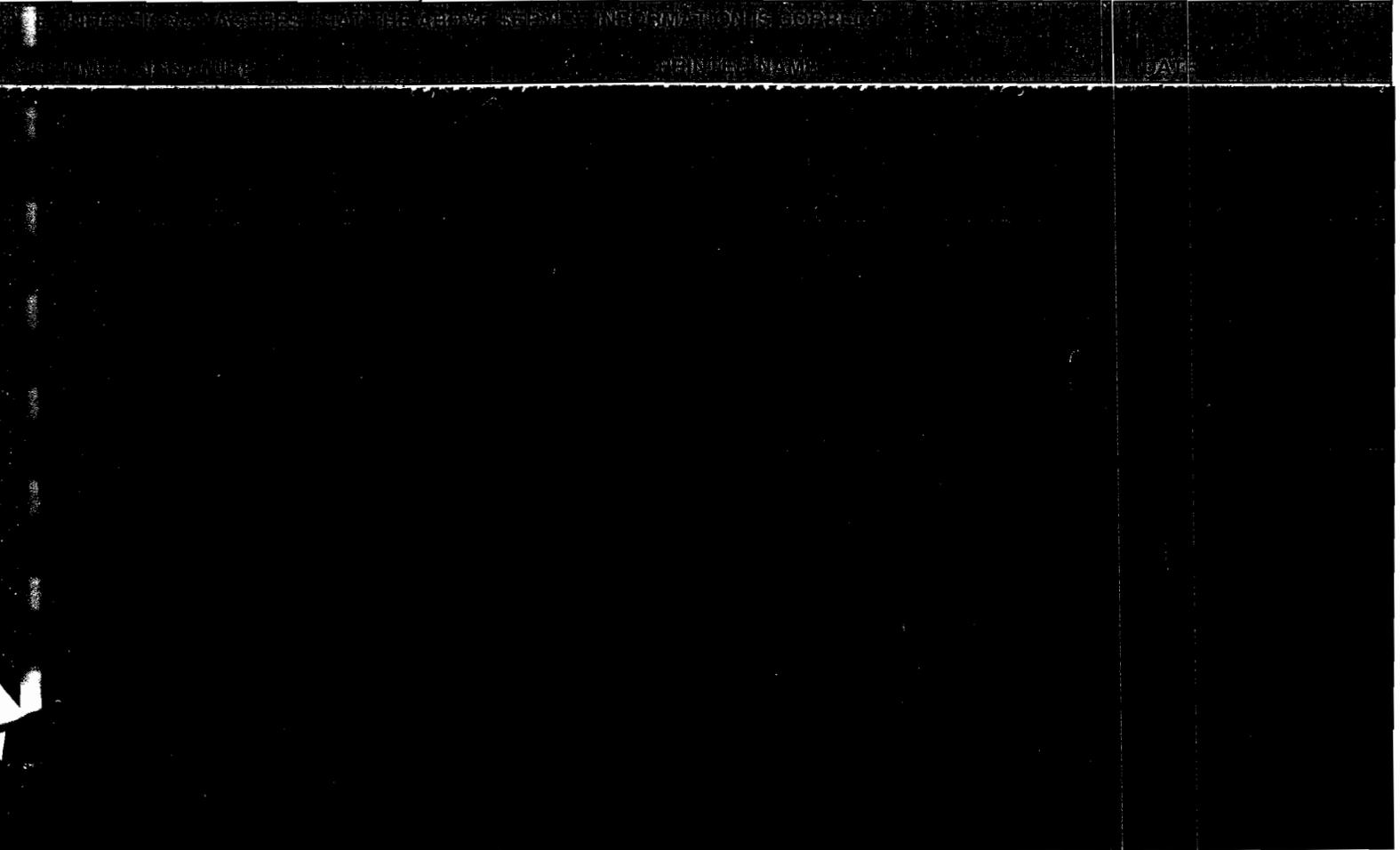
NO. AND TYPES CONT.     NO. AND TYPES CONT.     NO. AND TYPES CONT.     NO. AND TYPES CONT.

REQ. E.T.A.    POS. E.T.A.

NO. AND TYPES CONT.	WASTE DESCRIPTION	APP.#	PRC.#	NO. AND TYPES CONT.	WASTE DESCRIPTION	APP.#	PRC.#
20.00 YD	LEAD SOIL D008			III			
II				IV			

COMMENTS: JAD DWL

STE J & D TRUCKING INC, TRANSPORTING FOR S&W SCHEDULED DATE 02/13/03







GENERATOR *CDI*  
MAN. NO. *NJA 4134069*  
TRANSPORTER *JAD*  
VEHICLE ID. *2*  
DRIVER ON OFF  
REMARKS:

*RT 88821*

**WEIGH-TRONIX®**



IN

79740 LB

01:38 PM 02/13/03

OUT

25920 LB

01:51 PM 02/13/03

*53820*

**WEIGHER**

*53820*

 <p>115 JACOBUS AVE SOUTH KEARNY NJ 07032 (973) 344-4004</p>	CUSTOMER #	JOB SITE
	CUSTOMER	2115 70 ROAD
	CONTACT	LONG ISLAND CITY
	PHONE	NY 11101

RIVER	EPA ID. #	ZONE
-------	-----------	------

MANIFEST	DATE RECEIVED
NUMBER OF DRUMS/CANS/YARDS	

PULL     PICK-UP     PULL/REPLACE     PUMP TANK     OTHER  
 DELIVER     IN/WITH     DELIVER/WAIT & PULL     PUMP DRUMS

PURCHASE ORDER # 3056

CLEAN EARTH TO PROVIDE	YES	NO	#	CLEAN EARTH TO PROVIDE	YES	NO	#	CLEAN EARTH TO PROVIDE	YES	NO	#
MANIFEST				LINER				LIFT			
Z LABEL				MT. DRUM				XTRA HOSE			
T LABEL				OVERPACK				HELPER			

AM     PM     AM     PM  
 TIME     TIME     TIME     TIME

NO. AND TYPES CONT.	WASTE DESCRIPTION	APP.#	PRC.#	NO. AND TYPES CONT.	WASTE DESCRIPTION	APP.#	PRC.#
I	LEAD SOIL	101	III				
II			IV				

COMMENTS: 120 DRUM

J & B TRUCKING INC. TRANSPORTING FOR S&W      SCHEDULED DATE 02/13/03

IS THIS INFORMATION CORRECT?      PRINTED NAME:      DATE:

NO. OF CONTAINERS	CONT. TYPE	PROPER D.O.T. SHIPPING NAME	WASTE TYPE	DISPOSAL SITE(S)	T <sub>RA</sub>	MANIFEST # (S)	DISPOSAL SITE(S)	T <sub>RA</sub>	MANIFEST # (S)
A		PO HAZARDOUS WASTE SOLID, HCL	D008						
		APP 101							
		COMPLETED ON:	BY:						
B									
		COMPLETED ON:		BY:					
C									
		COMPLETED ON:		BY:					
D									
		COMPLETED ON:		BY:					

DATE COMPLETED:      OPERATIONS DEPARTMENT SIGNOFF:



115 JACOBUS AVE  
SOUTH KEARNY  
NJ 07032  
(973) 344-4004

CUSTOMER #  
CUSTOMER  
CONTACT  
PHONE

JOB SITE  
LONG ISLAND

DRIVER: *Cal*

EPA ID. # ZONE

- PULL
- PICK-UP
- PULL/REPLACE
- PUMP TANK
- OTHER
- DELIVER
- IN/WITH
- DELIVER/WAIT & PULL
- PUMP DRUMS

PURCHASE ORDER # 3056

CLEAN EARTH TO PROVIDE	YES	NO	#	CLEAN EARTH TO PROVIDE	YES	NO	#	CLEAN EARTH TO PROVIDE	YES	NO	#
MANIFEST				LINER				LIFT			
Z LABEL				MT. DRUM				XTRA HOSE			
T LABEL				OVERPACK				HELPER			

NO. AND TYPES CONT.	WASTE DESCRIPTION	APP.#	PRC.#	NO. AND TYPES CONT.	WASTE DESCRIPTION	APP.#	PRC.#
I 20.00 YD	LEAD OIL 0008			III			
II				IV			

REQ. E.T.A. PCS. E.T.A.

COMMENTS: J&D DWL

WASTE J & D TRUCKING INC. TRANSPORTING FOR S&W SCHEDULED DATE 02/13/03



State of New Jersey  
 Department of Environmental Protection  
 Hazardous Waste Regulation Program  
 Manifest Section  
 P.O. Box 414, Trenton, NJ 08625-0414



EMERGENCY CONTACT: 1-800-966-3478

Please type or print in block letters. (Form designed for use on elite (12-pitch) typewriter.) Form Approved. OMB No 2050-0039.

<b>UNIFORM HAZARDOUS WASTE MANIFEST</b>		1. Generator's US EPA ID No. <b>NYR000008837788827</b>		Manifest Document No. <b>67</b>		2. Page 1 of 1		Information in the shaded areas is not required by Federal law.	
3. Generator's Name and Mailing Address <b>CDI 21ST LIC, LLC 525 NORTHERN BOULEVARD GREAT NECK NY 11021</b>						A. State Manifest Document Number <b>NJA 4134077</b>			
4. Generator's Phone ( <b>201</b> ) <b>512-1244</b>						B. State Generator ID (Gen. Site Address) <b>2116 41 ROAD LONG ISLAND CITY NY 10000</b>			
5. Transporter 1 Company Name <b>J &amp; D TRUCKING INC.</b>			6. US EPA ID Number <b>NJR0000029967</b>			C. State Trans. ID-NJDEP <b>50181</b>		Decal No. <b>090834</b>	
7. Transporter 2 Company Name						8. US EPA ID Number		D. Transporter's Phone ( <b>609-691-5145</b> )	
9. Designated Facility Name and Site Address <b>CLEAN EARTH OF NORTH JERSEY, INC. 105 JACOBUS AVENUE SOUTH KEARNY, NJ 07032</b>						10. US EPA ID Number <b>NJD9912911105</b>		E. State Trans. ID-NJDEP	
11. US DOT Description ( Including Proper Shipping Name, Hazard Class or Division, ID Number and Packing Group ) <b>HM</b>						12. Containers		13. Total	
						No.		Quantity	
						Type		Unit	
								Waste No.	
a. <b>X</b> <b>RQ HAZARDOUS WASTE SOLID, NOS (EPA LEAD)</b> <b>9 NA 3077</b> <b>PKG: III</b>						<b>XX1 D T</b>		<b>20 1/2</b>	
b.									
c.									
d.									
J. Additional Descriptions for Materials Listed Above <b>E/S ALSO D008; 100% SOIL</b>						K. Handling Codes for Wastes Listed Above <b>T04</b> <b>a. STABILIZATION</b>			
15. Special Handling Instructions and Additional Information									
16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.  If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable, and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.									
Printed/Typed Name <b>AS AGENT FOR FPSS OF LIC</b> <b>SEAN GROSZKOWSKI</b>						Signature		Month Day Year <b>10 21 13 03</b>	
17. Transporter 1 Acknowledgement of Receipt of Materials						Signature		Month Day Year	
Printed/Typed Name <b>Calvin Manley</b>						Signature		<b>02 13 03</b>	
18. Transporter 2 Acknowledgement of Receipt of Materials						Signature		Month Day Year	
Printed/Typed Name						Signature		Month Day Year	
19. Discrepancy Indication Space <b>RECEIVED PENDING MANIFEST REVIEW AND QUALITY CONTROL 57000</b>									
20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.									
Printed/Typed Name <b>ELIAS MISOKA</b>						Signature		Month Day Year <b>02 13 03</b>	

In case of an emergency or spill immediately call the state the emergency occurred in and the N.J. Dept. of Environmental Protection (609) 292-7172.

GENERATOR  
TRANSPORTER  
FACILITY

NJ 4134077

5

Recorder From: **PRINTSTIX** • 502 SOUTH AVENUE, GARWOOD, NJ 07027 • (908) 928-1222 #3405



IN

GENERATOR CDI  
MAN. NO. NJA 4134077  
TRANSPORTER J&D  
VEHICLE ID. #5

81840 LB

10:32 AM 02/13/03

DRIVER ON OFF

OUT

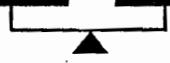
REMARKS:

RT 88827

24840 LB

10:48 AM 02/13/03

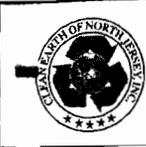
**WEIGH-TRONIX®**



57000

WEIGHER

51000



115 JACOBUS AVE  
SOUTH KEARNY  
NJ 07032  
(973) 344-4004

CUSTOMER #  
CUSTOMER  
CONTACT  
PHONE

JOB SITE  
EPA ID. #  
ZONE

PULL     PICK-UP     PULL/REPLACE     PUMP TANK     OTHER  
 DELIVER     IN/WITH     DELIVER/WAIT & PULL     PUMP DRUMS

NUMBER OF  
DRUMS/GALS/YARDS  
 PURCHASE ORDER # 3056

CLEAN EARTH TO PROVIDE	YES	NO	#	CLEAN EARTH TO PROVIDE	YES	NO	#	CLEAN EARTH TO PROVIDE	YES	NO	#
MANIFEST				LINER				LIFT			
H LABEL				MT. DRUM				XTRA HOSE			
D LABEL				OVERPACK				HELPER			

GROSS WEIGHT  
 NET WEIGHT  
 REQ. E.T.A.    POS. E.T.A.

NO. AND TYPES CONT.	WASTE DESCRIPTION	APP.#	PRC.#	NO. AND TYPES CONT.	WASTE DESCRIPTION	APP.#	PRC.#
I	LEAD BATTERY	01		III			
II				IV			

COMMENTS: SEE TAG  
 P & D TRUCKING INC. TRANSPORTING FOR SAW    SCHEDULED DATE 02/15/03

NO. OF CONTAINERS	CONT. TYPE	PROPER D.O.T. SHIPPING NAME	WASTE TYPE	DISPOSAL SITE(S)	T <sub>RA</sub>	MANIFEST # (S)	DISPOSAL SITE(S)	T <sub>RA</sub>	MANIFEST # (S)
A		HAZARDOUS WASTE SOLID, LIQ	D000						
		APP 701							
		COMPLETED ON:	BY:						
B									
		COMPLETED ON:	BY:						
C									
		COMPLETED ON:	BY:						
D									
		COMPLETED ON:	BY:						

DATE COMPLETED:    OPERATIONS DEPARTMENT SIGNOFF:

**SOIL MANIFESTS  
PARKING LOT SOIL - DRY WELLS**





State of New Jersey  
 Department of Environmental Protection  
 Hazardous Waste Regulation Program  
 Manifest Section  
 P.O. Box 414, Trenton, NJ 08625-0414



1

EMERGENCY CONTACT: 800-496-3478

Please type or print in block letters. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved

OMB No. 2050-0039

<b>UNIFORM HAZARDOUS WASTE MANIFEST</b>		1. Generator's US EPA ID No. <b>NYR00008837787239</b>		Manifest Document No.		2. Page 1 of 1		Information in the shaded areas is not required by Federal law			
3. Generator's Name and Mailing Address <b>CDI 21ST LIC, LLC 525 NORTHERN BOULEVARD GREAT NECK NY 11021</b>						A. State Manifest Document Number <b>NJA 4136640</b>					
4. Generator's Phone (201) 512-1244						B. State Generator ID (Gen. Site Address) <b>21-16 44 ROAD LONG ISLAND CITY NY 11100</b>					
5. Transporter 1 Company Name <b>J &amp; D TRUCKING INC.</b>			6. US EPA ID Number <b>NJD000029967</b>			C. State Trans. ID-NJDEP <b>50181</b>		Decal No. <b>0810850</b>			
7. Transporter 2 Company Name						D. Transporter's Phone (609) 691-5145		E. State Trans. ID-NJDEP			
9. Designated Facility Name and Site Address <b>CLEAN EARTH OF NORTH JERSEY, INC. 105 JACOBUS AVENUE SOUTH KEARNY, NJ 07032</b>						10. US EPA ID Number <b>NJD99129105</b>		F. Transporter's Phone ( )			
11. US DOT Description (Including Proper Shipping Name, Hazard Class or Division, ID Number and Packing Group) <b>HM a. X NO HAZARDOUS WASTE SOLID, NOS (EPA LEAD) 9 NA 3077 PKG: III</b>						12. Containers No. Type		13. Total Quantity		14. Unit Wt/Vol Waste No. <b>XXIDTEST201 D008</b>	
J. Additional Descriptions for Materials Listed Above <b>E/S ALSO D008; 100% SOIL</b>						K. Handling Codes for Wastes Listed Above					
15. Special Handling Instructions and Additional Information <b>(a)</b>											
16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this shipment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable instructions and national government regulations. If I am a large quantity generator, I certify that I have a program in place to identify the location and facility of waste generated, the program has been determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me and that I minimize the present and future threat to human health and the environment. OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.											
Printed/Typed Name <b>SEAN GROSZKOWSKI FOR: FSS OF LLC, LLC</b>				Signature <i>[Signature]</i>				Month Day Year <b>11 1 802</b>			
17. Transporter 1 Acknowledgement of Receipt of Materials						Signature <i>[Signature]</i>					
Printed/Typed Name <b>Michael Sims</b>						Month Day Year <b>11 1 802</b>					
18. Transporter 2 Acknowledgement of Receipt of Materials						Signature <i>[Signature]</i>					
Printed/Typed Name						Month Day Year					
19. Discrepancy Indicator Space <b>RC-51040 RECEIVED PENDING REVENUE AND QUALITY CONTROL</b>											
20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in item 19.						Signature <i>[Signature]</i>					
Printed/Typed Name <b>KIRTI DAVE</b>						Month Day Year <b>11 18 02</b>					

NJA 4136640

①

JEP  
#3  
06048



IN

GENERATOR

MAN. NO. 413666

77080 LB

TRANSPORTER

06:49 AM 11/18/02

VEHICLE ID.

