Revised May 10, 2005

OPERATION, MAINTENANCE AND MONITORING PLAN

124-136 Second Avenue
Brooklyn, New York
Site No. V00405-2

Prepared for

FC GOWANUS ASSOCIATES, INC.
One MetroTech Center North
Brooklyn, New York 11201

ROUX ASSOCIATES, INC.
Environmental Consulting & Management

ROUX

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1. Location of Free Product Collection Wells

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1.0 INTRODUCTION

On behalf of FC Gowanus Associates, LLC (FC Gowanus), Roux Associates, Inc. (Roux Associates) and Remedial Engineering, P.C. have prepared this Operation, Maintenance and Monitoring (OM&M) plan for the former Manufactured Gas Plant (MGP) at 124-136 Second Avenue, Brooklyn, New York (Site). The OM&M plan is part of the post-remediation requirements associated with the Voluntary Cleanup Agreement (VCA) between the New York State Department of Environmental Conservation (NYSDEC) and the United States Postal Service dated March 15, 2001 (Index No. A2-0430-0009), and modified for the substitution of Volunteer to FC Gowanus on November 1, 2002. This OM&M plan has been prepared in accordance with the VCA and the NYSDEC-approved Revised Remedial Action Work Plan (RRWP) dated March 20, 2002, which was prepared by AKRF Engineering, P.C.

This OM&M plan provides a description of activities associated with post-remediation/monitoring requirements for the Site. The OM&M activities described in this plan are consistent with the current use as a retail development. These activities include:

- free product monitoring and collection from the onsite perimeter wells; and
- monitoring and air sampling of the underslab venting system (USV).

Additionally, the Soil Management Plan (SMP) is included as Appendix A. The SMP establishes the guidelines/procedures that must be implemented during future intrusive subsurface activities.

Following this introductory section, Section 2.0 provides a description of the USV and the existing free product (i.e., coal tar) collection wells. Section 3.0, Free Product Collection Well Monitoring Program, presents the plan for removal of free product from the onsite perimeter wells. Section 4.0, Underslab Venting System Monitoring, describes the plan for air monitoring of the USV.

2.0 SYSTEM DESCRIPTION

The components of the free product collection system and USV are discussed in the following sections.

2.1 Free Product Collection Wells

The free product collection system currently consists of forty-five (45) product collection wells located along the south and southwest perimeter of the Site (Figure 1). Out of these, 34 of the remaining product collection wells were installed in 2002, and 11 wells in 2003. The 2003 collection wells were installed because several wells needed to be relocated and one or two wells were damaged as a result of building construction. Wells no longer in use as a result of relocation or damage were properly abandoned as approved by the NYSDEC.

The product collection wells installed in 2002 were drilled to 50 feet (ft) below grade surface (bgs), except for two shallow wells installed to approximately 15 ft bgs. The wells were constructed of 4-inch diameter schedule-40 polyvinyl chloride (PVC) riser pipe and 0.02-inch slotted pipe well screen. The deep wells were constructed with 25-foot long screens that extend from approximately 20 to 45 ft bgs, except for wells RW-3, RW-4, RW-31, and RW-32, which were completed with screens that extend from approximately 10 to 45 ft bgs. A 5-foot sump was installed at the bottom of each deep well to collect free product. The shallow wells RW-1S and RW-2S have a two-foot and one-foot sump, respectively, to collect free product.

The product collection wells installed in 2003 were installed to approximately 55 ft bgs and are constructed of 6-inch diameter schedule-40 PVC with 10 ft sumps, 25 ft of 0.02 slot screen from 25 to 45 ft bgs, except RW-32A, which was similar in construction to the wells installed in 2002.

Due to the development of the Site as a retail center, the existing stick-up well above grade heads were converted to bolt-down flush-mounted manholes as part of the final Site restoration. The wells in the sidewalk were completed with a bolt-down flush-mounted manhole and steel well boxes set in concrete. A locking watertight cap and padlock have been installed on each well. Spill boxes/vaults were installed around wells where continued product recovery operations were deemed necessary.

2.2 Underslab Venting System

During construction of the retail building, a USV, consisting of a gravel bed and 4-inch diameter perforated gas collection pipes, was installed below the building's structural concrete slab (Drawing USV-1 As Built). A 10-mil polyethylene vapor barrier and nonwoven geotextile fabric were installed above the venting layer. All penetrations (i.e., pipes, structural supports, etc.) through the floor slab were sealed with a silicone based waterproof sealant. The floor slab and all penetrations will be periodically inspected at grade as part of the long term OM&M air monitoring. To ensure that vapors do not migrate into the building through floor drainage pipes, the floor drain traps will be maintained so that they are always filled with water.

