NEW YORK STATE BROWNFIELD CLEANUP PROGRAM
REMEDIAL ACTION WORK PLAN

Plaza 163
163RD- 164TH Streets and Washington Avenue
Bronx, NY 10456

September 28, 2006

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EXECUTIVE SUMMARY

A final Brownfield Cleanup Program Remedial Investigation Report was prepared by Pressly And Associates, Inc. (Pressly) and submitted to the NYS DEC and the NYS DOH on February 14, 2006. The results indicated the following:

- Levels of Chlorinated volatile organic compounds (VOCs) in groundwater beneath the site exceeding NYS Groundwater Quality Standards.

- Based on the direction of groundwater flow and off-site groundwater quality data, the levels of VOCs detected in groundwater were attributed to poor background groundwater quality in the area.

- Levels of VOCs in soil gas were detected above NYS DOH Soil Vapor Intrusion Guidance Values

- SVOCs and inorganic compounds in soil exceeding the NYS TAGM 4046 cleanup objectives.

This work plan was prepared based on Remedial Alternatives Analysis and Cleanup Track Analysis was conducted according to the criteria provided in NYS DEC Brownfield Program Cleanup Program Guide, Draft DER-10, Technical Guidance for Site Investigation and Remediation (December 2002), TAGM 4046, and NYCRR Part 375..

Based on the results of the analyses, this work plan details the following health, safety, and remediation activities:

- A community air monitoring plan will be in effect during all construction activities to maintain and document safe levels of dust and VOCs in the atmosphere.

- Selection of most efficient construction traffic routes to avoid traffic through residential areas.

- In the area of SG-9, 2 Additional test pits will be excavated and screened for elevated VOC's with a PID. If warranted, contaminated soil will be removed.

- Removal and disposal at a regulated off-site facility of the top 6 inches of soil over the entire site and all urban fill removed during construction.

- Site will be capped with new buildings and pavement. No exposed soils will remain after remediation and redevelopment.

- Periodic Groundwater monitoring to document natural attenuation of background VOC levels detected in groundwater beneath the site.

- Installation of an active sub-slab soil ventilation system in the crawl space beneath all buildings constructed on the site to prevent soil gas containing VOCs from entering occupied building areas.

- A site management plan will be developed to address residual contamination and any use restrictions

- Imposition of an environmental easement

- Periodic certification of the institutional and engineering controls

1.0 INTRODUCTION AND PURPOSE

1.1 Site Description

The site is located within a mixed-use commercial and industrial area in the Morrisania neighborhood of the Bronx. The site comprises an area of 100,440 square feet (sf) and is bounded to the West by Brook Avenue, to the East by Washington Avenue, to the south by East 163rd Street and to the North by 164th Street. The property is currently vacant land with the exception of a single story masonry building that was formerly an auto repair business containing an unknown number of USTs. The site location was depicted on Figure 1.

A commercial and retail development for this property was approved by Community Board 3, The Land Use Committee of CB3, and The Bronx Borough Board. All votes were in favor of the development and were voted on per section 384B4 of the NYC Charter.

Previous Phase I and Phase II environmental investigations at the site indicated that construction activities will likely result in the removal of fill material impacted by petroleum hydrocarbons and heavy metals.

Previous investigations detected levels of chlorinated hydrocarbons (<200 parts per billion) in groundwater beneath the site and also on adjacent sites. Possible impacts to background groundwater quality within the general area exist. Note that there has been no evidence of groundwater usage in the study area and that surface water bodies were not present within 1/4 mile of the site.

1.2 Previous Investigation Activities

The Phase I Environmental Site Assessment (ESA) report dated February 1, 2001 was submitted to the New York City Department of Environmental Protection (NYC DEP). The report revealed that prior on-site or nearby land uses included gasoline filling stations, wood working shops, a former hay and grain business, automobile related uses, commercial use, and various residential dwellings. Potential historic chemical use as well as current and former USTs presented a potential environmental concern for the property.

The Phase II Environmental Site Assessment Report dated September 17, 2002 identified the presence of Semi-volatile organic compounds and heavy metals above the NYS TAGM #4046 Soil Cleanup Objectives. The investigation also detected chlorinated hydrocarbons in excess of the NYS Groundwater Quality Standards. The investigation also found that Pesticides, PCBs, and volatile organic compounds (other than halogens) were non detectable or below regulatory limits. Petroleum hydrocarbons were not detected in groundwater proximate to the area known to contain USTs.