DRIVER ON OFF

OUT

REMARKS:

26040 LB

87239

08:16 AM 11/18/02

51040

**WEIGH-TRONIX®**



**WEIGHER**

TRUCK NJ  
AG 9896

REVENUE TICKET # 4472377

PAGE # 1 OF 1



115 JACOBUS AVE  
SOUTH KEARNY  
NJ 07032  
(973) 344-4004

CUSTOMER # 910001  
CUSTOMER ALLIED WASTE INC.  
CONTACT ANNIE FLENTHO  
PHONE 718 441 1249

JOB SITE ALLIED WASTE INC.  
23 16 00 ROAD  
LONG ISLAND CITY  
NY 11106

EPA ID.# NTR000089377

ZONE  
EE

DRIVER

- PULL
- PICK-UP
- PULL/REPLACE
- PUMP TANK
- OTHER
- DELIVER
- IN/WITH
- DELIVER/WAIT & PULL
- PUMP DRUMS

PURCHASE ORDER #

CLEAN EARTH TO PROVIDE	YES	NO	#	CLEAN EARTH TO PROVIDE	YES	NO	#	CLEAN EARTH TO PROVIDE	YES	NO	#
MANIFEST				LINER				LIFT			
HA LABEL				MT. DRUM				XTRA HOSE			
DG LABEL				OVERPACK				HELPER			

REQ. E.T.A. POS E.T.A.

NO. AND TYPES CONT.	WASTE DESCRIPTION	APP.#	PRC.#	NO. AND TYPES CONT.	WASTE DESCRIPTION	APP.#	PRC.#
I	LEAD BATTERY			III			
II				IV			

COMMENTS:

ADD TOL

ALLIED WASTE INC. TRANSPORTING FOR S&W

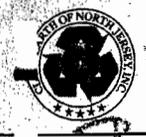
SCHEDULED DATE 11/18/02

PRINTED NAME: [Blank] DATE: [Blank]

CO	O. OF TAINERS	CONT. TYPE	PROPER D.O.T. SHIPPING NAME	WASTE TYPE	DISPOSAL SITE(S)	T <sub>RA</sub>	MANIFEST # (S)	DISPOSAL SITE(S)	T <sub>RA</sub>	MANIFEST # (S)
A			HAZARDOUS WASTE SOLID, NOS	D000						
			COMPLETED ON:	BY:						
B										
			COMPLETED ON:	BY:						
C										
			COMPLETED ON:	BY:						
D										
			COMPLETED ON:	BY:						

DATE COMPLETED:

OPERATIONS DEPARTMENT SIGNOFF:



115 JACOBUS AVE  
SOUTH KEARNY  
NJ 07032  
(973) 344-4004

CUSTOMER #  
CUSTOMER  
CONTACT  
PHONE

JOB SITE  
LONG ISLAND CITY  
NY

DRIVER **Bond Ambrose**

EPA ID. # ZONE

- PULL  PICK-UP  PULL/REPLACE  PUMP TANK  OTHER
- DELIVER  IN/WITH  DELIVER/WAIT & PULL  PUMP DRUMS

PURCHASE ORDER #

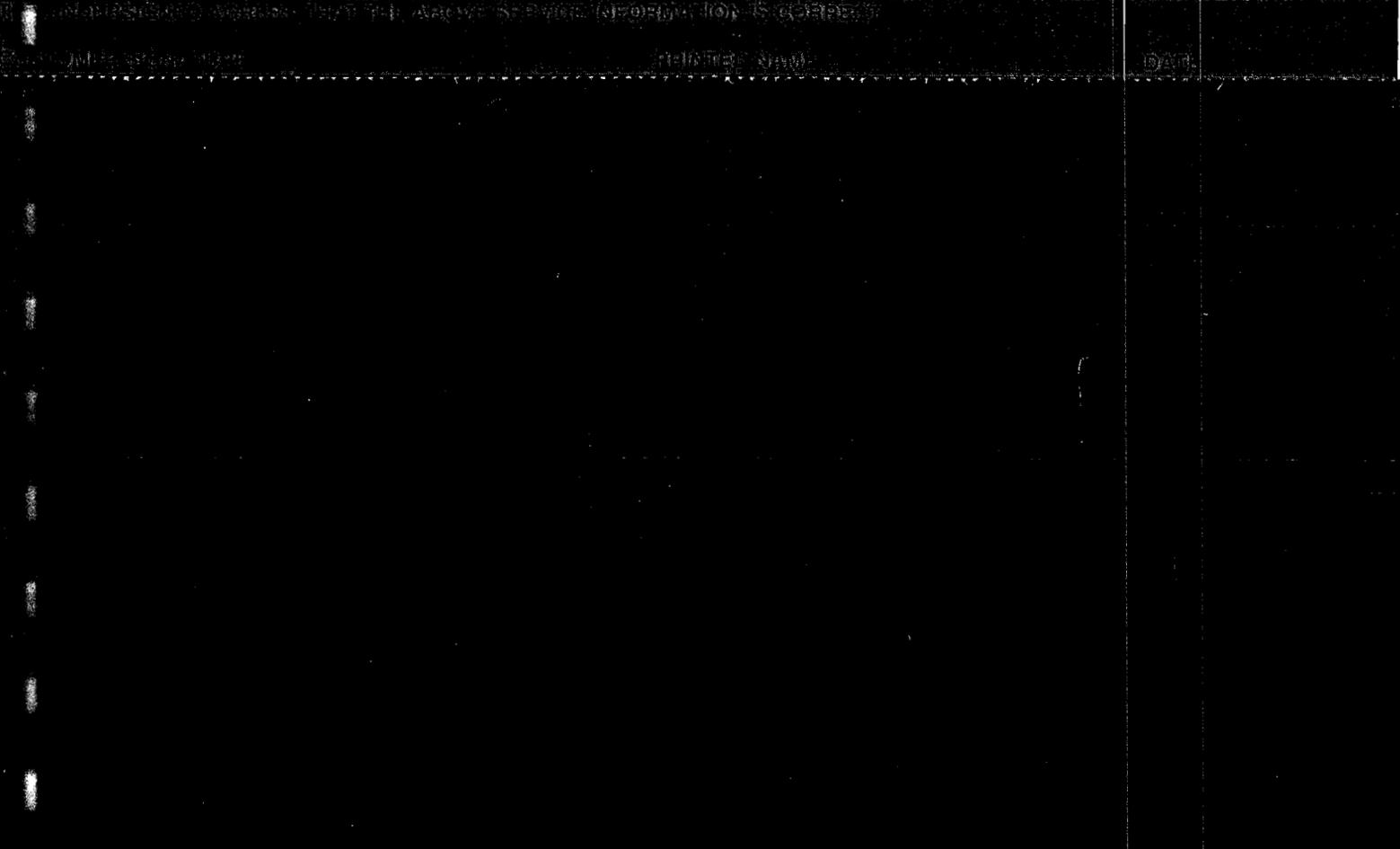
CLEAN EARTH TO PROVIDE	YES	NO	#	CLEAN EARTH TO PROVIDE	YES	NO	#	CLEAN EARTH TO PROVIDE	YES	NO	#
MANIFEST			7333	LINER				LIFT			
HAZ LABEL	Y			MT. DRUM				XTRA HOSE			
DC LABEL	Y			OVERPACK				HELPER			

REQ. E.T.A. POS. E.T.A.

NO. AND TYPES CONT.	WASTE DESCRIPTION	APP.#	PRC.#	NO. AND TYPES CONT.	WASTE DESCRIPTION	APP.#	PRC.#
I 20.00 YD	LEAD SOIL DOOR		III				
II			IV				

COMMENTS: JAD DWL

WASTE J & D TRUCKING INC. TRANSPORTING FOR B&W SCHEDULED DATE 11/18/02





State of New Jersey  
Department of Environmental Protection  
Hazardous Waste Regulation Program  
Manifest Section



P.O. Box 414, Trenton, NJ 08625-0414 **EMERGENCY CONTACT: 1-800-466-3478**

Please type or print in block letters. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved.

OMB No. 2050-0039.

<b>UNIFORM HAZARDOUS WASTE MANIFEST</b>		1. Generator's US EPA ID No. <b>NYR00008837787240</b>	Manifest Document No.	2. Page 1 of 1	Information in the shaded areas is not required by Federal law.	
3. Generator's Name and Mailing Address <b>CDI 21ST LIC, LLC 525 NORTHERN BOULEVARD GREAT NECK NY 11021</b>				A. State Manifest Document Number <b>NJA 4136641</b>		
4. Generator's Phone ( 201 ) 512-1244				B. State Generator's (Gen.) Site Address <b>21 ST NORTHERN ROAD LONG ISLAND CITY NY 11100</b>		
5. Transporter 1 Company Name <b>J &amp; D TRUCKING INC.</b>		6. US EPA ID Number <b>NJR000029967</b>		C. State Trans. ID-NJDEP <b>50181</b> Decal No. <b>088937</b>		
7. Transporter 2 Company Name		8. US EPA ID Number		D. Transporter's Phone ( 609-691-5151 )		
9. Designated Facility Name and Site Address <b>CLEAN EARTH OF NORTH JERSEY, INC. 105 JACOBUS AVENUE SOUTH KEARNY, NJ 07032</b>				E. State Trans. ID-NJDEP Decal No. -		
10. US EPA ID Number <b>NJD991291105</b>				F. Transporter's Phone ( )		
11. US DOT Description ( Including Proper Shipping Name, Hazard Class or Division, ID Number and Packing Group ) <b>HM a. X RO HAZARDOUS WASTE SOLID, NOS (EPA LEAD) 9 NA 3077 PKG: III</b>				12. Containers No.	13. Total Quantity	14. Unit Wt/Vol
				Type		Waste No.
				<b>XXIDT</b>	<b>20</b>	<b>EST 9d</b>
						<b>D008</b>
J. Additional Descriptions for Materials Listed Above <b>E/S ALSO D008; 100% SOIL</b>				K. Handling Codes for Wastes Listed Above		
a.				a.		
b.				b.		
c.				c.		
d.				d.		
15. Special Handling Instructions and Additional Information <b>(3)</b>						
16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations. If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available that minimizes the present and future threat to human health and the environment. OR, if I am a small quantity generator, I have determined that the waste described above is not a hazardous waste and I used the best waste management method that is available to me and the local authority.						
Printed/Typed Name <b>SEAN GROSZKOWSKI FOR FPSS OF LLC</b>		Signature <i>[Signature]</i>		Month Day Year <b>11/18/02</b>		
17. Transporter 1 Acknowledgement or Receipt of Materials Printed/Typed Name <b>Boyd Campbell</b>		Signature <i>[Signature]</i>		Month Day Year <b>11/18/02</b>		
18. Transporter 2 Acknowledgement or Receipt of Materials Printed/Typed Name		Signature		Month Day Year		
19. Discrepancy Indication Section <b>Received 48880 REVENUE AND COMPLIANCE CONTROL</b>						
20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19 Printed/Typed Name <b>SEAN GROSZKOWSKI FOR FPSS OF LLC KIRTI PATE</b>		Signature <i>[Signature]</i>		Month Day Year <b>11/18/02</b>		

NJ 4136641

JVD



GENERATOR CDF

MAN. NO. 4136641

TRANSPORTER

VEHICLE ID. #17

DRIVER ON OFF

REMARKS:

RT 87240

**WEIGH-TRONIX®**



IN

75460 LB

07:03 AM 11/18/02

OUT

26580 LB

08:21 AM 11/18/02

48800

**WEIGHER**

Truck  
NJ  
AG 708K

REVENUE TICKET #

PAGE # 1 OF 1

 115 JACOBUS AVE SOUTH KEARNY NJ 07032 (973) 344-4004	CUSTOMER # 00001	JOB SITE 101 WEST LIG
	CUSTOMER SELECTED WASTE TRC	21-16 44 ROAD
	CONTACT ANNIE FLENTING	LONG ISLAND CITY
	PHONE 201 512-1004	NY 11106

VER 42001 11/18/02

EPA ID. # NTR00008577 ZONE BE

MANIFEST NUMBER OF DRUMS/CALCULATED YARDS

OUT 6100

<input type="checkbox"/> PULL	<input type="checkbox"/> PICK-UP	<input type="checkbox"/> PULL/REPLACE	<input type="checkbox"/> PUMP TANK	<input type="checkbox"/> OTHER
<input type="checkbox"/> DELIVER	<input type="checkbox"/> IN/WITH	<input type="checkbox"/> DELIVER/WAIT & PULL	<input type="checkbox"/> PUMP DRUMS	

CLEAN EARTH TO PROVIDE	YES	NO	#	CLEAN EARTH TO PROVIDE	YES	NO	#	CLEAN EARTH TO PROVIDE	YES	NO	#
MANIFEST				LINER				LIFT			
H LABEL				MT. DRUM				XTRA HOSE			
D LABEL				OVERPACK				HELPER			

APPROVED BY: \_\_\_\_\_ DATE: \_\_\_\_\_

NO. AND TYPES CONT.	WASTE DESCRIPTION	APP.#	PRC.#	NO. AND TYPES CONT.	WASTE DESCRIPTION	APP.#	PRC.#
I	LEAD ACID BATTERIES		III				
II			IV				

COMMENTS: 180 BUL

TRUCKING INC. TRANSPORTING FOR C&W SCHEDULED DATE 11/18/02

PRINTED NAME: \_\_\_\_\_ DATE: \_\_\_\_\_

NO. OF CONTAINERS	CONT. TYPE	PROPER D.O.T. SHIPPING NAME	WASTE TYPE	DISPOSAL SITE(S)	T <sub>R</sub> A	MANIFEST # (S)	DISPOSAL SITE(S)	T <sub>R</sub> A	MANIFEST # (S)
A		HZ HAZARDOUS WASTE SOLID, NOS	DW08						
		COMPLETED ON:	BY:						
B									
		COMPLETED ON:	BY:						
C									
		COMPLETED ON:	BY:						
D									
		COMPLETED ON:	BY:						

DATE COMPLETED: \_\_\_\_\_ OPERATIONS DEPARTMENT SIGNOFF: \_\_\_\_\_



**NO W. TICK**

State of New Jersey  
 Department of Environmental Protection  
 Hazardous Waste Regulation Program  
 Manifest Section  
 P.O. Box 414, Trenton, NJ 08625-0414



EMERGENCY CONTACT: 1-800-466-3478

3

Please type or print in block letters. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved

OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator's US EPA ID No. <b>NYR00006837787241</b>	Manifest Document No.	2. Page 1 of 1	Information in the shaded areas is not required by Federal law.	
3. Generator's Name and Mailing Address <b>CDI 21ST LIC, LLC 525 NORTHERN BOULEVARD GREAT NECK NY 11021</b>				A. State Manifest Document Number <b>NJA 4136642</b>		
4. Generator's Phone (201) 512-1244				B. State Generator ID (Gen. Site Address) <b>21 ST 47 ROAD LONG ISLAND CITY NY 11100</b>		
5. Transporter 1 Company Name <b>J &amp; D TRUCKING INC.</b>		6. US EPA ID Number <b>NJR000029947</b>		C. State Trans. ID-NJDEP <b>50181</b>		
7. Transporter 2 Company Name		8. US EPA ID Number		Decal No. <b>080852</b>		
9. Designated Facility Name and Site Address <b>CLEAN EARTH OF NORTH JERSEY, INC. 105 JACOBUS AVENUE SOUTH KEARNY, NJ 07032</b>				10. US EPA ID Number <b>NJD991291105</b>		
11. US DOT Description (Including Proper Shipping Name, Hazara Class or Division, ID Number and Packing Group) <b>HM a. X NO HAZARDOUS WASTE SOLID, NOS (EPA LEAD) 9 MA 3077 PKG: III</b>				12. Containers No. Type <b>XXIDT</b>		13. Total Quantity <b>Est 20 Y</b>
				14. Unit Wt/Vol		15. Waste No. <b>D008</b>
J. Additional Descriptions for Materials Listed Above <b>E/S ALSO D008; 100% SOIL</b>				K. Handling Codes for Wastes Listed Above		
16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations. If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the most appropriate and least burdensome disposal or recycling alternative that is available to me and that I have minimized the problem and future threat to human health and the environment. OR, if I am a small quantity generator, I have made a good faith effort to determine the waste generation and select the best waste management method that is available to me and that I can afford.						
Printed/Typed Name <b>SEAN GROSCOWSKY FOR: FPSOFLIC, LLC</b>				Signature <i>[Signature]</i>		Month Day Year <b>11 18 02</b>
17. Transporter 1 Acknowledgement of Receipt of Materials Printed/Typed Name <b>CALVIN MANLEY</b>				Signature <i>[Signature]</i>		Month Day Year <b>11 18 02</b>
18. Transporter 2 Acknowledgement of Receipt of Materials Printed/Typed Name				Signature		Month Day Year
19. Discrepancy Indication Space <b>RECEIVED RECEIVING REVENUE AND QUALITY CONTROL 58400</b>						
20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in item 13 Printed/Typed Name <b>KIRTI PATE</b>				Signature <i>[Signature]</i>		Month Day Year <b>11 18 03</b>

NJ4136642

Reorder From: **PRINTSTIKS** • 502 SOUTH AVENUE, GARWOOD, NJ 07027 • (908) 928-1222 #3405

③

JWP  
#15

06050



IN

GENERATOR **CDI**  
**21 5 LK**

MAN. NO. **NDA 4136642**

83480 LB

TRANSPORTER **JTD**

07:25 AM 11/18/02

VEHICLE ID.

DRIVER ON OFF

OUT

REMARKS:

**RT 87241**

25080 LB

08:37 AM 11/18/02

**58400**



WEIGHER

RUCK

N 854

REVENUE TICKET # 412101

PAGE # 1 OF 1



115 JACOBUS AVE  
SOUTH KEARNY  
NJ 07032  
(973) 344-4004

CUSTOMER # 000001  
CUSTOMER UNITED WASTE INC.  
CONTACT ANNIE FLEMING  
PHONE 201 512 1246

JOB SITE CUI 21ST. L.P.  
21-16 44 ROAD  
LONG ISLAND CITY  
NY 11106

EPA ID. # NYR000068377 ZONE EE

DRIVER [Signature]

PULL  PICK-UP  PULL/REPLACE  PUMP TANK  OTHER  
 DELIVER  IN/WITH  DELIVER/WAIT & PULL  PUMP DRUMS

NUMBER OF  
DRUMS/SCALARS

PURCHASE ORDER #

CLEAN EARTH TO PROVIDE	YES	NO	#	CLEAN EARTH TO PROVIDE	YES	NO	#	CLEAN EARTH TO PROVIDE	YES	NO	#
MANIFEST				LINER				LIFT			
H. LABEL				MT. DRUM				XTRA HOSE			
D. LABEL				OVERPACK				HELPER			

REQ. E.T.A. POS. E.T.A.

NO. AND TYPES CONT.	WASTE DESCRIPTION	APP.#	PRC.#	NO. AND TYPES CONT.	WASTE DESCRIPTION	APP.#	PRC.#
I	LEAD SOIL	201		III			
II				IV			

COMMENTS: JAD DWL

UNITED WASTE INC. TRANSPORTING FOR S&W

SCHEDULED DATE 11-18-02

PRINTED NAME DATE

C	NO. OF CONTAINERS	CONT. TYPE	PROPER D.O.T. SHIPPING NAME	WASTE TYPE	DISPOSAL SITE(S)	T <sub>RA</sub>	MANIFEST # (S)	DISPOSAL SITE(S)	T <sub>RA</sub>	MANIFEST # (S)
A			NO HAZARDOUS WASTE SOLID, NUS	DD08						
			APP 201							
			COMPLETED ON:	BY:						
			COMPLETED ON:	BY:						
			COMPLETED ON:	BY:						
			COMPLETED ON:	BY:						

DATE COMPLETED:

OPERATIONS DEPARTMENT SIGNOFF:





State of New Jersey  
 Department of Environmental Protection  
 Hazardous Waste Regulation Program  
 Manifest Section  
 P.O. Box 414, Trenton, NJ 08625-0414



2

EMERGENCY CONTACT: 800-966-3478

Please type or print in block letters. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved.

OMB No. 2050-0039.

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator's US EPA ID No. NYR00008817787244	Manifest Document No.	2. Page 1 of 1	Information in the shaded areas is not required by Federal law.		
3. Generator's Name and Mailing Address CDI 21ST LIC, LLC 525 NORTHERN BOULEVARD GREAT NECK NY 11021				A. State Manifest Document Number NJ 4136645			
4. Generator's Phone (201) 512-1244				B. State Generator's (Gen. Site) Address 21 STS 47 ROAD LONG ISLAND CITY NY 11100			
5. Transporter 1 Company Name J A D TRUCKING INC		6. US EPA ID Number NJR000029967		C. State Trans. ID-NJDEP 50181		Decal No. 080852	
7. Transporter 2 Company Name		8. US EPA ID Number		D. Transporter's Phone (609) 691-5145			
9. Designated Facility Name and Site Address CLEAN EARTH OF NORTH JERSEY, INC. 105 JACOBUS AVENUE SOUTH KEARNY, NJ 07032		10. US EPA ID Number NJD991291105		E. State Trans. ID-NJDEP		Decal No.	
				F. Transporter's Phone ( )			
				G. State Facility's ID			
				H. Facility's Phone (973) 344-4004			
11. US DOT Description (Including Proper Shipping Name, Hazard Class or Division, ID Number and Packing Group) HM				12. Containers	13. Total	14. Unit	15. Waste No.
				No.	Type	Quantity	Wt/Vol
a. X NO HAZARDOUS WASTE SOLID, NOS (EPA LEAD) 9 MA 3077 PKG: III							
J. Additional Descriptions for Materials Listed Above E/S ALSO D008; 100% SOIL				K. Handling Codes for Wastes Listed Above			
a.				a.			
b.				b.			
c.				c.			
d.				d.			
16. Special Handling Instructions and Additional Information AC 5854 NJ							
16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations. If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment. OR, if I am a small quantity generator, I have made a good faith effort to minimize the waste generated and selected the best waste management method that is available to me and that is safe.							
Printed/Typed Name FOR FPSS OF LIC, LLC SEAN GROSZKOWSKI				Signature <i>[Signature]</i>		Month Day Year 11 20 02	
17. Transporter 1 Acknowledgement of Receipt of Materials Printed/Typed Name CALVIN MANLEY				Signature <i>[Signature]</i>		Month Day Year 11 20 02	
18. Transporter 2 Acknowledgement of Receipt of Materials Printed/Typed Name				Signature		Month Day Year	
19. Discrepancy Indication Space RECEIVED PENDING MANIFEST REVIEW AND QUALITY CONTROL 53160							
20. Facility Owner/Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19 Printed/Typed Name Khas Usoka				Signature <i>[Signature]</i>		Month Day Year 11 20 02	

NJ 4136645

3

5



IN

GENERATOR ~~GEN~~

MAN. NO. 4136646

79460 LB

TRANSPORTER JTD

09:00 AM 11/20/02

VEHICLE ID.

DRIVER ON OFF

OUT

REMARKS: RT-87244

26300 LB

09:50 AM 11/20/02

53160

WEIGHER

**WEIGH-TRONIX**





115 JACOBUS AVE  
SOUTH KEARNY  
NJ 07032  
(973) 344-4004

CUSTOMER # 200001  
CUSTOMER ACLED WASTE INC.  
CONTACT ARNIE FLEMING  
PHONE 516-512-1244

JOB SITE CDI TEST. LTD  
21-15 74 ROAD  
LONG ISLAND CITY  
NY 11106

EPA ID. # NY10000088377 ZONE

DRIVER

PULL     PICK-UP     PULL/REPLACE     PUMP TANK     OTHER  
 DELIVER     INWITH     DELIVER/WAIT & PULL     PUMP DRUMS

CLEAN EARTH TO PROVIDE	YES	NO	#	CLEAN EARTH TO PROVIDE	YES	NO	#	CLEAN EARTH TO PROVIDE	YES	NO	#
MANIFEST				LINER		N		LIFT		N	
HAT LABEL				MT. DRUM		N		XTRA HOSE		N	
DC LABEL				OVERPACK		N		HELPER		N	

MANIFEST NUMBER OF DRUMS/GALS/YARDS

PURCHASE ORDER #

REQ. E.T.A. POS. E.T.A.

NO. AND TYPES CONT.	WASTE DESCRIPTION	APP.#	PRC.#	NO. AND TYPES CONT.	WASTE DESCRIPTION	APP.#	PRC.#
I	LEAD SOIL	001	III				
II			IV				

COMMENTS: 120 GVL

WASTE TRANSPORTING INC. TRANSPORTING FOR SAW

SCHEDULED DATE 11/18/02

WE warrant that the above service information is correct  
PRINTED NAME DATE

NO. OF CONTAINERS	CONT. TYPE	PROPER D.O.T. SHIPPING NAME	WASTE TYPE	DISPOSAL SITE(S)	T <sub>RA</sub>	MANIFEST # (S)	DISPOSAL SITE(S)	T <sub>RA</sub>	MANIFEST # (S)
A		NO HAZARDOUS WASTE SOLID, NOS	0008						
		APP 201							
		COMPLETED ON:	BY:						
		COMPLETED ON:	BY:						
		COMPLETED ON:	BY:						
		COMPLETED ON:	BY:						

DATE COMPLETED: OPERATIONS DEPARTMENT SIGNOFF:



115 JACOBUS AVE  
SOUTH KEARNY  
NJ 07032  
(973) 344-4004

CUSTOMER # 29001  
CUSTOMER ALLIANT WASTE INC.  
CONTACT ANNIE FLEMING  
PHONE 973 344 1000

JOB SITE THE 2750, LLC  
101-10 90 ROAD  
LONG ISLAND CITY  
NY 11106

DRIVER Michael Sims

EPA ID. # N1000000177 ZONE 2E

- PULL  PICK-UP  PULL/REPLACE  PUMP TANK  OTHER
- DELIVER  IN/WITH  DELIVER/WAIT & PULL  PUMP DRUMS

PURCHASE ORDER #

CLEAN EARTH TO PROVIDE	YES	NO	#	CLEAN EARTH TO PROVIDE	YES	NO	#	CLEAN EARTH TO PROVIDE	YES	NO	#
MANIFEST	Y			LINER		N		LIFT		N	
HAT LABEL	Y			MT. DRUM		N		XTRA HOSE		N	
DC LABEL	Y			OVERPACK		N		HELPER		N	

REQ. E.T.A. POS. E.T.A.

NO. AND TYPES CONT.	WASTE DESCRIPTION	APP.#	PRC.#	NO. AND TYPES CONT.	WASTE DESCRIPTION	APP.#	PRC.#
I 20.00 YD	LEAD SOIL D008		III				
II			IV				

COMMENTS: J&D DML

NOTE: J & D TRUCKING INC. TRANSPORTING FOR S&W SCHEDULED DATE 11-18-02



State of New Jersey  
Department of Environmental Protection  
Hazardous Waste Regulation Program  
Manifest Section



P.O. Box 414, Trenton, NJ 08625-0414 **EMERGENCY CONTACT: 609-966-3478**

Please type or print in block letters. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved.

OMB No. 2050-0039.

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator's US EPA ID No. <b>NYR00008817787242</b>	Manifest Document No.	2. Page 1 of 1	Information in the shaded areas is not required by Federal law.	
3. Generator's Name and Mailing Address <b>CDI 21ST LIC, LLC 525 NORTHERN BOULEVARD GREAT NECK NY 11021</b>			A. State Manifest Document Number <b>NJA 4136643</b>		B. Generator's Site Address <b>21-18 47 ROAD LONG ISLAND CITY NY 11100</b>	
4. Generator's Phone (201) 512-1244		6. US EPA ID Number <b>NJR0000029967</b>		C. State Trans. ID-NJDEP <b>50181</b>		Decal No. <b>08-08-50</b>
5. Transporter 1 Company Name <b>J &amp; D TRUCKING INC.</b>		7. Transporter 2 Company Name		D. Transporter's Phone (609) 691-5145		E. State Trans. ID-NJDEP
9. Designated Facility Name and Site Address <b>CLEAN EARTH OF NORTH JERSEY, INC. 105 JACOBUS AVENUE SOUTH KEARNY, NJ 07032</b>		10. US EPA ID Number <b>NJD991291105</b>		F. Transporter's Phone ( )		G. State Facility's ID
11. US DOT Description (Including Proper Shipping Name, Hazard Class or Division, ID Number and Packing Group) HM a. <b>X NO HAZARDOUS WASTE SOLID, NOS (EPA LEAD) 9 NA 3077 PKG: III</b>			12. Containers No. Type	13. Total Quantity	14. Unit Wt./Vol	L. Waste No.
			<b>XX</b>	<b>1</b>	<b>20</b>	<b>Y D-0-0-8</b>
J. Additional Descriptions for Materials Listed Above <b>E/S ALSO D008; 100% SOIL</b>			K. Handling Codes for Wastes Listed Above			
15. Special Handling Instructions and Additional Information <b>(5)</b>						
16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to any applicable international and national government regulations. If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated, the program I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.						
Printed/Typed Name <b>SEAN GROSZKOWSKI FOR FPSS of LIC, LLC</b>		Signature <i>[Signature]</i>		Month Day Year <b>11/20/02</b>		
17. Transporter 1 Acknowledgement of Receipt of Materials Printed/Typed Name <b>Michael Sims</b>		Signature <i>[Signature]</i>		Month Day Year <b>11/20/02</b>		
18. Transporter 2 Acknowledgement of Receipt of Materials Printed/Typed Name		Signature		Month Day Year		
19. Discrepancy Indication Space <b>RECEIVED PENDING REVISION REVIEW AND QUALITY CONTROL</b> <b>Received 5379</b>						
20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in item 19 Printed/Typed Name <b>KIRTI DAVE</b>		Signature <i>[Signature]</i>		Month Day Year <b>11/20/02</b>		

NJ 4136643

Reorder From: **PRINTSETICS** • 502 SOUTH AVENUE, GARWOOD, NJ 07027 • (908) 926-1222 • www.printsetics.com #998

①



GENERATOR **CDI**

MAN. NO. **4136643**

TRANSPORTER **J&D**

VEHICLE ID. **# 3**

DRIVER ON OFF

REMARKS:

**D = 080850**

**P AP 9856 - NJ.**

IN

79500 LB

06:48 AM 11/20/02

OUT

25720 LB

08:26 AM 11/20/02

**53791**

**WEIGH-TRONIX**

**WEIGHER**



115 JACOBUS AVE  
SOUTH KEARNY  
NJ 07032  
(973) 344-4004

CUSTOMER # 770001  
CUSTOMER ALLIED WASTE INT.  
CONTACT APRIL FLEETING  
PHONE 516 582 1299

JOB SITE CDT DIST. LLC  
101 16th ROAD  
LONG ISLAND CITY  
NY 11106

EPA ID. # NY90000000077 ZONE BE

DRIVER *Alvin Smith*

PULL  PICK-UP  PULL/REPLACE  PUMP TANK  OTHER  
 DELIVER  INWITH  DELIVER/WAIT & PULL  PUMP DRUMS

CLEAN EARTH TO PROVIDE	YES	NO	#	CLEAN EARTH TO PROVIDE	YES	NO	#	CLEAN EARTH TO PROVIDE	YES	NO	#
MANIFEST				LINER				LIFT			
H/T LABEL				MT. DRUM				XTRA HOSE			
D/L LABEL				OVERPACK				HELPER			

MANIFEST NUMBER OF (FIRST ONE) DRUMS/GALS/YARDS  
 DATE RECEIVED

PURCHASE ORDER #

NO. AND TYPES CONT. WASTE DESCRIPTION APP.# PRC.# NO. AND TYPES CONT. WASTE DESCRIPTION APP.# PRC.#

NO. AND TYPES CONT.	WASTE DESCRIPTION	APP.#	PRC.#	NO. AND TYPES CONT.	WASTE DESCRIPTION	APP.#	PRC.#
I	LEAD COIL	201	III				
II			IV				

COMMENTS: *SEE DWG.*

WASTE *SEE DWG. TRANSPORTING FOR S&W* SCHEDULED DATE *11/18/02*

PRINTED NAME: DATE:

C	NO. OF CONTAINERS	CONT. TYPE	PROPER D.O.T. SHIPPING NAME	WASTE TYPE	DISPOSAL SITE(S)	T <sub>RA</sub>	MANIFEST # (S)	DISPOSAL SITE(S)	T <sub>RA</sub>	MANIFEST # (S)
A			PO HAZARDOUS WASTE SOLID, NOS	DO00						

DATE COMPLETED: OPERATIONS DEPARTMENT SIGNOFF:



115 JACOBUS AVE  
SOUTH KEARNY  
NJ 07032  
(973) 344-4004

CUSTOMER #  
CUSTOMER  
CONTACT  
PHONE

JOB SITE  
EPA ID. #

ZONE

DRIVER *Boyd*

PULL     PICK-UP     PULL/REPLACE     PUMP TANK     OTHER  
 DELIVER     IN/WITH     DELIVER/WAIT & PULL     PUMP DRUMS

CL	NEARTH TO	YES	NO	#	CLEAN EARTH TO PROVIDE	YES	NO	#	CLEAN EARTH TO PROVIDE	YES	NO	#
	MANIFEST	Y			LINER				LIFT			
	HAZ LABEL	Y			MT. DRUM				XTRA HOSE			
	DC LABEL	Y			OVERPACK				HELPER			

PURCHASE ORDER #

REQ. E.T.A.    POS. E.T.A.