The perforated gas collection pipes consist of 4-inch diameter Schedule 40 PVC pipe with four rows of ½-inch diameter holes, staggered, spaced 6 inches center-to-center. The pipes were installed approximately 1 ft to 2 ft below the bottom of the concrete slab in ¾-inch gravel, within a 2-foot wide trench. The piping and ¾-inch gravel were enclosed within geotextile filter fabric. The piping was installed as shown on USV-1 As Built. The piping was installed in four separate zones with each zone having its own sample location. The four sample ports are located on each riser pipe in the vicinity of each interior building corner. Because of the foot traffic and to prevent unauthorized access to the piping, the sample ports were installed approximately nine feet above the floor, except for one sample location within a secured fire sprinkler room. A butterfly valve was installed at each sample location just above the sample port. Additionally, all aboveground riser pipes were constructed of 6-inch diameter steel piping with victaulic fittings, to ensure compliance with the NYC fire codes and as a protective measure, due to their locations within the building's interior. The riser pipes exit the building through the roof, where each sampling leg is passively vented to the atmosphere using a six-inch diameter, wind driven, rotary turbine ventilator. If any damage occurs to the underslab venting system (i.e., above ground riser pipes) during any future construction, or retail activity at the Site, the contractor or retail tenant shall notify FC Gowanus immediately. The damage shall be repaired within one week.

The underslab venting system has been designed to operate passively; however, the wind driven turbine at the outlet will insure regular air movement through the subsurface piping. This air movement allows for the sampled air to be representative of the air in the piping system. The header piping was installed to allow for the installation of the necessary equipment (electric-driven blower) if an active system is required, based on the air monitoring plan discussed in Section 4.0. If it is necessary to upgrade to an active system that requires the use of electric blowers, the airflow will be measured using anemometers or other equivalent airflow measuring instruments, in order to determine airflow characteristics and system capacities.

3.0 FREE PRODUCT COLLECTION WELL MONITORING PROGRAM

The purpose of the free product collection well monitoring is to mitigate offsite migration of the free product by continuing to capture mobile coal tar in onsite free product collection wells.

3.1 Monitoring/Recovery

The existing free product collection wells will be monitored for the presence of free product (i.e., coal tar) using an electronic water/product interface probe. If product is present in excess of each well's sump capacity, the free product will be recovered either by bailer, pump, or vacuum truck, and transported offsite following completion of the recovery event. The volume of free product recovered will be either visually estimated or estimated by calculating using the number of feet of product measured in the well sump prior to collection.

Recovery events will take place before or during low volume store hours to minimize interaction with patrons of the retail establishment. A spill vault was installed around wells where continued product recovery is deemed necessary. The transfer of water and product from bailers and buckets, if used, will occur carefully to mitigate any potential for a spill. Suitable engineering controls (i.e., vacuum pump, use of hydrophobic pads, secondary containment, etc.) shall be implemented to avoid spilling or splashing product during transfer.

In accordance with the RRWP, the free product monitoring events will be performed on a weekly basis. The monitoring program will be evaluated based on recovery results to determine the need for modification. The monitoring schedule will also be adjusted to ensure that the volume of free product collected in a deep well does not exceed the sump capacity: 3.25 gallons for 5 ft, 4-inch diameter sumps; or 14.7 gallons for 10 ft, 6-inch diameter sump. If it is determined that the sump capacity was exceeded, NYSDEC will be notified immediately, and the monitoring schedule will be promptly readjusted. The overall well depths will be measured periodically to ensure that there is no sediment buildup in the sumps. If sediment buildup is detected in a sump, the well will be redeveloped as necessary. If the volume of free product equals or exceeds the sumps capacity, the deep wells will be monitored at a frequency so as not to overwhelm the sumps storage capacity, in accordance with the RRWP. Furthermore, the method of free product removal will be evaluated to determine the most effective method of removal. Any changes to the method of free product collection will be discussed with NYSDEC prior to implementation.

3.2 Reporting

A report will be submitted to NYSDEC for review on a quarterly basis, which will detail the volume of free product recovered, the estimated NAPL volume per well in gallons, and graphs showing tar recovered vs. time for each well that produces a significant amount of tar. In addition, any correspondence regarding the discontinuation of monitoring (as approved by NYSDEC) and/or modifications to the free product collection process, if applicable, will be included in the report or under separate cover, as appropriate.