A final Remedial Investigation Report was prepared by Pressly and submitted to the NYS DEC and the NYS DOH on April 5, 2006. The results indicated the following:

- Levels of VOCs in groundwater beneath the site exceeding NYS Groundwater Quality Standards.

- Based on the direction of groundwater flow and off-site groundwater quality data, the levels of VOCs detected in groundwater were attributed to poor background groundwater quality in the area.

- Levels of VOCs in soil gas were detected above NYS DOH Soil Vapor Intrusion Guidance Values

- SVOCs and inorganic compounds in soil exceeding the NYS TAGM 4046 cleanup objectives.

1.3 Contemplated Use of the Site

Site zoning provides for UG 6, Occupancy Groups C & E. In accordance with the zoning regulations, proposed site plans for the property provide for 50,160sf of retail space, which includes 2,312sf designated for office use and 5,110sf designated for a Laundromat. The remaining lot area (60,280sf) will be used for paved parking.

1.4 Remedial Action Objectives

The objectives of this Remedial Action Work Plan (RAWP) were to:

- follow New York State Department of Environmental Conservation (NYS DEC) Draft DER-10, Technical Guidance for Site Investigation and Remediation (December 2002), and New York State Department of Health (NYS DOH) guidance for soil vapor sampling (February 23, 2005),
- Prevent direct human exposure to soil containing SVOCs and Inorganics (Metals),
- Prevent human ingestion of airborne particulates containing SVOCs and Inorganics,
- Prevent leaching of shallow contaminants into the subsoil, and
- Prevent soil gas containing VOCs from migrating into buildings.

2.0 SUMMARY OF ENVIRONMENTAL CONDITIONS

The summary of environmental conditions was based on the Remedial Investigation Report prepared by Pressly and dated February 14, 2006.

2.1 Site Geology/Hydrogeology

The upper 4 to 6 feet of soil at the site was composed mostly of fill material including fine to coarse sand, gravel, brick, glass, and wood debris. At SB-4 rock and brick debris was encountered to the depth of refusal (probably a concrete floor) at 8 feet below grade. Native and moderately well sorted, brown, tan, and orange medium to coarse sand was encountered from approximately 4 feet below grade to total depth depending on the location. Some silt and fine sand lenses were observed at MW-1, MW-3, and SB-2.

The depth to groundwater at the site ranged from 12 to 16 feet below grade. These depths corresponded to an average mean sea level elevation ranging from 3.5 to 6.5 feet. The direction of groundwater flow was determined to be towards the north with an average gradient of approximately 1 percent

2.2 Soil Gas Survey

The results of soil gas sampling from the hybridized Form 1 data of the DUSR were included in Appendix E of the RI report and summarized in Table 1. The results indicated that target compounds were detected at levels above NYS DOH Soil Vapor Intrusion Guidance Values. The “J” qualifier was included for some

compounds due to laboratory holding time exceedences. In addition, the presence of target compounds was detected in the field blank and the "U" undetected qualification was assigned by the data validator, were applicable.

On September 1, 2005, concentrations of tetrachloroethene (PCE) were detected at all locations above the NYS DOH guidance values for PCE (100 mcg/m^3). Levels of trichloroethene (TCE) were detected above NYS DOH guidance value (5 mcg/m^3) at SG-1, SG-3, SG-4, SG-5, and SG-7 during round 1 and at SG-3 through SG-7 during round 2. The second round of samples collected on September 7, 2005 reported concentrations of PCE at SG-1 through SG-7 above the 100 mcg/m^3 guidance value. The highest levels of TCE were detected during both sampling events at SG-5 (3280.18 and 3710.37 mcg/m^3). Relatively low levels of cis-1,2- Dichloroethylene were also detected at SG-5 during both sampling events.

In general, the highest levels of petroleum type compounds were detected at SG-9, located proximate to the abandoned auto service building and known UST area.

2.3 Surface Soil Sampling

The results indicated that target compounds were detected at levels above the NYS TAGM 4046 Soil Cleanup Objectives.

The results of the EPA 8270C analyses were summarized in Table 2. Elevated levels of semi-volatile compounds, exceeding the TAGM 4046 criteria were detected in all the shallow surface soil samples (SG-1 through SG-9).