NO. AND TYPES CONT.	WASTE DESCRIPTION	APP.#	PRC.#	NO. AND TYPES CONT.	WASTE DESCRIPTION	APP.#	PRC.#
I	20.00 LEAD SOIL YD 0008			III			
II				IV			

COMMENTS: J&D DWL

STE J & D TRUCKING INC. TRANSPORTING FOR SAM SCHEDULED DATE 11-19-01



State of New Jersey  
Department of Environmental Protection  
Hazardous Waste Regulation Program  
Manifest Section



2

P.O. Box 414, Trenton, NJ 08625-0414 **EMERGENCY CONTACT: 800-966-3478**

Please type or print in block letters. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved.

OMB No. 2050-0039.

<b>UNIFORM HAZARDOUS WASTE MANIFEST</b>		1. Generator's US EPA ID No. <b>NYR00008837787243</b>	Manifest Document No.	2. Page 1 of 1	Information in the shaded areas is not required by Federal law.		
3. Generator's Name and Mailing Address <b>CDI 21ST LIC, LLC 525 NORTHERN BOULEVARD GREAT NECK NY 11021</b>				A. State Manifest Document Number <b>NJA 4136644</b>			
4. Generator's Phone ( 201 ) 512-1244				B. State Generator ID (Gen. Site Address) <b>21 ST 44 ROAD LONG ISLAND CITY NY 11106</b>			
5. Transporter 1 Company Name <b>J &amp; D TRUCKING INC.</b>		6. US EPA ID Number <b>NJR000029967</b>		C. State Trans. ID-NJDEP <b>50181</b>		Decal No. <b>08893-7</b>	
7. Transporter 2 Company Name		8. US EPA ID Number		D. Transporter's Phone ( 609 ) 5145		E. State Trans. ID-NJDEP	
9. Designated Facility Name and Site Address <b>CLEAN EARTH OF NORTH JERSEY, INC. 105 JACOBUS AVENUE SOUTH KEARNY, NJ 07032</b>				10. US EPA ID Number <b>NJD991291105</b>			
11. US DOT Description ( Including Proper Shipping Name, Hazard Class or Division, ID Number and Packing Group) <b>HM a. <b>X</b> <b>NO HAZARDOUS WASTE SOLID, NOS (EPA LEAD) 9 NA 3077 PKG: III</b></b>				12. Containers No.	13. Total Quantity	14. Unit Wt/Vol	15. Waste No.
					<b>EST</b>		
				<b>XX</b>	<b>1</b>	<b>DT</b>	<b>XX</b>
				<b>20</b>	<b>4</b>	<b>D</b>	<b>008</b>
J. Additional Descriptions for Materials Listed Above <b>E/S ALSO D008; 100% SOIL</b>				K. Handling Codes for Wastes Listed Above			
a.				a.			
b.				b.			
c.				c.			
d.				d.			
16. Special Handling Instructions and Additional Information							
16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations. If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated, the degree of risk determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment. OR, if I am a small quantity generator, I have made a good faith effort to minimize the waste generated, and select the best waste management method that is available to me and that I can afford.							
Printed/Typed Name <b>SEAN GROSZKOWSKI</b>				Signature <i>[Signature]</i>		Month Day Year <b>11/20/02</b>	
17. Transporter 1 Acknowledgement of Receipt of Material Printed/Typed Name <b>Boyd Campbell</b>				Signature <i>[Signature]</i>		Month Day Year <b>11/20/02</b>	
18. Transporter 2 Acknowledgement of Receipt of Materials Printed/Typed Name				Signature		Month Day Year	
19. Discrepancy Indication Space <b>RECEIVED PENDING REVISION REVIEW AND QUALITY CONTROL</b>							
20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19 Printed/Typed Name <b>KIRTI DAVE</b>				Signature <i>[Signature]</i>		Month Day Year <b>11/20/02</b>	

NJA 4136644

JED  
#17.



GENERATOR *EDI*

MAN. NO. 4130644

TRANSPORTER *JED*

VEHICLE ID. 17

DRIVER ON OFF

REMARKS:

IN

81480 LB

07:29 AM 11/20/02

OUT

26420 LB

08:40 AM 11/20/02

*55060*

**WEIGH-TRONIX**



**WEIGHER**



115 JACOBUS AVE  
SOUTH KEARNY  
NJ 07032  
(973) 344-4004

CUSTOMER # 270701  
CUSTOMER ALLIED WASTE INC.  
CONTACT ARNIE FLEMING  
PHONE 201-512-1270

JOB SITE COI 2351, LTD  
21-40 94 ROAD  
LONG ISLAND CITY  
NY 11100

EPA ID. # NYR0000081,7

ZONE  
BE

DEIVER

- PULL
- PICK-UP
- PULL/REPLACE
- PUMP TANK
- OTHER
- DELIVER
- INWITH
- DELIVER/WAIT & PULL
- PUMP DRUMS

CLEAN EARTH TO PROVIDE	YES	NO	#	CLEAN EARTH TO PROVIDE	YES	NO	#	CLEAN EARTH TO PROVIDE	YES	NO	#
MANIFEST				LINER				LIFT			
HAZ LABEL				MT. DRUM				XTRA HOSE			
DC LABEL				OVERPACK				HELPER			

PURCHASE ORDER #

REQ. E.T.A. POS. E.T.A.

NO. AND TYPES CONT.	WASTE DESCRIPTION	APP.#	PRC.#	NO. AND TYPES CONT.	WASTE DESCRIPTION	APP.#	PRC.#
I	LEAD SOIL	201	III				
II			IV				

COMMENTS: JAD DWL

ALLIED WASTE INC. TRANSPORTING FIRM 549

SCHEDULED DATE 11/15/02

OPERATIONS DEPARTMENT SIGNOFF

NO. OF CONTAINERS	CONT. TYPE	PROPER D.O.T. SHIPPING NAME	WASTE TYPE	DISPOSAL SITE(S)	T <sub>RA</sub>	MANIFEST # (S)	DISPOSAL SITE(S)	T <sub>RA</sub>	MANIFEST # (S)
A		NO HAZARDOUS WASTE SOLID, NOS	D008						
		APF 201							
		COMPLETED ON:	BY:						
B									
		COMPLETED ON:	BY:						
C									
		COMPLETED ON:	BY:						

DATE COMPLETED: OPERATIONS DEPARTMENT SIGNOFF:



**715 JACOBUS AVE  
SOUTH KEARNY NJ  
NJ 07032  
(973) 344-4004**

**CUSTOMER #**  
**CUSTOMER** ALLIED WASTE INC.  
**CONTACT** STE HARRY  
**PHONE** 973-661-6457

**JOB SITE**  
21 IN TDR ROAD  
LONG ISLAND

**DRIVER** *Bill H*

**EPA ID. #**                      **ZONE** 05

PULL     PICK-UP     PULL/REPLACE     PUMP TANK     OTHER  
 DELIVER     IN/WITH     DELIVER/WAIT & PULL     PUMP DRUMS

**NUMBER OF DRUMS/CONTAINERS**             
**OTHER:**                     

CLEAN EARTH TO PROVIDE     CLEAN EARTH TO PROVIDE     CLEAN EARTH TO PROVIDE

**PURCHASE ORDER #**                     

YES	NO	#	YES	NO	#	YES	NO	#
<input checked="" type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	
<input checked="" type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	
<input checked="" type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	

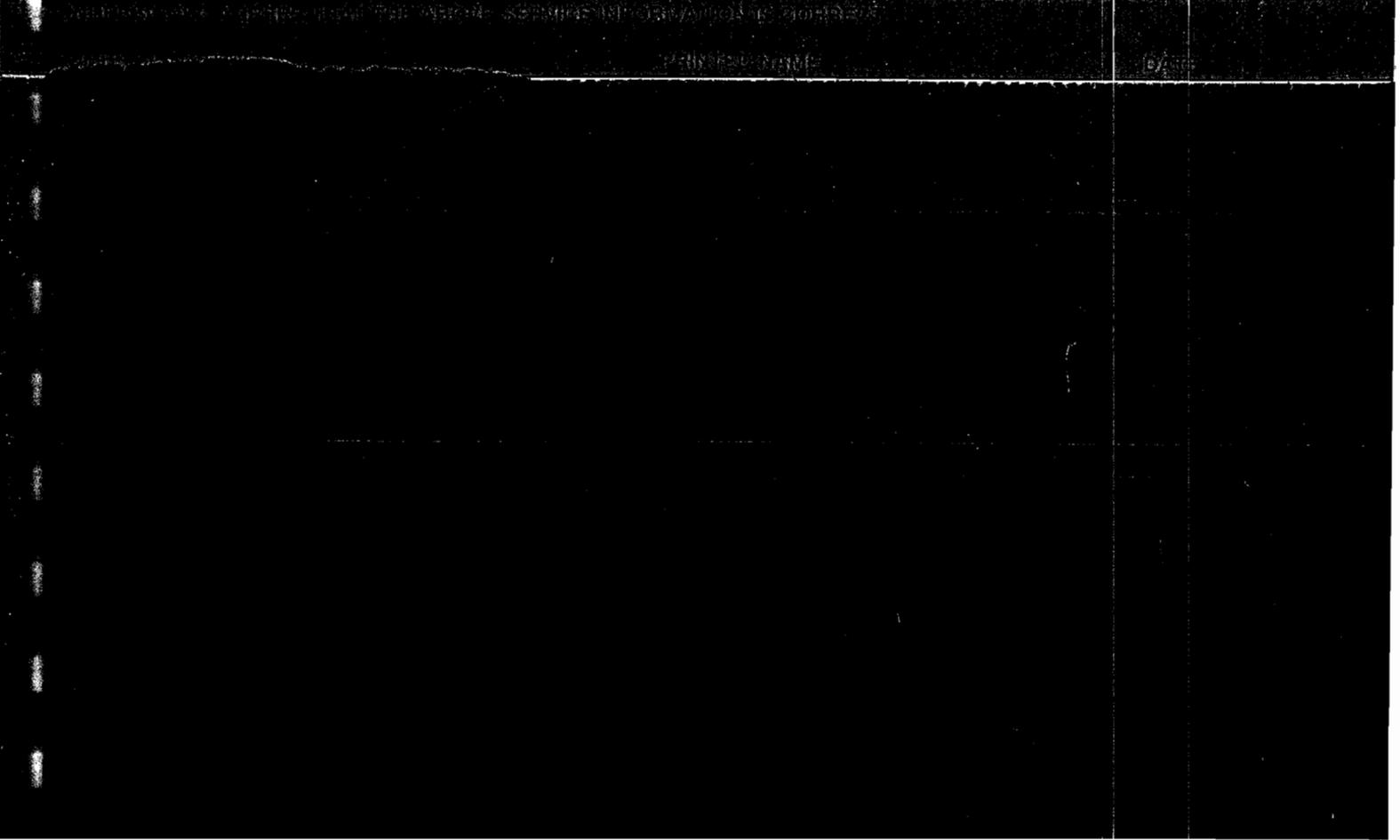
**GROSS WEIGHT**             
**NET WEIGHT**           

NO. AND TYPES CONT.     WASTE DESCRIPTION     APP.#     PRC.#

**REQ. E.T.A.**                         **POS. E.T.A.**                     

NO. AND TYPES CONT.	WASTE DESCRIPTION	APP.#	PRC.#	NO. AND TYPES CONT.	WASTE DESCRIPTION	APP.#	PRC.#
20.00 YD	LEAD SOIL D006	201	III				
II			IV				

**COMMENTS:** AUCHTER DWL 20YD BOX  
**WASTE** AUCHTER INDUSTRIAL VAC SERVICE TRANSPORTING FOR S&W  
**SCHEDULED DATE** 11/23/02





State of New Jersey  
 Department of Environmental Protection  
 Hazardous Waste Regulation Program  
 Manifest Section



P.O. Box 414, Trenton, NJ 08625-0414 EMERGENCY CONTACT: 800-966-3478

4136693

Please type or print in block letters. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator's US EPA ID No. NYR000008837787566		Manifest Document No.		2. Page 1 of 1		Information in the shaded areas is not required by Federal law.			
3. Generator's Name and Mailing Address CDI 21ST LIC, LLC 525 NORTHERN BOULEVARD GREAT NECK NY 11021						A. State Manifest Document Number NJ 4136693					
4. Generator's Phone (201) 512-1244						B. State Generator ID (66%) Site Address 21-16 44TH ROAD LONG ISLAND CITY NY 10000					
5. Transporter 1 Company Name AUCHTER INDUSTRIAL VAC SERVICE				6. US EPA ID Number NJ D 9 8 0 7 7 2 7 6 8		C. State Trans. ID-NJDEP 06993		Decal No. 082803			
7. Transporter 2 Company Name						D. Transporter's Phone 908-862-2277					
9. Designated Facility Name and Site Address CLEAN EARTH OF NORTH JERSEY, INC. 105 JACOBUS AVENUE SOUTH KEARNY, NJ 07032						C. US EPA ID Number		Decal No.			
11. US DOT Description (Including Proper Shipping Name, Hazard Class or Division, ID Number and Packing Group) HM X RQ HAZARDOUS WASTE SOLID, NOS (EPA LEAD) 9 NA 3077 PKG: III						12. Containers No. Type		13. Total Quantity		14. Unit Wt/vol Waste No. Y D 0 0 8	
Additional Materials Listed Above E/S ALSO D008 100% SOIL						K. Handling Codes for Wastes Listed Above CENJ APP.990001 (a):201		b.		c.	
15. Special Handling Instructions and Additional Information (a) NY DEC NJ 197						b.		d.			
16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by product name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations. If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.											
Printed/Typed Name SEAN GROSZKOWSKI FOR FPSS OF LIC, LLC				Signature <i>[Signature]</i>				Month Day Year 11 23 02			
17. Transporter 1 Acknowledgement of Receipt of Materials Printed/Typed Name <i>[Signature]</i>				Signature <i>[Signature]</i>				Month Day Year 11 23 02			
18. Transporter 2 Acknowledgement of Receipt of Materials Printed/Typed Name				Signature				Month Day Year			
19. Discrepancy Indication											
20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in item 19. Printed/Typed Name <i>[Signature]</i>											
Signature <i>[Signature]</i>				Signature <i>[Signature]</i>				Month Day Year 11 23 02			

RECEIVED PENDING MANIFEST  
 REVIEW AND QUALITY CONTROL

SIGNATURE AND INFORMATION MUST BE LEGIBLE ON ALL COPIES

NJ 4136693

26/158.20



GENERATOR **CPI**

MAN. NO. **4136693**

TRANSPORTER **Auch**

VEHICLE ID. **158-20**

DRIVER ON OFF

REMARKS:

**RT 87566**

IN

84680 LB

09:24 AM 11/23/02

OUT

34480 LB

05:07 PM 11/22/02

**50200**

**WEIGH-TRONIX®**



**WEIGHER**



115 JACOBUS AVE  
SOUTH KEARNY  
NJ 07032  
(973) 344-4004

CUSTOMER #  
CUSTOMER ALLIED WASTE INC.  
CONTACT STEVE BERRY  
PHONE 516-466-8717

JOB SITE COT 21ST STREET LLC  
21 16 4TH ROAD  
LONG ISLAND CITY  
NY 10000

EPA ID. # NYR0000088177 ZONE BF

DRIVER [Signature]

- PULL  PICK-UP  PULL/REPLACE  PUMP TANK  OTHER
- DELIVER  IN/WITH  DELIVER/WAIT & PULL  PUMP DRUMS

MANIFEST NUMBER OF DRUMS/GAL/YARDS

CLEAN EARTH TO PROVIDE	YES	NO	#	CLEAN EARTH TO PROVIDE	YES	NO	#	CLEAN EARTH TO PROVIDE	YES	NO	#
MANIFEST				LINER		N		LIFT		N	
FZ LABEL				MT. DRUM		N		XTRA HOSE		N	
DT LABEL				OVERPACK		N		HELPER		N	

PURCHASE ORDER #

NO. AND TYPES CONT. WASTE DESCRIPTION APP.# PRC.#

REQ. E.T.A. POS. E.T.A.