3.3 Free Product Collection Well Closure

FC Gowanus will petition NYSDEC, as appropriate, to discontinue the monitoring of individual wells, based on their historical monitoring data. Upon approval by NYSDEC to discontinue the well monitoring requirements, issued on an individual well basis, the respective monitoring well(s) will be properly abandoned in accordance with all NYSDEC guidelines/requirements.

4.0 UNDERSLAB VENTING SYSTEM MONITORING

The purpose of this air monitoring plan is to verify that the underslab venting system is preventing the potential for migration of vapors into the building. The air monitoring plan is described in the following sections.

4.1 Initial Air Sampling Event

Following substantial construction of the retail building, but prior to building occupation, air samples were collected from the building interior, exterior, and the underslab venting system in March 2004. A total of eight air samples were collected during the initial air sampling event. Four samples were collected from the underslab venting system, two samples were collected from the building interior, and two samples were collected outside the building. Prior to collecting an air sample at each location, the air in the vent system was purged for approximately 5 minutes. The results of the building interior/exterior sample analyses will provide a background/baseline level to compare to the underslab venting system sampling results. A SUMMA sampling canister was used to collect an air sample at each sampling location. The air samples were analyzed for organic compounds by a NYSDOH-certified laboratory using USEPA Method TO-15 (including naphthalene). The air samples were analyzed on a normal turnaround time.

4.2 Long Term OM&M Air Sampling

To determine the effectiveness of the underslab venting system over time, a long-term OM&M air sampling program will be performed. The long-term OM&M air sampling program will consist of the collection of air samples, on a quarterly basis, from the four underslab vent system sampling ports located on each riser pipe within the building's interior. The first air sample was collected in June 2004. The collection of the air samples will follow the same protocol specified in Section 4.1, in accordance with NYSDEC/NYSDOH guidelines. These air samples will also be submitted to a NYSDOH-certified laboratory to be analyzed for previously specified compounds using USEPA Method TO-15. The air samples will be analyzed on a normal turnaround time. The underslab vent system (riser pipes, headers, valves, etc.) will be visually inspected quarterly, by the personnel collecting the air samples. If any component of the system is deemed damaged, the system component will be repaired immediately and NYSDEC will be notified.

4.3 Data Evaluation

The results of the analyses will be evaluated to determine the need for continued air monitoring. The concentrations of BTEX detected in the air samples will be evaluated with reference to the median indoor and outdoor air levels reported in the USEPA's VOC Database published in March 1998 and the New York State Department of Health (NYSDOH) Control Home Database dated January 1997.

The air sampling analytical results will also be evaluated to determine if modifications to the air monitoring plan are required. Additional air samples and/or sampling locations may be considered if detectable concentrations of BTEX indicate a potential exposure risk to occupants of the retail center. Furthermore, the air sampling analytical results will dictate if equipment will need to be installed to operate the underslab venting system in an active mode.

4.4 Reporting

The initial air sampling and long-term OM&M air sampling analytical results will be summarized, following each sampling event, and submitted to NYSDEC and NYSDOH for review. In addition, any correspondence regarding the discontinuation of monitoring and/or modifications to the air monitoring plan, if applicable, will be submitted to NYSDEC and NYSDOH. If an indoor-air odor complaint is received, the source of the odor will be investigated to assess the possible causes of the odor (i.e., retail inventory such as paints, fuels, cleaners, etc. and/or vapors associated with coal tar). If the source of the odor cannot be determined or is likely a result of coal tar vapors, an air sample will be collected using a SUMMA sampling canister in accordance with the procedures specified in Section 4.1.

Respectfully submitted,

ROUX ASSOCIATES, INC.

Daren Moss
Project Hydrogeologist/
Project Manager

REMEDIAL ENGINEERING, P.C.

Charles J. McGuckin, P.E.
Principal Engineer

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AKRF Engineering, P.C., March 20, 2002. Revised Remedial Work Plan, 124-136 Second Avenue, Brooklyn, New York.

United States Environmental Protection Agency, Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air – Second Addition. January 1999.