The results of the EPA 8260B analyses were summarized in Table 3. Low levels of volatile organic compounds, below the TAGM 4046 criteria, were detected at, SG-3, SG-9, and SG-9Dup.

The results of the Target Analyte Inorganics analyses were summarized in Table 4. In general, much higher levels, above the TAGM 4046 criteria, were detected within the surface samples as compared with the subsurface soil samples.

Arsenic and Chromium were detected within SG-1 at 47.6 parts per million (ppm) and 59.2 ppm, respectively. Levels of Lead ranged from 560 ppm to 1820 ppm. Levels of Barium ranged from 640 ppm (SG-8) to 1280 ppm (SG-6). Levels of Calcium ranged from 35,200 ppm to 74,000 ppm. Levels of Copper ranged from 59.8 ppm to 1040 ppm. Levels of Magnesium ranged from 5600 ppm to 34,400 ppm. Nickel was detected above TAGM 4046 criteria within SG-1 (60.1 ppm) and SG-7 (37.6 ppm). Levels of Zinc ranged from 135ppm to 1620 ppm.

2.4 Subsurface Soil Sampling

The subsurface soil sampling results were summarized in Table 2. The results indicated that target compounds were detected at levels above the NYS TAGM 4046 Soil Cleanup Objectives

The results indicate the presence of relatively low levels of semivolatile compounds with concentrations above the TAGM 4046 criteria within the deeper sample intervals at MW-1, MW-3, SB-2, and SB-4.

The results of the EPA 8260B analyses were summarized in Table 3. Low levels of Acetone, below the TAGM 4046 criteria, were detected at SB-1.

The results of the Target Analyte Inorganics analyses were summarized in Table 4. Cadmium was detected at levels slightly above the TAGM 4046 criteria at MW-1 (4-6), MW-3 (4-6 and 16-18), SB-1(4-6), SB-2 (6-8), and SB-3 (0-2). Copper was detected above the TAGM 4046 criteria at SB-3 (0-2). Magnesium was detected above the TAGM 4046 criteria at MW-3 (4-6).

2.5 Groundwater Sampling

The results of the EPA 8270C groundwater sampling were summarized in Table 5. No semi-volatile target compounds were detected.

The results of the EPA 8260B groundwater sampling were summarized in Table 6. Chlorinated hydrocarbon compounds were detected at all sample locations above the NYS Groundwater Quality Standards (GWS). Levels of Tetrachloroethene ranged from 12 ppb to 53 ppb. The highest levels of Tetrachloroethene were detected at MW-3 (53ppb). The concentration of Trichloroethene (8ppb) at MW-3 exceeded groundwater standards. Trichloroethene concentrations, below the NYS GWS, were detected at MW-1 and MW-2. Methyl Tertiary Butyl Ether (MtBE) was detected at MW-2 (4 ppb)

The results of the Target Analyte List Inorganics groundwater sampling were summarized in Table 7. Levels of Chromium, Cobalt, Iron, Magnesium, Lead, Manganese, and Sodium exceeded NYS GWS at all locations. Vanadium was detected at all locations but also found in a Blank. Elevated levels of Barium, Berylium, Copper and Zinc were detected at MW-1.

3.0 SUMMARY OF REMEDIAL ALTERNATIVES

3.1 Site Conceptual Model

Relatively high levels of inorganics and SVOCs were detected within the top 0-2 inches of soil at the site. Levels decreased rapidly with depth. The sources of

the contaminants were likely cumulative deposition of over time due to air pollution, poor fill quality, and surface spills. The shallow soil at the site will therefore require remediation to remove the most highly toxic material. In addition, the elevated levels of SVOCs and inorganics in soil exceeded the TAGM 4046 criteria and will require disposal at a permitted facility. Recommended remediation activities will include excavation/disposal and encapsulation to prevent direct exposure and mobilization due to surface water infiltration.

The presence of chlorinated hydrocarbons in groundwater above the groundwater quality standards was further confirmed during this investigation. The highest levels were detected at MW-3, which was the up-gradient monitoring well on the site.

Based on historic correspondence with the NYS DEP, similar levels were documented at other sites within the area. Subsurface investigation data prepared by Pressly & Associates, Inc. and Delta Environmental Consultants, Inc. for the adjacent property located at 163rd Street and Washington Ave (Block 2368) were summarized in the Pressly report to Richard Gardineer dated January 9, 2001. Levels of PCE in groundwater at this site ranged from 1 to 25 ppb. Based on conversations with the NYC DEP, these levels were considered to be representative of poor background groundwater quality in the area. Remediation of groundwater is therefore, not recommended.