NO. AND TYPES CONT.	WASTE DESCRIPTION	APP.#	PRC.#	NO. AND TYPES CONT.	WASTE DESCRIPTION	APP.#	PRC.#
I	20.00 LEAD SOIL	201		III			
II				IV			

COMMENTS:

AUCHTER DMI 20YD BOX  
AUCHTER INDUSTRIAL VAC SERVICE TRANSPORTING FOR S&W SCHEDULED DATE 11/23/02

NO. OF CONTAINERS	CONT. TYPE	PROPER D.O.T. SHIPPING NAME	WASTE TYPE	DISPOSAL SITE(S)	T <sub>RA</sub>	MANIFEST # (S)	DISPOSAL SITE(S)	T <sub>RA</sub>	MANIFEST # (S)
A		PO HAZARDOUS WASTE SOLID, NUS	D008						
		APP 201							
		COMPLETED ON:	BY:						
B									
		COMPLETED ON:	BY:						
C									
		COMPLETED ON:	BY:						
D									
		COMPLETED ON:	BY:						

DATE COMPLETED:

OPERATIONS DEPARTMENT SIGNOFF:



115 JACOBUS AVE  
SOUTH KEARNY  
NJ 07032  
(973) 344-4004

CUSTOMER # 990001  
CUSTOMER ALLIED WASTE INC.  
CONTACT STU BERRY  
PHONE 516-867-6452

JOB SITE  
21-16 44TH ROAD  
LONG ISLAND CITY  
NY 11100

EPA ID. # NYR000000377

ZONE BE

WATER  
PULL PICK-UP PULL/REPLACE PUMP TANK OTHER  
DELIVER INWITH DELIVER/WAIT & PULL PUMP DRUMS

NUMBER OF  
DRUMS/GALLONS/YARDS

CLEAN EARTH TO PROVIDE	YES	NO	#	CLEAN EARTH TO PROVIDE	YES	NO	#	CLEAN EARTH TO PROVIDE	YES	NO	#
MANIFEST	Y		2100	LINEAR		N		LIFT		N	
P*Z LABEL	Y			MT. DRUM		N		XTRA HOSE		N	
T LABEL	Y			OVERPACK		N		HELPER		N	

PURCHASE ORDER #

NO. AND TYPES CONT. WASTE DESCRIPTION APP.# PRC.#

REQ. E.T.A. POS. E.T.A.

NO. AND TYPES CONT.	WASTE DESCRIPTION	APP.#	PRC.#	NO. AND TYPES CONT.	WASTE DESCRIPTION	APP.#	PRC.#
I 20.00 YD	LEAD SOIL D008	201		III			
II				IV			

COMMENTS: AUCHTER DML 20YD BOX PLS. DO 7:00 Am  
AUCHTER INDUSTRIAL VAC SERVICE TRANSPORTING FOR S&N SCHEDULED DATE 11/27/02

PRINTED NAME DATE



State of New Jersey  
Department of Environmental Protection  
Hazardous Waste Regulation Program  
Manifest Section



P.O. Box 414, Trenton, NJ 08625-0414 EMERGENCY CONTACT: 800-966-3478

Please type or print in block letters. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved.

OMB No. 2050-0039.

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator's US EPA ID No. NYR00008837787705		Manifest Document No. 4136725		2. Page 1 of 1		Information in the shaded areas is not required by Federal law.					
3. Generator's Name and Mailing Address CDI 21ST LLC, LLC 525 NORTHERN BOULEVARD GREAT NECK NY 11021				A. State Manifest Document Number NJ 4136725									
4. Generator's Phone ( ) 201 512-1244				B. State Generator ID (Gen. Site Address) 21-16 44TH ROAD LONG ISLAND CITY NY 11106									
5. Transporter 1 Company Name BUCHTER INDUSTRIAL VAC SERVICE		6. US EPA ID Number NJ D980772768		C. State Trans. ID NJDEP 06203		Decal No. 082754		D. Transporter's Phone 908-862-2277					
7. Transporter 2 Company Name		8. US EPA ID Number		E. State Trans. ID NJDEP		Decal No.		F. Transporter's Phone					
9. Designated Facility Name and Site Address CLEAN EARTH OF NORTH JERSEY, INC. 105 JACOBUS AVENUE SOUTH KEARNY NJ 07032				10. US EPA ID Number NJ D991291105		G. State Facility's ID		H. Facility's Phone 973 344-4004					
11. US DOT Description (Including Proper Shipping Name, Hazard Class or Division, HM ID Number and Packing Group)				12. Containers		13. Total Quantity		14. Unit Wt/Vol		15. Waste No.			
a. X RO HAZARDOUS WASTE SOLID, NOS (EPA LEAD) 9 NA 3077 PKG: ILL				1		1		25		D O O B			
b.													
c.													
d.													
16. Additional Descriptions for Materials Listed Above E/S ALSO DOOR 100% SOIL				K. Handling Codes for Wastes Listed Above CENJ APP.990001 (a):201				a.		c.			
								b.		d.			
15. Special Handling Instructions and Additional Information (a)													
16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport in compliance with applicable federal, state and local government regulations. If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated, the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment OR if I am a small quantity generator, I have made a good faith effort to reduce my hazardous waste generation and select the best waste management method that is available to me and that is not prohibited.													
Printed/Typed Name SEAN GROSZKOWSKI AS AGENT FOR FPSS OF LLC, LLC				Signature <i>[Signature]</i>				Month Day Year 12 20 202					
17. Transporter 1 Acknowledgement of Receipt of Materials Printed/Typed Name P. SNIFFEN				Signature <i>[Signature]</i>				Month Day Year 12 20 202					
18. Transporter 2 Acknowledgement of Receipt of Materials Printed/Typed Name				Signature				Month Day Year					
19. Discrepancy Indication Space													
<b>REVIEW AND QUALITY CONTROL</b>													
20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in item 19. Printed/Typed Name <i>[Signature]</i>													
Signature <i>[Signature]</i>				Signature <i>[Signature]</i>				Month Day Year 12 20 202					

GENERATOR

TRANSPORTER

FACILITY

NJ 4136725

89-20  
LHC NY



IN

GENERATOR

MAN. NO.

ADWLE DT  
4136725

55280 LB

TRANSPORTER

09:26 AM 12/02/02

VEHICLE ID.

89-20

DRIVER ON

OFF

OUT

REMARKS:

34180 LB

2187705

06:09 AM 12/02/02

2400

WEIGH-TRONIX®

WEIGHER

 115 JACOBUS AVE  
SOUTH KEARNY  
NJ 07032  
(973) 344-4004

CUSTOMER # 117705  
CUSTOMER ALLIED WASTE INC.  
CONTACT STEVE  
PHONE 973 344 4004

JOB SITE 101 101 LLC  
21-15 40TH ROAD  
LONG ISLAND CITY  
NY 11106  
EPA ID. # NJ0000000377 ZONE BE

DRIVER

MEMBER OF THE NATIONAL ASSOCIATION OF WASTE TRANSPORTERS

PULL  PICK-UP  PULL/REPLACE  PUMP TANK  OTHER  
 DELIVER  IN/WITH  DELIVER/WAIT & PULL  PUMP DRUMS

CLEAN EARTH TO PROVIDE	YES	NO	#	CLEAN EARTH TO PROVIDE	YES	NO	#	CLEAN EARTH TO PROVIDE	YES	NO	#
MANIFEST				LINER				LIFT			
MT. LABEL				MT. DRUM				XTRA HOSE			
CL. LABEL				OVERPACK				HELPER			

PURCHASE ORDER #

NO. AND TYPES CONT.	WASTE DESCRIPTION	APP.#	PRC.#	NO. AND TYPES CONT.	WASTE DESCRIPTION	APP.#	PRC.#
I	LEAD BATTERY	201		III			
II				IV			

COMMENTS: ADDITION DUL 2000 BOX PLS. SO 7:00 AM  
 NOTE: ADDITION INDUSTRIAL WASTE SERVICE TRANSPORTING FOR SEW SCHEDULED DATE 11/27/02

PRINTED NAME DATE

NO. OF CONTAINERS	CONT. TYPE	PROPER D.O.T. SHIPPING NAME	WASTE TYPE	DISPOSAL SITE(S)	T <sub>RA</sub>	MANIFEST # (S)	DISPOSAL SITE(S)	T <sub>RA</sub>	MANIFEST # (S)
A		NO HAZARDOUS WASTE SOLID, HUS	1008						
		APP 201							
		COMPLETED ON:	BY:						
		COMPLETED ON:	BY:						
		COMPLETED ON:	BY:						
		COMPLETED ON:	BY:						

DATE COMPLETED: OPERATIONS DEPARTMENT SIGNOFF:

**SOIL MANIFESTS**  
**PARKING LOT SOIL - TOPSOIL LAYER**

Transaction No. 40968  
Clean Earth of Phila., Inc.  
3201 S. 61st Street  
Philadelphia, Pa. 19153  
Have a nice day!

In: 03/27/2003 09:28  
Out: 03/27/2003 09:28

Scale 0  
Tare 1

Vehicle ID: 0721 Middlesex Materials  
Customer ID: 4 Allied Environmental  
Material ID: 001 Soil  
Approval ID: 5491 CDI 21st LID

New Field  
Gross: 48.60 tn  
Tare: 12.77 tn (M)  
Net: 35.83 tn

Operator: J

Operator Signature:  Driver Signature: Welson

Approval Load Count : 1  
Approval Net Weight : 35.83 tn

# ALLIED WASTE SERVICES, INC.

2163 MERRICK AVE., MERRICK, NY 11566 • TEL: 1-800-969-DIRT • FAX: 516-867-6480

Log Number
2746

## NON-HAZARDOUS MATERIAL MANIFEST

### GENERATOR

Generator Name CDI 21st LIC, LLC Shipping Location Same

Address 525 Northern Blvd Address 21-16 44th Road

Great Neck NY LIC NY

Phone No. \_\_\_\_\_ Phone No. \_\_\_\_\_

Approval Number  <u>5451</u>	Description of Material  <u>Non hazardous petrol Contaminated soil Destined for recycling</u>	Codes	Gross Weight <u>48.60</u>	Net Weight (Tons)  <u>35.83</u>
			Tare Weight <u>12.77</u>	
			Net Weight <u>35.83</u>	

I hereby certify that the above named material does not contain free liquid as defined by 40 CFR Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, is not a DOT hazardous substance as defined by 49 CFR Part 172 or any applicable state law, has been fully and accurately described above, classified, packaged and is in proper condition for transportation according to applicable regulations.

Generator Authorized Agent Name \_\_\_\_\_ Signature \_\_\_\_\_ Shipment Date \_\_\_\_\_

### TRANSPORTER

Transporter Name Middlesex Materials Inc Driver Name (Print) Nelson Rodriguez

Address 245 Main Street Suite One Woodbridge, NJ 07095 Vehicle License No./State AE 737E NJ

NJ458 Truck Number 721

State Permit # \_\_\_\_\_

I hereby certify that the above named material was picked up at the generator site listed above.

I hereby certify that the above named material was delivered without incident to the destination listed below.

Nelson Rodriguez 3-27-06 Nelson Rodriguez 3-27-03

Driver Signature Shipment Date Driver Signature Delivery Date

### DESTINATION

Site Name Clean Earth of Philadelphia (SRP) Phone No. \_\_\_\_\_

Address 3201 S. 61st. Street Philadelphia, PA 301220 State Permit # \_\_\_\_\_

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

Dm \_\_\_\_\_ 3-27-03

Name of Authorized Agent Signature Receipt Date

CONTRACTOR

# ALLIED WASTE SERVICES, INC.

2163 MERRICK AVE., MERRICK, NY 11566 • TEL: 1-800-969-DIRT • FAX: 516-867-6480

Log Number  
2746

## NON-HAZARDOUS MATERIAL MANIFEST

### GENERATOR

Generator Name CDI 21st LIC, LLC Shipping Location Same  
 Address 525 Northern Blvd Address 21-16 44th Road  
Great Neck NY LIC NY  
 Phone No. \_\_\_\_\_ Phone No. \_\_\_\_\_

Approval Number	Description of Material	Codes	Gross Weight	Net Weight (Tons)
	Non hazardous petrol Contaminated soil Destined for recycling		Tare Weight	
			Net Weight	

I hereby certify that the above named material does not contain free liquid as defined by 40 CFR Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, is not a DOT hazardous substance as defined by 49 CFR Part 172 or any applicable state law, has been fully and accurately described above, classified, packaged and is in proper condition for transportation according to applicable regulations.

Generator Authorized Agent Name \_\_\_\_\_ Signature \_\_\_\_\_ Shipment Date \_\_\_\_\_

### TRANSPORTER

Transporter Name Middlesex Materials Inc Driver Name (Print) Nelson Rodriguez  
 Address 245 Main Street Vehicle License No./State AE 737E NJ  
Suite One Woodbridge, NJ 07095 Truck Number 721  
 State Permit # NJ458

I hereby certify that the above named material was picked up at the generator site listed above.

I hereby certify that the above named material was delivered without incident to the destination listed below.

Nelson Rodriguez 3-27-06 Nelson Rodriguez 3-27-03  
 Driver Signature Shipment Date Driver Signature Delivery Date

### DESTINATION

Site Name Clean Earth of Philadelphia (SRP) Phone No. \_\_\_\_\_  
 Address 3201 S. 61st. Street Philadelphia, PA 301220  
 State Permit # \_\_\_\_\_

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

Name of Authorized Agent \_\_\_\_\_ Signature \_\_\_\_\_ Receipt Date \_\_\_\_\_

GENERATOR

Transaction No.  
46978

Clean Earth of Phila., Inc.  
3201 S. 81st Street  
Philadelphia, Pa. 19153  
Have a nice day!