Since the entire site will be encapsulated with asphalt and building slabs the most likely exposure pathways include the following:

- Leaching of SVOCs or Inorganics into groundwater
- Human ingestion of airborne particulates during construction
- Potential migration of soil gas into buildings via slab penetration

The major area of potential concern includes the densely populated urban environment downwind of the construction area. Another concern, due to VOC levels detected in soil gas, was identified for persons in commercial building spaces constructed on foundation/slab.

3.2 Remedial Alternatives Analysis

A total of 6 remedial alternatives were screened according to the criteria described in Section 4.2 (a) 5 of the NYS DEC Draft DER-10 Technical Guidance. The remedies included:

- Soil Removal
- Encapsulation
- Chemical Treatment
- Thermal Treatment On Site
- No Action
- Active Soil Gas Extraction
- Passive Sub-Slab Ventilation

The results of the screening were summarized in Table 8.

The results indicated that soil removal, where required due to construction, and removal of the top 6-inches of soil across the site were the most cost and time effective remedies for SVOCs and Inorganics detected in shallow soil. Any historical fill removed during construction will require disposal at a permitted facility. In addition, the top 6-inches of soil at the site shall be removed for disposal at an appropriately permitted facility (See Section 4.1.3).

Halogenated VOCs were detected at levels above NYS DOH action levels. Therefore, a sub-slab air ventilation system was designed to facilitate active ventilation of the open spaces beneath the floor slabs and in between grade beams throughout the entire building footprint.

3.3 Alternatives Analysis Report

3.3.1 Track Analysis

A comparison of soil remediation alternatives to achieve Tracks 1 and 4 was summarized in Table 9. The evaluated technologies for Track 1 included pump and treat/chemical oxidation for groundwater and site-wide soil excavation and disposal to address contaminated urban fill. The results indicated that a Track 1 remedy for all urban fill at the site would be a high cost burden for the project and could be a nuisance to the surrounding community. A benefit from the Track 1 remedy would be removal of soil, which was found to contain VOCs in soil gas in excess of NYS DOH guidelines.

The Track 4 remedy for soil was shown to be the most cost effective. In addition, it was considered to be very compatible with the land use proposed for the site due to the resulting encapsulation provided by the development, which includes buildings and asphalt over the entire site area. It was noted that the Track 4 remedy would not be able to address the VOCs detected in soil gas at the site.

A comparison of groundwater remediation alternatives to achieve Tracks 1 and 4 was also summarized in Table 9. The results indicated that a Track 1 remedy has a low feasiblity due to the poor background groundwater quality in the area and the limited areas for pumping/treatment of groundwater following building construction. The Track 4 remedy for groundwater would be an institutional control, specifically, an environmental easement to restrict groundwater use at the site.

Based on the Remedial Investigation Report Prepared by Pressly and dated April 5, 2006, the following Track 4 cleanup goals are proposed, per Section 375-6.8, Table 375-6(b), Restricted use Soil Clean up objectives.

Project Cleanup Goals

Media	Contaminant	Proposed Cleanup Goal	RI Report Reference
Groundwater	Tetrachloroethene	5 ppb	MW-3 (53ppb)
Soil	Lead	400ppm	SB-4, 6-8 feet (257 ppm)
	Zinc	10000ppm	SB-4, 6-8 feet (167ppm)
	Magnesium	26,000 ppm	MW-3,4-6 feet (25,700 ppm)
	Cadmium	4.3ppm	MW-1, 4-6 feet (1.2 ppm)
	Benzo(a)pyrene	1000ppb	MW-3, 4-6 feet (1100 ppb)
	Benzo(a)anthrax-cene	1000 ppb	MW-3, 4-6 feet (920 ppb)
	Benzo(k)fluor-Anthene	3900ppb	MW-3, 4-6 feet (1400 ppb)
	Chrysene	3900 ppb	MW-3, 4-6 feet (930 ppb)

Key: ppb – parts per billion, ppm – parts per million

Compliance with Table 375-6.8(b) Restricted residential, is expected for all other compounds in soil remaining on the site.

4.0 Summary of Remedy

The elements of the selected remedy are as follows:

- Removal and disposal at a regulated off-site facility of the top 6 inches of soil over the entire site and all urban fill removed during construction.