Date Time Scale  
In: 0  
Out: 03/17/2003 10:14 1

Vehicle ID: m714  
Customer ID: G  
Material ID: 001  
Approval ID: E491

Middlesex Materials  
Allied Environmental  
Soil  
CDI 81st LIC

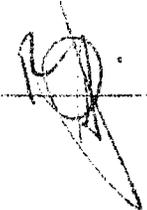
New Field  
Gross: 40.28 tn  
Tare: 13.29 tn (M)  
Net: 26.99 tn

Operator: 3

Operator Signature: \_\_\_\_\_



Driver Signature: \_\_\_\_\_



Approval Load Count : 2  
Approval Net Weight : 70.82 tn

# ALLIED WASTE SERVICES, INC.

2163 MERRICK AVE., MERRICK, NY 11566 • TEL: 1-800-969-DIRT • FAX: 516-867-6480

Log Number

2746

## NON-HAZARDOUS MATERIAL MANIFEST

### GENERATOR

Generator Name GDI 21st LIC, LLC Shipping Location Same  
 Address 525 Northern Blvd Address 21-16 44th Road  
Great Neck NY LIC NY  
 Phone No. \_\_\_\_\_ Phone No. \_\_\_\_\_

Approval Number  <u>5451</u>	Description of Material  <u>Non hazardous petrol Contaminated soil Destined for recycling</u>	Codes	Gross Weight <u>48.28</u>	Net Weight (Tons)  <u>34.99</u>
			Tare Weight <u>13.29</u>	
			Net Weight <u>34.99</u>	

I hereby certify that the above named material does not contain free liquid as defined by 40 CFR Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, is not a DOT hazardous substance as defined by 49 CFR Part 172 or any applicable state law, has been fully and accurately described above, classified, packaged and is in proper condition for transportation according to applicable regulations.

[Signature] SEAN GROSZKOWSKI Agent for FPSS of LIC. 3/27/03  
 Generator Authorized Agent Name Signature Shipment Date

### TRANSPORTER

Transporter Name Middlesex Materials Inc Driver Name (Print) R. Justus  
 Address 245 Main Street Suite One Woodbridge, NJ 07095 Vehicle License No./State A643710  
NJ458 Truck Number 714  
 State Permit # \_\_\_\_\_

I hereby certify that the above named material was picked up at the generator site listed above.

I hereby certify that the above named material was delivered without incident to the destination listed below.

[Signature] 3-27-03 [Signature] 3-27-03  
 Driver Signature Shipment Date Driver Signature Delivery Date

### DESTINATION

Site Name Clean Earth of Philadelphia (SRP) Phone No. \_\_\_\_\_  
 Address 3201 S. 61st. Street Philadelphia, PA 301220  
 State Permit # \_\_\_\_\_

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

[Signature] 3-27-03  
 Name of Authorized Agent Signature Receipt Date

CONTRACTOR

# ALLIED WASTE SERVICES, INC.

2163 MERRICK AVE., MERRICK, NY 11566 • TEL: 1-800-969-DIRT • FAX: 516-867-6480

Log Number  
2746

## NON-HAZARDOUS MATERIAL MANIFEST

### GENERATOR

Generator Name CDI 21st LIC, LLC Shipping Location Same  
 Address 525 Northern Blvd Address 21-16 44th Road  
Great Neck NY LIC NY  
 Phone No. \_\_\_\_\_ Phone No. \_\_\_\_\_

Approval Number	Description of Material	Codes	Gross Weight	Net Weight (Tons)
	Non hazardous petrol Contaminated soil Destined for recycling		Tare Weight	
			Net Weight	

I hereby certify that the above named material does not contain free liquid as defined by 40 CFR Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, is not a DOT hazardous substance as defined by 49 CFR Part 172 or any applicable state law, has been fully and accurately described above, classified, packaged and is in proper condition for transportation according to applicable regulations.

SEAN GROSZKOWSKI AS AGENT FOR FPSS OF LIC. 3/27/03  
 Generator Authorized Agent Name \_\_\_\_\_ Signature \_\_\_\_\_ Shipment Date \_\_\_\_\_

### TRANSPORTER

Transporter Name Middlesex Materials Inc Driver Name (Print) R. Justus  
 Address 245 Main Street Suite One Woodbridge, NJ 07095 Vehicle License No./State A243912  
 State Permit # NJ458 Truck Number 714

I hereby certify that the above named material was picked up at the generator site listed above.

I hereby certify that the above named material was delivered without incident to the destination listed below.

[Signature] 3-27-03 [Signature] 3-27-03  
 Driver Signature \_\_\_\_\_ Shipment Date \_\_\_\_\_ Driver Signature \_\_\_\_\_ Delivery Date \_\_\_\_\_

### DESTINATION

Site Name Clean Earth of Philadelphia (SRP) Phone No. \_\_\_\_\_  
 Address 3201 S. 61st. Street Philadelphia, PA State Permit # 301220

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

Name of Authorized Agent \_\_\_\_\_ Signature \_\_\_\_\_ Rece \_\_\_\_\_  
 GENERATOR

Transaction No. 6697E Clean Earth of Phila., Inc. Date Time Scale  
3201 S. 61st Street In: 0  
Philadelphia, Pa. 19153 Out: 03/27/2003 11:20 1  
Have a nice day!

Vehicle ID: M715 Middlesex Materials Gross: 45.65 tn  
Customer ID: A Allied Environmental Tare: 12.81 tn (M)  
Material ID: 001 Soil Net: 32.84 tn  
Approval ID: 5491 CDI 21st LLC

Operator: J

Operator Signature: 

Driver Signature: 

Approval Load Count : 4  
Approval Net Weight : 132.39 tn

# ALLIED WASTE SERVICES, INC.

2163 MERRICK AVE., MERRICK, NY 11566 • TEL: 1-800-969-DIRT • FAX: 516-867-6480

Log Number  
2746

## NON-HAZARDOUS MATERIAL MANIFEST

### GENERATOR

Generator Name CDI 21st LLC, LLC Shipping Location Same  
 Address 525 Northern Blvd Address 21-16 44th Road  
Great Neck NY LIC NY  
 Phone No. \_\_\_\_\_ Phone No. \_\_\_\_\_

Approval Number	Description of Material	Codes	Gross Weight	Net Weight (Tons)
5491	Non hazardous petrol Contaminated soil Destined for recycling		45.65	32.84
			Tare Weight 12.81	
			Net Weight 32.84	

I hereby certify that the above named material does not contain free liquid as defined by 40 CFR Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, is not a DOT hazardous substance as defined by 49 CFR Part 172 or any applicable state law, has been fully and accurately described above, classified, packaged and is in proper condition for transportation according to applicable regulations.

Generator Authorized Agent Name \_\_\_\_\_ Signature \_\_\_\_\_ Shipment Date \_\_\_\_\_  
**TRANSPORTER**  
 Transporter Name Middlesex Materials Inc Driver Name (Print) R. Jahn  
 Address 245 Main Street Vehicle License No./State AE 812 P  
Suite One Woodbridge, NJ 07095 Truck Number 715  
 State Permit # NJ458

I hereby certify that the above named material was picked up at the generator site listed above.

I hereby certify that the above named material was delivered without incident to the destination listed below.

Driver Signature R. Jahn Shipment Date 3/27/03 Driver Signature R. Jahn Delivery Date 3/27/03

### DESTINATION

Site Name Clean Earth of Philadelphia (SRP) Phone No. \_\_\_\_\_  
 Address 3201 S. 61st. Street Philadelphia, PA State Permit # 301220

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

Name of Authorized Agent Gregg Dromes Signature \_\_\_\_\_ Receipt Date 3.27.03

### CONTRACTOR

# ALLIED WASTE SERVICES, INC.

2163 MERRICK AVE., MERRICK, NY 11566 • TEL: 1-800-969-DIRT • FAX: 516-867-6480

Log Number  
2746

715

## NON-HAZARDOUS MATERIAL MANIFEST

### GENERATOR

Generator Name CDI 21st LIC, LLC Shipping Location Same  
 Address 525 Northern Blvd Address 21-16 44th Road  
Great Neck NY LIC NY  
 Phone No. \_\_\_\_\_ Phone No. \_\_\_\_\_

Approval Number	Description of Material	Codes	Gross Weight	Net Weight (Tons)
			Tare Weight	
			Net Weight	

Non hazardous petrol  
 Contaminated soil  
 Destined for recycling

I hereby certify that the above named material does not contain free liquid as defined by 40 CFR Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, is not a DOT hazardous substance as defined by 49 CFR Part 172 or any applicable state law, has been fully and accurately described above, classified, packaged and is in proper condition for transportation according to applicable regulations.

[Signature]  
 Generator Authorized Agent Name \_\_\_\_\_ Signature \_\_\_\_\_ Shipment Date \_\_\_\_\_

### TRANSPORTER

Transporter Name Middlesex Materials Inc Driver Name (Print) R. [Signature]  
 Address 245 Main Street Vehicle License No./State AE 812 P  
Suite One Woodbridge, NJ 07095 Truck Number 715

State Permit # NJ458

I hereby certify that the above named material was picked up at the generator site listed above.

I hereby certify that the above named material was delivered without incident to the destination listed below.

[Signature] 3/27/03 Driver Signature \_\_\_\_\_ Shipment Date \_\_\_\_\_  
[Signature] 3/27/03 Driver Signature \_\_\_\_\_ Delivery Date \_\_\_\_\_

### DESTINATION

Site Name Clean Earth of Philadelphia (SRP) Phone No. \_\_\_\_\_  
 Address 3201 S. 61st. Street Philadelphia, PA State Permit # 301220

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

Name of Authorized Agent \_\_\_\_\_ Signature \_\_\_\_\_ Receipt Date \_\_\_\_\_  
 GENERATOR

Transaction No.  
46972

Clean Earth of Phila., Inc.  
3201 S. 61st Street  
Philadelphia, Pa. 19153  
Have a nice day!

Date Time Scale  
In: @  
Out: 03/27/2003 11:10 1

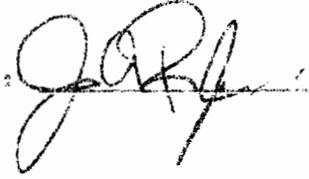
Vehicle ID: M724  
Trailer ID: A  
Material ID: 001  
Approval ID: 5491

Middlesex Materials  
Allied Environmental  
Soil  
CDI Post LLC

New Field  
Gross: 40.85 tn  
Tare: 12.10 tn (10)  
Net: 28.73 tn

Operator: 3

Operator Signature: 

Driver Signature: 

Approval Load Count : 3  
Approval Net Weight : 99.35 tn

# ALLIED WASTE SERVICES, INC.

2163 MERRICK AVE., MERRICK, NY 11566 • TEL: 1-800-969-5411 • FAX: 516-867-6480

Log Number
2746

## NON-HAZARDOUS MATERIAL MANIFEST

### GENERATOR

Generator Name CDI 21st LIC, LLC Shipping Location Same  
 Address 525 Northern Blvd Address 21-16 44th Road  
Great Neck NY LIC NY  
 Phone No. \_\_\_\_\_ Phone No. \_\_\_\_\_

Approval Number <u>5491</u>	Description of Material <u>Non hazardous petrol Contaminated soil Destined for recycling</u>	Codes	Gross Weight <u>40.83</u>	Net Weight (Tons) <u>28.73</u>
			Tare Weight <u>12.10</u>	
			Net Weight <u>28.73</u>	

I hereby certify that the above named material does not contain free liquid as defined by 40 CFR Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, is not a DOT hazardous substance as defined by 49 CFR Part 172 or any applicable state law, has been fully and accurately described above, classified, packaged and is in proper condition for transportation according to applicable regulations.

Generator Authorized Agent Name \_\_\_\_\_ Signature [Signature] Shipment Date 3-27-03

### TRANSPORTER

Transporter Name Middlesex Materials Inc Driver Name (Print) JOHN A. RIPORETTI JR.  
 Address 245 Main Street Vehicle License No./State AD302U / NY  
Suite One Woodbridge, NJ 07095 Truck Number 724  
 State Permit # NJ458

I hereby certify that the above named material was picked up at the generator site listed above. I hereby certify that the above named material was delivered without incident to the destination listed below.  
 Driver Signature [Signature] Shipment Date 3-27-03 Driver Signature [Signature] Delivery Date 3-27-03

### DESTINATION

Site Name Clean Earth of Philadelphia (SRP) Phone No. \_\_\_\_\_  
 Address 3201 S. 61st. Street Philadelphia, PA State Permit # 301220

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.  
 Name of Authorized Agent Greg Diamos Signature [Signature] Receipt Date 3.27.03

### CONTRACTOR

# ALLIED WASTE SERVICES, INC.

2163 MERRICK AVE., MERRICK, NY 11566 • TEL: 1-800-969-DIRT • FAX: 516-867-6480

Log Number  
2746

## NON-HAZARDOUS MATERIAL MANIFEST

### GENERATOR

Generator Name EDI 21st LIC, LLC Shipping Location Same  
 Address 525 Northern Blvd Address 21-16 44th Road  
Great Neck NY LIC NY  
 Phone No. \_\_\_\_\_ Phone No. \_\_\_\_\_

Approval Number	Description of Material	Codes	Gross Weight	Net Weight (Tons)
	Non hazardous petrol Contaminated soil Destined for recycling		Tare Weight	
			Net Weight	

I hereby certify that the above named material does not contain free liquid as defined by 40 CFR Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, is not a DOT hazardous substance as defined by 49 CFR Part 172 or any applicable state law, has been fully and accurately described above, classified, packaged and is in proper condition for transportation according to applicable regulations.

Generator Authorized Agent Name \_\_\_\_\_ Signature [Signature] Shipment Date 3-27-03

### TRANSPORTER

Transporter Name Middlesex Materials Inc Driver Name (Print) JOHN A. RIPORETTI JR.  
 Address 245 Main Street Vehicle License No./State AD302U / NY  
Suite One Woodbridge, NJ 07095 Truck Number 724  
 State Permit # NJ458

I hereby certify that the above named material was picked up at the generator site listed above. I hereby certify that the above named material was delivered without incident to the destination listed below.

Driver Signature [Signature] Shipment Date 3-27-03 Driver Signature \_\_\_\_\_ Delivery Date \_\_\_\_\_

### DESTINATION

Site Name Clean Earth of Philadelphia (SRP) Phone No. \_\_\_\_\_  
 Address 3201 S. 61st. Street Philadelphia, PA State Permit # 301220

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

Name of Authorized Agent \_\_\_\_\_ Signature \_\_\_\_\_ Receipt Date \_\_\_\_\_  
 GENERATOR

Transaction No. 48970 Clear Earth of Phila., Inc. Date Time Scale  
3201 S. 61st Street Ins 9  
Philadelphia, Pa. 19153 Qty: 03/27/2003 12:36  
have a nice day!

Vehicle ID: M913 Middlesex Gross: 44.94 tn  
Customer ID: A Allied Environmental Tare: 13.59 tn (M)  
Material ID: 001 Soil Net: 31.35 tn  
Approval ID: 5491 CDI Dist LIC

Operator: 3

Operator Signature:  Driver Signature: Rinaldo A. Gamba

Approval Load Count : 6  
Approval Net Weight : 195.88 tn

# ALLIED WASTE SERVICES, INC.

2163 MERRICK AVE., MERRICK, NY 11566 • TEL: 1-800-969-DIRT • FAX: 516-367-6480

Log Number

## NON-HAZARDOUS MATERIAL MANIFEST

### GENERATOR

Generator Name CDI 21st LIC LLC Shipping Location Same  
 Address 525 Northern Blvd Address 21-16 44th Road  
Great Neck, NY LI C NY  
 Phone No. \_\_\_\_\_ Phone No. \_\_\_\_\_

Approval Number <u>5491</u>	Description of Material <u>Non hazardous pet</u> <u>cont. soil</u> <u>dest. for recycling</u>	Codes	Gross Weight <u>44.94</u>	Net Weight (Tons) <u>31.35</u>
			Tare Weight <u>13.59</u>	
			Net Weight <u>31.35</u>	

I hereby certify that the above named material does not contain free liquid as defined by 40 CFR Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, is not a DOT hazardous substance as defined by 49 CFR Part 172 or any applicable state law, has been fully and accurately described above, classified, packaged and is in proper condition for transportation according to applicable regulations.

Generator Authorized Agent Name \_\_\_\_\_ Signature \_\_\_\_\_ Shipment Date \_\_\_\_\_

### TRANSPORTER

Transporter Name Maddoxer Mat Driver Name (Print) REI VALDO  
 Address 245 Main St suite One Vehicle License No./State IA 780 E  
Woodbridge, NJ 07695 Truck Number 813 (MI#47)  
 State Permit # NJ 458

I hereby certify that the above named material was picked up at the generator site listed above.

I hereby certify that the above named material was delivered without incident to the destination listed below.