- In the area of SG-9, 2 Additional test pits will be excavated and screened for elevated VOC's with a PID. If warranted, contaminated soil will be removed.

- Site will be capped with new buildings and pavement. No exposed soils will remain after remediation and redevelopment.

- Installation of an active sub-slab soil ventilation system in the crawl space beneath all buildings constructed on the site to prevent soil gas containing VOCs from entering occupied building areas.

- Periodic Groundwater monitoring to document natural attenuation of background VOC levels detected in groundwater beneath the site.

- Development of a site management plan to (a) address residual contaminated soils that may be disturbed during future excavation (b) identify any use restrictions and (c) provide for the operation and maintenance of the components of the remedy.

- Imposition of an institutional control in the form of an environmental easement that will (a) require compliance with the approved site management plan; (b) limit the use and development of the property to commercial or restricted residential only; (c) restrict the use of the groundwater as a source of potable water and (d) require the property owner to complete and submit to NYSDEC periodic certifications.

- The property owner will provide periodic certifications, prepared and submitted by a professional engineer or such other expert acceptable to NYSDEC , until the NYSDEC notifies the property owner in writing that this certification is no longer needed. This submittal will contain certification that the institutional and engineering controls are still in place, allow the NYSDEC to access the Plaza 163 site, and that nothing has occurred that will impair the ability of the control to protect the public health or the environment, or constitute a violation for failure to comply with the site management plan.

4.1 Track 4 Institutional/Engineering Controls

Two environmental easements (restriction of groundwater use and soil exposure) shall be created by the property owner and recorded with the appropriate county recording office and granted to the State ("grantee"). A copy of each environmental easement will be provided to the local government in which the property is located and a certificate of mailing shall be forwarded to the NYS DEC to document compliance with the local government notification. The environmental easement can only be extinguished or amended by a written instrument executed by the Commissioner of the NYS DEC and duly recorded.

The following engineering controls will be implemented at the site:

- Concrete/Asphalt encapsulation ("cap")
- Sub-slab ventilation system

Following removal of the top 6-inches of soil over the entire site, construction of buildings and final paving will provide a barrier to prevent exposure to remaining soil and prevent surface water from coming into contact with any soil remaining on the site. In the event that future construction may require excavation and temporary disruption of the asphalt cap, the environmental easement addressing the any potential soil contamination remaining, will require special procedures to be developed prior to any invasive construction activities and issuance of a permit.

An active sub-slab ventilation system was designed to provide a constant vacuum to remove any soil-gas containing VOCs from beneath the building slabs. Two separate systems were described in Section 4.2 and depicted on drawing ENV-1 and detailed in ENV-2. System monitoring will be conducted at startup on an annual basis to verify the systems effectiveness. System monitoring and inspection shall include:

- Inspection of stack fan to ensure system is operating normally,
- Measurement of applied vacuum within the ventilation system piping to verify the design vacuum of 0.1 inches of H_2O, and
- Measurement of air-flow rate within the ventilation system piping.

A qualified environmental professional, to be approved by the NYS DEC shall prepare an annual Certification Report, as detailed in Section 6.2 of DER-10. The report shall certify that the institutional and engineering controls required for the remedies are still in place, have not been altered, and are still effective.

Any areas of the cap, found to be in disrepair, shall be identified and repaired within 30 days. A follow-up inspection, by the environmental professional, shall be conducted to verify that the cap has been repaired and documented in the final annual certification report to be submitted to the NYS DEC. The annual report shall also include the results of the sub-slab ventilation system monitoring and inspection as well as any repairs or adjustments that were required to comply with the design specifications.

4.2 Soil Management Plan

4.2.1 Soil Excavation

The soil to be removed from the site includes the following:

- The top six inches of ground surface soil over the entire site.
- Historical Urban Fill
- Any soil exhibiting evidence of petroleum or other contamination encountered during project work.

All soil removal shall be performed according to the Community Air Monitoring Plan (CAMP)contained within the approved Health and Safety Plan or HASP (Appendix A). End point sampling required of on-site soil shall be performed in accordance with disposal facility permit requirements described below in Section 4.1.2.

Field screening of soil for VOCs shall be performed during all excavation activities and was described in the Section 7.0 of the HASP (Appendix A). The resume for the Health and Safety Officer (HSO) responsible for field screening was included in the HASP.