[Signature] 3/27/03 [Signature] 3/27/03  
 Driver Signature Shipment Date Driver Signature Delivery Date

### DESTINATION

Site Name Clean Earth of Philadelphia Phone No. \_\_\_\_\_  
 Address 3201 S. 61st Philadelphia State Permit # 301320

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

[Signature] 3.27.03  
 Name of Authorized Agent Signature Receipt Date

CONTRACTOR

# ALLIED WASTE SERVICES, INC.

2163 MERRICK AVE., MERRICK, NY 11566 • TEL: 1-800-969-DIRT • FAX: 516-867-6480

Log Number

## NON-HAZARDOUS MATERIAL MANIFEST

### GENERATOR

Generator Name CDI 21st LIC LLC Shipping Location Same  
 Address 525 Northern Blvd Address 21-16 44th Road  
Great Neck, NY L I C NY  
 Phone No. \_\_\_\_\_ Phone No. \_\_\_\_\_

Approval Number	Description of Material	Codes	Gross Weight	Net Weight (Tons)
			Tare Weight	
			Net Weight	

Non hazardous petrol  
 Cant. soil  
 Dest. for recycling

I hereby certify that the above named material does not contain free liquid as defined by 40 CFR Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, is not a DOT hazardous substance as defined by 49 CFR Part 172 or any applicable state law, has been fully and accurately described above, classified, packaged and is in proper condition for transportation according to applicable regulations.

Generator Authorized Agent Name \_\_\_\_\_ Signature \_\_\_\_\_ Shipment Date \_\_\_\_\_

### TRANSPORTER

Transporter Name Middlesex Mat Driver Name (Print) REIVALDO  
 Address 245 Main st suite One Vehicle License No./State AG 780 E  
Woodbridge, NJ 07095 Truck Number 813 (NY#47)  
 State Permit # NJ 458

I hereby certify that the above named material was picked up at the generator site listed above.

I hereby certify that the above named material was delivered without incident to the destination listed below.

Rinaldo N. Yanga 3/27/03 Rinaldo N. Yanga 3/27/03  
 Driver Signature Shipment Date Driver Signature Delivery Date

### DESTINATION

Site Name Clean Earth of Philadelphia Phone No. \_\_\_\_\_  
 Address 3201 S. 61st Philadelphia State Permit # 301220

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

[Signature]  
 of Authorized Agent Signature Receipt Date  
 GENERATOR

Transaction No.  
46978

Clean Earth of Phila., Inc.  
3201 S. 61st Street  
Philadelphia, Pa. 19153  
Have a nice day!

Date Time Scale  
In: 0  
Out: 03/27/2005 12:54 1

Vehicle ID: M728 Middlesex Materials  
Customer ID: 0 Allied Environmental  
Material ID: 001 Soil  
Approval ID: 5491 CDF 21st LIC

New Field  
Gross: 44.20 tn  
Tare: 12.34 tn (M)  
Net: 32.06 tn

Operator: 1

Operator Signature: 

Driver Signature: 

Approval Load Count : 5  
Approval Net Weight : 164.45 tn

# ALLIED WASTE SERVICES, INC.

2163 MERRICK AVE., MERRICK, NY 11566 • TEL: 1-800-969-DIRT • FAX: 16-837-6480

Log Number
2746

## NON-HAZARDOUS MATERIAL MANIFEST

### GENERATOR

Generator Name CDI 21st LIC, LLC Shipping Location Same

Address 525 Northern Blvd Address 21-16 44th Road

Great Neck NY LIC NY

Phone No. \_\_\_\_\_ Phone No. \_\_\_\_\_

Approval Number <u>5491</u>	Description of Material <u>Non hazardous petrol Contaminated soil Destined for recycling</u>	Codes	Gross Weight <u>4490</u>	Net Weight (Tons) <u>32.06</u>
			Tare Weight <u>12.84</u>	
			Net Weight <u>32.06</u>	

I hereby certify that the above named material does not contain free liquid as defined by 40 CFR Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, is not a DOT hazardous substance as defined by 49 CFR Part 172 or any applicable state law, has been fully and accurately described above, classified, packaged and is in proper condition for transportation according to applicable regulations.

Generator Authorized Agent Name \_\_\_\_\_ Signature [Signature] Shipment Date \_\_\_\_\_

### TRANSPORTER

Transporter Name Middlesex Materials Inc Driver Name (Print) Luciano

Address 245 Main Street Suite One Woodbridge, NJ 07095 Vehicle License No./State AG 100 N

NJ458 Truck Number 728

State Permit # \_\_\_\_\_

I hereby certify that the above named material was picked up at the generator site listed above.

I hereby certify that the above named material was delivered without incident to the destination listed below.

Driver Signature [Signature] Shipment Date 03/27/03 Driver Signature Luciano Delivery Date 03/27/03

### DESTINATION

Site Name Clean Earth of Philadelphia (SRP) Phone No. \_\_\_\_\_

Address 3201 S. 61st. Street Philadelphia, PA 301220 State Permit # \_\_\_\_\_

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

Name of Authorized Agent Gregg Diomes Signature [Signature] Receipt Date 3/27/03

CONTRACTOR

# ALLIED WASTE SERVICE INC.

2163 MERRICK AVE., MERRICK, NY 11566 • TEL: 1-800-969-DIR • 516-867-6480

Log Number  
2746

## NON-HAZARDOUS MATERIAL MANIFEST

728

### GENERATOR

Generator Name CDI 21st LIC, LLC Shipping Location Same  
 Address 525 Northern Blvd Address 21-16 44th Road  
Great Neck NY LIC NY  
 Phone No. \_\_\_\_\_ Phone No. \_\_\_\_\_

Approval Number	Description of Material Non hazardous petrol Contaminated soil Destined for recycling	Codes	Gross Weight	Net Weight (Tons)
			Tare Weight	
			Net Weight	

I hereby certify that the above named material does not contain free liquid as defined by 40 CFR Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, is not a DOT hazardous substance as defined by 49 CFR Part 172 or any applicable state law, has been fully and accurately described above, classified, packaged and is in proper condition for transportation according to applicable regulations.

Generator Authorized Agent Name \_\_\_\_\_ Signature \_\_\_\_\_ Shipment Date \_\_\_\_\_

### TRANSPORTER

Transporter Name Middlesex Materials Inc Driver Name (Print) Luciano  
 Address 245 Main Street Vehicle License No./State AG 100 N  
Suite One Woodbridge, NJ 07095 Truck Number 728  
 State Permit # NJ458

I hereby certify that the above named material was picked up at the generator site listed above.

I hereby certify that the above named material was delivered without incident to the destination listed below.

Luciano 03/27/03 Luciano 03/27/03  
 Driver Signature Shipment Date Driver Signature Delivery Date

### DESTINATION

Site Name Clean Earth of Philadelphia (SRP) Phone No. \_\_\_\_\_  
 Address 3201 S. 61st. Street Philadelphia, PA State Permit # 301220

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

Name of Authorized Agent \_\_\_\_\_ Signature \_\_\_\_\_ Receipt Date \_\_\_\_\_

GENERATOR

Transaction No. 43982      Clean Earth of Phila., Inc.  
3201 S. 51st Street  
Philadelphia, Pa. 19153  
Have a nice day!

Date      Time      Scale  
In:      0      0  
Out: 03/27/2003 14:48      1

Vehicle ID: M721      Middlesex Materials      Gross: 44.61 tn  
Container ID: 8      Allied Environmental      Tare: 12.77 tn (M)  
Material ID: 001      Soil      Net: 35.84 tn  
Approval ID: 5491      CDI 21st LIC

Operator: 3

Operator Signature:       Driver Signature: Nelson

Approval Load Count : 7  
Approval Net Weight : 231.64 tn

# ALLIED WASTE SERVICES, INC.

2163 MERRICK AVE., MERRICK, NY 11566 • TEL: 1-800-969-DIRT • FAX: 516-867-6480

Log Number

2746

## NON-HAZARDOUS MATERIAL MANIFEST

### GENERATOR

Generator Name CDI 21st LLC Shipping Location Same  
 Address 525 Northern Blvd Address 21-16 411th Rd  
Great Neck NY LIC NY  
 Phone No. \_\_\_\_\_ Phone No. \_\_\_\_\_

Approval Number	Description of Material	Codes	Gross Weight	Net Weight (Tons)
			51191	
			Tare Weight	
			12.77	
			Net Weight	
			35.84	

I hereby certify that the above named material does not contain free liquid as defined by 40 CFR Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, is not a DOT hazardous substance as defined by 49 CFR Part 172 or any applicable state law, has been fully and accurately described above, classified, packaged and is in proper condition for transportation according to applicable regulations.

[Signature] Generator Authorized Agent Name [Signature] Signature 3-27-03 Shipment Date

### TRANSPORTER

Transporter Name Middlesex Material Inc Driver Name (Print) Nelson Rodriguez  
 Address 245 Main St Suite one Vehicle License No./State AE 737E NJ  
Woodbridge NJ 07095 Truck Number 721  
 State Permit # NJ 458

I hereby certify that the above named material was picked up at the generator site listed above.

I hereby certify that the above named material was delivered without incident to the destination listed below.

[Signature] Driver Signature 3-27-03 Shipment Date [Signature] Driver Signature 3-27-03 Delivery Date

### DESTINATION

Site Name Clean Earth of Philadelphia (SRP) Phone No. \_\_\_\_\_  
 Address 3201 S. 11th St Philadelphia PA State Permit # 301320

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

[Signature] Name of Authorized Agent [Signature] Signature 3-27-03 Receipt Date

### CONTRACTOR

# ALLIED WASTE SERVICES, INC.

2163 MERRICK AVE., MERRICK, NY 11566 • TEL: 1-800-969-DIRT • FAX: 516-867-6480

Log Number

2746

## NON-HAZARDOUS MATERIAL MANIFEST

### GENERATOR

Generator Name CDI 21st LIE LLC Shipping Location Same  
 Address 525 Northern Blvd Address 21-16 44th Rd  
Great Neck NY LIC NY  
 Phone No. \_\_\_\_\_ Phone No. \_\_\_\_\_

Approval Number  5491	Description of Material Non hazardous Petrol contaminated Soil Destined for Recycling	Codes	Gross Weight	Net Weight (Tons)
			Tare Weight	
			Net Weight	

I hereby certify that the above named material does not contain free liquid as defined by 40 CFR Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, is not a DOT hazardous substance as defined by 49 CFR Part 172 or any applicable state law, has been fully and accurately described above, classified, packaged and is in proper condition for transportation according to applicable regulations.

James Tenpa 3/27/03  
 Generator Authorized Agent Name Signature Shipment Date

### TRANSPORTER

Transporter Name Middlesex Material Inc Driver Name (Print) Nelson Rodriguez  
 Address 245 Main St Suite one Vehicle License No./State AE 737E NJ  
Woodbridge NJ 07095 Truck Number 721  
 State Permit # NJ 458

I hereby certify that the above named material was picked up at the generator site listed above.

I hereby certify that the above named material was delivered without incident to the destination listed below.

Nelson Rodriguez 3-27-03 Nelson Rodriguez 3-27-03  
 Driver Signature Shipment Date Driver Signature Delivery Date

### DESTINATION

Site Name Clean Earth of Philadelphia (SRP) Phone No. \_\_\_\_\_  
 Address 3201 S. 61st St Philadelphia PA State Permit # 301220

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

\_\_\_\_\_  
 Name of Authorized Agent Signature Receipt Date  
 GENERATOR

Transaction No. 46984  
Clean Earth of Phila., Inc.  
3201 S. 51st Street  
Philadelphia, Pa. 19153  
Have a nice day!

Date  
In:  
Out: 03/27/2003 15:15

Scale  
0  
1

Vehicle ID:	M714	Middlesex Materials	New Field
Customer ID:	A	Allied Environmental	Gross: 49.22 tn
Material ID:	001	Soil	Tare: 13.29 tn (M)
Approval ID:	5491	CDI 21st LIC	Net: 35.93 tn

Operator: 3

Operator Signature:  Driver Signature: 

Approval Load Count : 8  
Approval Net Weight : 267.57 tn

# ALLIED WASTE SERVICES, INC.

2163 MERRICK AVE., MERRICK, NY 11566 • TEL: 1-800-969-5ART • FAX: 516-867-6480

Log Number

## NON-HAZARDOUS MATERIAL MANIFEST

### GENERATOR

Generator Name DISISCH INC Shipping Location SAME  
 Address 2163 Merrick Blvd Address 2163 Merrick Blvd  
Merrick N.Y. LI NY  
 Phone No. \_\_\_\_\_ Phone No. \_\_\_\_\_

Approval Number	Description of Material	Codes	Gross Weight	Net Weight (Tons)
			49.22	
			Tare Weight	
			13.29	
Net Weight	35.93			

I hereby certify that the above named material does not contain free liquid as defined by 40 CFR Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, is not a DOT hazardous substance as defined by 49 CFR Part 172 or any applicable state law, has been fully and accurately described above, classified, packaged and is in proper condition for transportation according to applicable regulations.

Generator Authorized Agent Name \_\_\_\_\_ Signature \_\_\_\_\_ Shipment Date \_\_\_\_\_

### TRANSPORTER

Transporter Name M.M. INC. Driver Name (Print) R. J. ...  
 Address ... Vehicle License No./State AZ40912  
... Truck Number 714  
 State Permit # ...

I hereby certify that the above named material was picked up at the generator site listed above.

I hereby certify that the above named material was delivered without incident to the destination listed below.

Driver Signature \_\_\_\_\_ Shipment Date 3-27-03 Driver Signature \_\_\_\_\_ Delivery Date 3-27-03

### DESTINATION

Site Name ... Phone No. \_\_\_\_\_  
 Address ... State Permit # 301820

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

Gregg Drames \_\_\_\_\_ Signature \_\_\_\_\_ Receipt Date 3-27-03  
 Name of Authorized Agent \_\_\_\_\_ Signature \_\_\_\_\_ Receipt Date \_\_\_\_\_

### CONTRACTOR

# ALLIED WASTE SERVICES, INC.

2163 MERRICK AVE., MERRICK, NY 11566 • TEL: 1-800-969-DIRT • FAX: 516-867-6480

Log Number

## NON-HAZARDOUS MATERIAL MANIFEST

### GENERATOR

Generator Name CDT 152 LLC Shipping Location SAME  
 Address 525 DOLCHENAU BLVD Address 21-16 44th Rd.  
Creech Neck N.Y. LIC NY  
 Phone No. \_\_\_\_\_ Phone No. \_\_\_\_\_

Approval Number	Description of Material	Codes	Gross Weight	Net Weight (Tons)
			Tare Weight	
			Net Weight	

5451  
 Non hazardous PETROL  
 contaminated soil  
 destined for  
 road clips.

I hereby certify that the above named material does not contain free liquid as defined by 40 CFR Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, is not a DOT hazardous substance as defined by 49 CFR Part 172 or any applicable state law, has been fully and accurately described above, classified, packaged and is in proper condition for transportation according to applicable regulations.

Generator Authorized Agent Name \_\_\_\_\_ Signature [Signature] Shipment Date \_\_\_\_\_

### TRANSPORTER

Transporter Name M.M. INC. Driver Name (Print) R. J. Quinn  
 Address 245 MAIN ST. Vehicle License No./State A2439R  
SUITE ONE. WOODBRIDGE N.J. 07095 Truck Number 714  
 State Permit # NJ458

I hereby certify that the above named material was picked up at the generator site listed above.

I hereby certify that the above named material was delivered without incident to the destination listed below.

Driver Signature [Signature] Shipment Date 3-27-03 Driver Signature [Signature] Delivery Date 3-27-03

### DESTINATION

Site Name CLEAN EARTH OF PHILADELPHIA Phone No. \_\_\_\_\_  
 Address 3701 S. 61st St. Phila State Permit # 381020

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

Name of Authorized Agent \_\_\_\_\_ Signature \_\_\_\_\_ Receipt Date \_\_\_\_\_  
 GENERATOR

Transaction No. 16987  
Clean Earth of Phila., Inc  
3201 S. 61st Street  
Philadelphia, Pa. 19153  
Have a nice day!

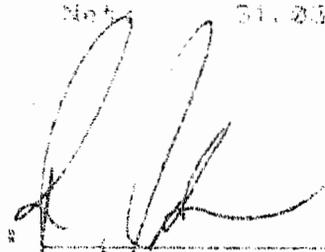
Date  
In:  
Out: 03/27/2003 16:52

Time  
Scale  
0  
1

Vehicle ID:	#715	Middlesex Materials	New Field
Customer ID:	A	Allied Environmental	Gross: 43.84 tn
Material ID:	001	Soil	Tare: 12.51 tn (M)
Approval ID:	5491	COI 21st LTC	Net: 31.33 tn

Operator's ID:

Operator Signature: 

Driver Signature: 

Approval Load Count : 9  
Approval Net Weight : 398.80 tn

# ALLIED WASTE SERVICES, INC.

2163 MERRICK AVE., MERRICK, NY 11566 • TEL: 1-800-969-DIRT • FAX: 516-867-6480

Log Number

## NON-HAZARDOUS MATERIAL MANIFEST

### GENERATOR

Generator Name CDI 21ST LIC, LIC Shipping Location SAME  
 Address 525 NORTHERN BLVD Address 21-16 44TH RD  
GREAT NECK, NY LIC, NY  
 Phone No. \_\_\_\_\_ Phone No. \_\_\_\_\_

Approval Number <u>5191</u>	Description of Material <u>NON HAZA CONT SOIL DEST FOR RECYC</u>	Codes	Gross Weight <u>43.84</u>	Net Weight (Tons) <u>31.03</u>
			Tare Weight <u>12.81</u>	
			Net Weight <u>31.03</u>	

I hereby certify that the above named material does not contain free liquid as defined by 40 CFR Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, is not a DOT hazardous substance as defined by 49 CFR Part 172 or any applicable state law, has been fully and accurately described above, classified, packaged and is in proper condition for transportation according to applicable regulations.

Generator Authorized Agent Name \_\_\_\_\_ Signature [Signature] Shipment Date 3-27-03

### TRANSPORTER

Transporter Name M. ALFSEX MATERIALS INC Driver Name (Print) R. JOHNS  
 Address 245 MAIN STREET SUITE ONE Vehicle License No./State ME 812 P  
WOODBRIDGE, VT 0795 Truck Number 715  
 State Permit # VT 458

I hereby certify that the above named material was picked up at the generator site listed above.

I hereby certify that the above named material was delivered without incident to the destination listed below.

Driver Signature [Signature] Shipment Date 3/27/03 Driver Signature [Signature] Delivery Date 3/27/03

### DESTINATION

Site Name CLEAN EARTH OF PHILA (SRP) Phone No. \_\_\_\_\_  
 Address 3201 S. 61ST ST PHILA, PA State Permit # 301220

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

Name of Authorized Agent GREG DIAMOS Signature [Signature] Receipt Date 3-27-03

### CONTRACTOR

# ALLIED WASTE SERVICES, INC.

2163 MERRICK AVE., MERRICK, NY 11566 • TEL: 1-800-969-DIRT • FAX: 516-867-6480

Log Number

## NON-HAZARDOUS MATERIAL MANIFEST

### GENERATOR

Generator Name CDI 21ST LIC, LIC Shipping Location SAME  
 Address 525 NORTHERN Blvd Address 21-16 44TH RD  
GREAT NECK, NY LIC, NY  
 Phone No. \_\_\_\_\_ Phone No. \_\_\_\_\_

Approval Number <u>5491</u>	Description of Material <u>NON HAZA CONT SOIL DEST FOR RECYCLE</u>	Codes	Gross Weight	Net Weight (Tons)
			Tare Weight	
			Net Weight	

I hereby certify that the above named material does not contain free liquid as defined by 40 CFR Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, is not a DOT hazardous substance as defined by 49 CFR Part 172 or any applicable state law, has been fully and accurately described above, classified, packaged and is in proper condition for transportation according to applicable regulations.

Temp General / [Signature] 3-27-03  
 Generator Authorized Agent Name Signature Shipment Date

### TRANSPORTER

Transporter Name MIDDLESEX MATERIALS INC Driver Name (Print) R. JOHNS  
245 MAIN STREET Address WOODBRIDGE, NJ 07095 Vehicle License No./State AJ 812 P  
WOODBRIDGE, NJ 07095 Truck Number 715  
 State Permit # NJ 458

I hereby certify that the above named material was picked up at the generator site listed above.

I hereby certify that the above named material was delivered without incident to the destination listed below.

[Signature] 3/27/03 [Signature] 3/27/03  
 Driver Signature Shipment Date Driver Signature Delivery Date

### DESTINATION

Site Name CLEAN EARTH OF PHILA (SRP) Phone No. \_\_\_\_\_  
 Address 3201 S. 61ST ST PHILA, PA State Permit # 301220

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

\_\_\_\_\_  
 Name of Authorized Agent Signature Receipt Date  
 GENERATOR

Transaction No. 46390      Clean Earth of Phila., Inc.  
3201 S. 51st Street      In:      Date      Time      Scale  
Philadelphia, Pa. 19153      Out: 03/27/2003 17:48  
Have a nice day!

Vehicle ID: #724      Middlesex Materials      New Field      Gross: 45.10 tn  
Customer ID: A      Allied Environmental      Tare: 12.10 tn (M)  
Material ID: 001      Soil      Net: 33.00 tn  
Approval ID: 5491      COT 21st LIC

Operator: 3

Operator Signature:       Driver Signature: 

Approval Load Count : 1  
Approval Net Weight : 33.03 tn

# ALLIED WASTE SERVICES INC.

2163 MERRICK AVE., MERRICK, NY 11566 • TEL: 1-800-969-DIRT • FAX: 516-867-6480

Log Number

## NON-HAZARDOUS MATERIAL MANIFEST

### GENERATOR

Generator Name CDI 21<sup>st</sup> LLC, LLC Shipping Location SAME  
 Address 527 NORTHERN BLVD Address 21-16 74<sup>th</sup> RD  
GREAT NECK, N.Y. LI, NY  
 Phone No. \_\_\_\_\_ Phone No. \_\_\_\_\_

Approval Number  
5491

Description of Material  
NON HAZARDOUS PETROL  
CONTAMINATED SOIL  
DESTINED FOR  
RECYCLING

Codes

Gross Weight	<u>45.13</u>
Tare Weight	<u>12.10</u>
Net Weight	<u>33.03</u>

Net Weight (Tons)  
33.031

I hereby certify that the above named material does not contain free liquid as defined by 40 CFR Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, is not a DOT hazardous substance as defined by 49 CFR Part 172 or any applicable state law, has been fully and accurately described above, classified, packaged and is in proper condition for transportation according to applicable regulations.

Generator Authorized Agent Name \_\_\_\_\_ Signature [Signature] Shipment Date 3-27-03

### TRANSPORTER

Transporter Name MIDDLESEX MATERIALS INC. Driver Name (Print) JOHN A. RYAN JR.  
 Address 245 MAIN ST. SUITE 1 Vehicle License No./State AD302J / N.J.  
WOODBIDGE, N.J. Truck Number 724  
 State Permit # NJ 458

I hereby certify that the above named material was picked up at the generator site listed above.

I hereby certify that the above named material was delivered without incident to the destination listed below.

Driver Signature [Signature] Shipment Date 3-27-03

Driver Signature [Signature] Delivery Date 3-27-03

### DESTINATION

Site Name CLEAN EARTH OF PHILADELPHIA (SRP) Phone No. \_\_\_\_\_  
 Address 3201 S. 61<sup>st</sup> ST PHILADELPHIA, PA. State Permit # 301220

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

Name of Authorized Agent Gross Diomps Signature [Signature] Receipt Date 3-27-03

### CONTRACTOR



# ALLIED WASTE SERVICES, INC.

2163 MERRICK AVE., MERRICK, NY 11566 • TEL: 1-800-969-DIRT • FAX: 516-867-6480

Log Number

## NON-HAZARDOUS MATERIAL MANIFEST

### GENERATOR

Generator Name CDI 21ST LIC, ETC Shipping Location SAME  
 Address 525 NORTHERN BLVD Address 21-16 44TH RD  
GREAT NECK, N.Y. LIC, NY  
 Phone No. \_\_\_\_\_ Phone No. \_\_\_\_\_

Approval Number	Description of Material <u>NON HAZARDOUS PETROL CONTAMINATED SOIL DESTINED FOR RECYCLING</u>	Codes	Gross Weight	Net Weight (Tons)
			Tare Weight	
			Net Weight	

I hereby certify that the above named material does not contain free liquid as defined by 40 CFR Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, is not a DOT hazardous substance as defined by 49 CFR Part 172 or any applicable state law, has been fully and accurately described above, classified, packaged and is in proper condition for transportation according to applicable regulations.

Generator Authorized Agent Name \_\_\_\_\_ Signature [Signature] Shipment Date 3-27-03

### TRANSPORTER

Transporter Name MIDDLESEX MATERIALS INC. Driver Name (Print) JOHN A. R. PORTI JR.  
 Address 245 MAIN ST. SUITE 1 Vehicle License No./State AD302U / N.J.  
WOODBIDGE, N.J. Truck Number 724  
 State Permit # NJ 458

I hereby certify that the above named material was picked up at the generator site listed above.

I hereby certify that the above named material was delivered without incident to the destination listed below.

Driver Signature [Signature] Shipment Date 3-27-03 Driver Signature \_\_\_\_\_ Delivery Date \_\_\_\_\_

### DESTINATION

Site Name CLEAN EARTH OF PHILADELPHIA (SRP) Phone No. \_\_\_\_\_  
 Address 3201 S. 61ST ST. PHILADELPHIA, PA. State Permit # 301220

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

Name of Authorized Agent \_\_\_\_\_ Signature \_\_\_\_\_ Receipt Date \_\_\_\_\_  
 GENERATOR

Transaction No. 46991      Clean Earth of Phila., Inc.  
3201 S. 61st Street      In:      Date      Time      Scale  
Philadelphia, Pa. 19153      Out: 03/27/2023 18:28      2  
Have a nice day!      1

		New Field	
Vehicle ID:	M728	Middlesex Materials	Gross: 48.19 tn
Customer ID:	A	Allied Environmental	Tare: 12.44 tn (M)
Material ID:	001	Soil	Net: 35.75 tn
Approval ID:	5491	CDI 21st LIC	

Operator: 3

Operator Signature: *J. Schmidt*      Driver Signature: *Luca*

Approval Load Count : 2  
Approval Net Weight : 68.38 tn

# ALLIED WASTE SERVICES, INC.

2163 MERRICK AVE, MERRICK, NY 11566 • TEL: 1-800-969-DIRT • FAX: 516-867-6480

Log Number

## NON-HAZARDOUS MATERIAL MANIFEST

### GENERATOR

Generator Name CDI 21st LIC, LLC Shipping Location Same  
 Address 525 Northern Blvd Address 21-16 44th Road  
Great Neck, NY LIC NY  
 Phone No. \_\_\_\_\_ Phone No. \_\_\_\_\_

Approval Number	Description of Material	Codes	Gross Weight	Net Weight (Tons)
			48.19	
			Tare Weight 12.84	
	Destined for recycling		Net Weight 35.35	

I hereby certify that the above named material does not contain free liquid as defined by 40 CFR Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, is not a DOT hazardous substance as defined by 49 CFR Part 172 or any applicable state law, has been fully and accurately described above, classified, packaged and is in proper condition for transportation according to applicable regulations.

Generator Authorized Agent Name \_\_\_\_\_ Signature [Signature] Shipment Date \_\_\_\_\_

### TRANSPORTER

Transporter Name Middlesex Mat Driver Name (Print) Luciano  
 Address 245 Main st suite One Vehicle License No./State AG 100 N  
Woodbridge, NJ 07095 Truck Number 728  
 State Permit # NJ 458

I hereby certify that the above named material was picked up at the generator site listed above.

I hereby certify that the above named material was delivered without incident to the destination listed below.

Luciano 03/27/03 Luciano 03/27/03  
 Driver Signature Shipment Date Driver Signature Delivery Date

### DESTINATION

Site Name Clean Faith of Philadelphia (SRP) Phone No. \_\_\_\_\_  
 Address 3201 S. 61st street Philadelphia State Permit # 301220

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

CEOP \_\_\_\_\_ [Signature] \_\_\_\_\_  
 Name of Authorized Agent Signature Receipt Date

CONTRACTOR

# ALLIED WASTE SERVICES, INC.

2163 MERRICK AVE., MERRICK, NY 11566 • TEL: 1-800-969-DIRT • FAX: 516-867-6480

Log Number

## NON-HAZARDOUS MATERIAL MANIFEST

### GENERATOR

Generator Name CDI 21st LIC, LLC Shipping Location Same  
 Address 525 Northern Blvd Address 21-16 44th Road  
Great Neck, NY LIC NY  
 Phone No. \_\_\_\_\_ Phone No. \_\_\_\_\_

Approval Number	Description of Material <u>Non hazardous petrol contaminated soil destined for recycling</u>	Codes	Gross Weight	Net Weight (Tons)
			Tare Weight	
			Net Weight	

I hereby certify that the above named material does not contain free liquid as defined by 40 CFR Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, is not a DOT hazardous substance as defined by 49 CFR Part 172 or any applicable state law, has been fully and accurately described above, classified, packaged and is in proper condition for transportation according to applicable regulations.

Generator Authorized Agent Name \_\_\_\_\_ Signature [Signature] Shipment Date \_\_\_\_\_

### TRANSPORTER

Transporter Name Middlesex Mat Driver Name (Print) Luciano  
 Address 245 Main st suite One Vehicle License No./State AG 100 N  
Woodbridge, NJ 07095 Truck Number 728  
 State Permit # NJ 458

I hereby certify that the above named material was picked up at the generator site listed above.

I hereby certify that the above named material was delivered without incident to the destination listed below.

Luciano 03/27/03 Luciano 03/27/03  
 Driver Signature Shipment Date Driver Signature Delivery Date

### DESTINATION

Site Name Clean Earth of Philadelphia (SRP) Phone No. \_\_\_\_\_  
 Address 3201 S. 61st street Philadelphia State Permit # 301220

I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.

Name of Authorized Agent \_\_\_\_\_ Signature \_\_\_\_\_ Receipt Date \_\_\_\_\_  
 GENERATOR

**DISPOSAL MANIFEST**  
**WATER GENERATED DURING RW-1 DEVELOPMENT**

Please print or type  
(Form designed for use on elite (12 pitch) typewriter.)

<b>NON-HAZARDOUS WASTE MANIFEST</b>		1. Generator's US EPA ID No. <i>Exempt</i>	Manifest Doc. No. <i>507803</i>	2. Page 1 of <i>1</i>	<b>601461</b>
3. Generator's Name and Mailing Address <i>L.B.G. 2137+44RD L.I.C., N.Y.</i>		Some			
4. Generator's Phone ( )					
5. Transporter 1 Company Name <i>American Environmental Assessment Corp.</i>		6. US EPA ID Number <i>N.Y.R.0.0.0.4.4.1.2</i>	A. Transporter's Phone <i>631-586-2000</i>		
7. Transporter 2 Company Name		8. US EPA ID Number	B. Transporter's Phone		
9. Designated Facility Name and Site Address <i>A.A.O.I.L. 1599 OCEAN AVE ROSEMOUNT, N.Y.</i>		10. US EPA ID Number <i>N.Y.0.0.0.6.9.6.8.5.4.5</i>	C. Facility's Phone <i>(631)567-6545</i>		
11. Waste Shipping Name and Description		12. Containers	13. Total Quantity	14. Unit Wt/Vol	
a. <i>NON-HAZ WATER</i>		No.   Type			
		<i>001</i>   <i>IT</i>	<i>00922</i>	<i>G</i>	
b.					
c.					
d.					
D. Additional Descriptions for Materials Listed Above		E. Handling Codes for Wastes Listed Above <i>A)NO18</i>			
15. Special Handling Instructions and Additional Information <b>"AMERICAN ENVIRONMENTAL ASSESSMENT CORP." EMERGENCY NUMBER: 631-586-2000</b>					
16. GENERATOR'S CERTIFICATION: I certify the materials described above on this manifest are not subject to federal regulations for reporting proper disposal of Hazardous Waste.					
Printed/Typed Name <i>EUGENE MASTANDREA - AGENT FOR</i>		Signature <i>Eugene mast</i>		Month Day Year <i>03   17   03</i>	
17. Transporter 1 Acknowledgement of Receipt of Materials					
Printed/Typed Name <i>EUGENE MASTANDREA</i>		Signature <i>Eugene mast</i>		Month Day Year <i>03   17   03</i>	
18. Transporter 2 Acknowledgement of Receipt of Materials					
Printed/Typed Name		Signature		Month Day Year	
19. Discrepancy Indication Space		<i>General Environmental Services Inc P.O. Box 1116 Rosetonch, NY 11709-0116 AS alt Facility</i>			
20. Facility Owner or Operator: Certification of receipt of waste materials covered by this manifest except as noted in Item 19.					
Printed/Typed Name <i>GP. BOWM</i>		Signature <i>[Signature]</i>		Month Day Year <i>3   28   03</i>	

GENERATOR

TRANSPORTER

FACILITY