Airborne Dust will be continuously monitored according to the Community Air Monitoring Plan CAMP contained in the HASP (Appendix A).

Dust suppression will be achieved through the use of a dedicated on-site water truck equipped with a water cannon to enable the spray of water into off-road areas including excavations and stockpiles. In addition, gravel will be used, where possible, on driveways to provide and clean and dust-free road surface. Stabilized construction entrances and truck wash pad will be provided.

Double layers of 8mil plastic sheeting will be placed beneath the base of all stockpiles. Stockpiles will be kept covered at all times with appropriately anchored tarps. Sockpiles will be routinely inspected and damaged tarp covers will be promptly replaced. Soil stockpiles will be continuously encircled with silt

fences. Hay bales will be used as needed near catch basins, surface water, and other discharge points.

Historical fill is prohibited from being reused as backfill in utility trenches or landscape berms. Clean imported fill or native material shall be used for final grading. Soils imported to the site for use in the final grading will meet Table 375-6(b) criteria: lower of the restricted residential and protection of groundwater numbers. Soil materials that exceed this criteria will not be imported onto the site. Solid waste will not be brought onsite. Solid waste will not be used for grading, fill, or cover soil on-site. Mechanical processing of historical fill on-site is prohibited. Certification on the origin of any imported fill will be required.

Organic matter or other solid waste derived from on-site or from offsite is prohibited from reuse or use on site.

Existing Monitoring Wells (MW-1, MW-2, and MW-3) depicted in Figure 2 will likely be abandoned as a result of the new building construction. Therefore, three new monitoring wells shall be installed to replace them. The final locations for the replacement wells as well as their future sampling shall be addressed within a Site Management Plan submitted separately after the Final Remediation Report.

4.2.2 Soil Sampling

The RI Report identified a single location (SG-9) that contained a lead concentration above 1200 ppm, which according to applicable standards may be hazardous, if a Toxicity Characterization Leaching Procedure (TCLP) analysis had been performed. Soil excavation in this area will be stockpiled separately from other areas on-site and further analyzed for TCLP lead. TCLP results will be reviewed to determine whether they are hazardous based on a resultant leachate concentration of 5 ppm or greater. All Soil that is determined to be hazardous based on the disposal characterization analyses, will be stockpiled separately, transported, and disposed in full compliance with applicable local, state, and federal regulations

The sampling required for all excavated soil shall be as follows:

Soil Sampling Protocol

Frequency	Type	Analysis	Method	Facility Acceptance Criteria
First 90 Tons	Grab	VOCs	8260B	<30,000ppb
		TCLP VOCs	1310/8260B	TCLP Limits
2nd 90 Tons	Grab	VOCs	8260B	<30,000ppb
		TCLP VOCs	1310/8260B	TCLP Limits
Every 180 Tons Thereafter	Grab	VOCs	8260B	<30,000ppb
		TCLP VOCs	1310/8260B	TCLP Limits
Every 900 Tons	Composite	SVOCs	8270C	<400,000
		TCLP Metals	1311/6010	TCLP Limits
		Ignitability	1010	Negative
		Corrosivity	9040	>2-<12.5
		Reactivity	SW-846 7.3	RCRA Limits
		PCBs	8082	<50
		TOX	9023	<1000
		Total Sulfur	ASTM D129	None
		TCLP Organics	1311/8000	TCLP Limits

Where USTs are encountered, excavation end point samples and soil derived from UST excavations shall be stockpiled separately and sampled in accordance with STARS.

Due to the presence of elevated VOC levels in soil gas at SG-9, two additional test pits shall be excavated proximate to the former auto repair building prior to construction and encapsulation. The test pits shall be excavated to a depth of 8 feet below grade. Soil samples will be from the test pits shall be screened with a photoionization detector (PID). If VOCs are detected with the PID in excess of 10 parts per million, excavation will continue until all soil containing VOCs has been removed.

4.2.3 Disposal

Non-hazardous historic fill taken off-site will be handled as Municipal Solid Waste (MSW) per 6NYCRR Part 360-1.2. All excavated on-site material being transported off-site, will be transported to facilities located in New Jersey or Pennsylvania.

Native soils that are contaminated and non-hazardous that are being removed from remediation sites are considered Construction and Demolition (C/D) materials with contamination not typical of virgin soils by the Division of Solid and Hazardous materials (DSHM) in NYS DEC. These soils may be sent to a permitted 360 landfill. These soils will be transported to either a beneficial use site or a disposal facility, based on the soil analyses.

Truck routes were chosen to minimize transport through residential areas, limiting distances to major highways, and promoting safety in access to highways. Trucks will be prohibited from stopping and idling in the neighborhood outside the project site. Egress points for truck and equipment transport from the site will be kept clean of dirt and other materials during site remediation and development. Queuing of loaded trucks will be prohibited. Loaded trucks will be required to travel directly to the highway without stopping. Trucks exiting the site will be securely covered with tight –fitting covers. Loose fitting canvas type truck covers will be prohibited. All trucks will be washed prior to leaving the site. Truck routes were included as Appendix D.

4.2.4 Reporting

The Final Remediation Report will include an accounting of the destination of all material removed from the site, including excavated contaminated soil, historic fill, solid, and hazardous waste, and fluids. The documentation shall include manifests/bills of lading and certificates of disposal.

The Final Remediation Report will include a certification by a Professional Engineer that all import of soils from offsite, including source approval and sampling, has been performed in a manner that is consistent with the TAGM 4046 methodology.

The Final Remediation Report will include a certification by a PE that all invasive work during the project was done in accord with dust, and odor suppression methodology defined in this RWP.

The Final Remedial report will include as-built drawings for all constructed elements, certifications, manifests and bills of lading, and the Site Management Plan. All site plans will be constructed based on a survey performed by a NYS licensed surveyor.

An itemized description of costs incurred during all aspects of the Remedial Action taken of the project will be provided as an appendix to the final remedial report.

Daily reports will be provided to the Project Manager for NYS DEC and NYSDOH by email during all period of major invasive remedial activities. Time-critical information (notification of accident, unknown contaminated media, spill, or emergency) will be communicated directly to the NYS DEC project manager.

A project log book will be maintained on-site for inspection by NYS DEC or NYS DOH staff. All final project reports will be submitted in digital form (pdf format).

An annual certification report to satisfy Track 4 remedies was described in Section 3.3.2.

4.3 Sub-Slab Ventilation System

Two passive sub-slab ventilation systems composed of horizontal soil vapor collection piping were designed to induce flow of soil gas from beneath the building floor slabs to two (2) separate roof stacks (Stack 1 and Stack 2). Each stack will be equipped with isolation valves and sample ports for the collection of air samples. Two sub-slab pressure monitoring points shall also be installed to facilitate air sample collection and the measurement of void pressure. Based on the stack air flow analysis, the collection pipes shall be constructed of 6-inch PVC piping with 5-foot sections of 0.020 slotted well screen and placed, above grade, in the void between each sub slab grade beam. The Stack 1 ventilation pipe contain 4 screen sections and the Stack 2 ventilation pipe contain 8 sections of screen. Each stack will be equipped with a fan capable of providing a vacuum pressure of 0.1 inches of H_2O at the ventilation pipe intake.

The sub-slab soil ventilation system was depicted on drawing ENV-1. The Remediation Plan Details were depicted on ENV-2. Equipment specifications for the ventilation system shall be included in the Final Remediation Report

Post installation sampling from the sub-slab system shall be conducted according to a Site Management Plan to be prepared after the Final Remediation Report.

5.0 Project Management

5.1 Project Organization

The project manager was Nicholas Pressly with Pressly and Associates, Inc. (Pressly). Mr. Pressly has over 17 years experience in the environmental investigation and remediation field. Mr. Pressly provided oversight of all aspects of the project and prepared the Remedial Investigation Report. The project owner is Christine Procida, Plaza 163, LLC. The regulatory contact for the project is Brian Davidson, NYS DEC, 625 Broadway, Albany, NY 12233. The New York State Department of Health (NYS DOH) contact information is Steve Karpinski, NYS DOH, Flanigan Square, Room 300, 547 River Street, Troy, NY 12180-2216.

5.2 Citizen Participation

Citizen Participation will be completed according to the Citizen Participation Plan submitted to the NYS DEC on February 9, 2005. A fact sheet (Appendix E) was prepared for distribution to the public and, following regulatory review and approval, will be placed (along with this Report) in the document repository located at the Public Library, Morrisania Branch, 610 East 169th Street, Bronx NY, 10456 (718) 589-4878.

5.3 Schedule

A pre-construction notice will be mailed out at least 10 days prior to start of construction. The estimated project schedule was included as Appendix E.