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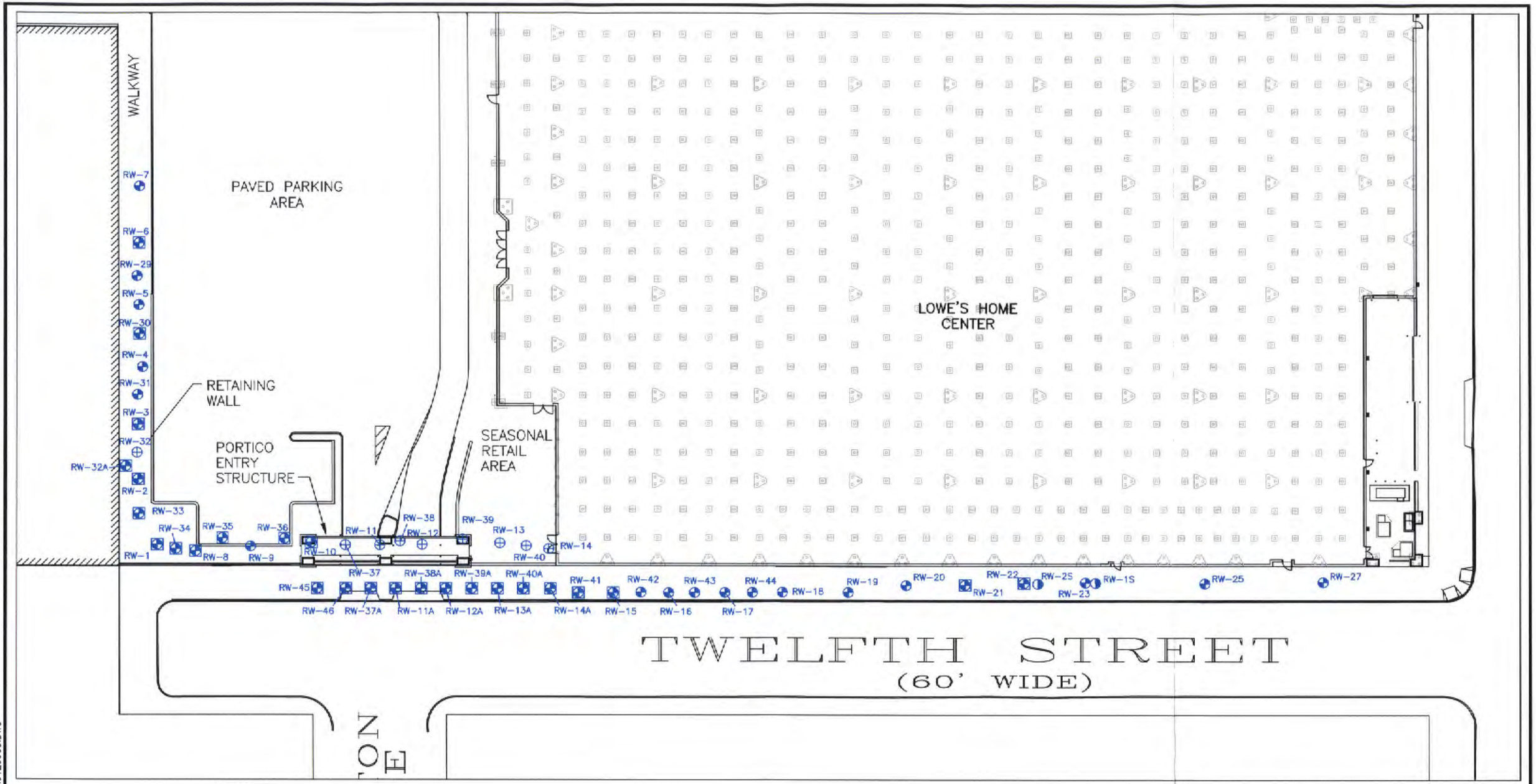

LEGEND

- SHALLOW MONITORING WELL
- DEEP MONITORING WELL
- DEEP MONITORING WELL WITH CONTAINMENT BOX
- ABANDONED WELL

Title:

LOCATION OF FREE PRODUCT COLLECTION WELLS

124–136 SECOND AVENUE
BROOKLYN, NEW YORK

Prepared For: FC GOWANUS ASSOCIATES, LLC
BROOKLYN, NEW YORK

ROUX ASSOCIATES, INC.
Environmental Consulting & Management

Compiled by: W.F.	Date: 10AUG04	FIGURE
Prepared by: G.M.	Scale: 1"=40'	1
Project Mgr: W.F.	Office: NY	
File No: FCR0120905	Project: 92401Y04	

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APPENDIX A

Soil Management Plan

Revised May 10, 2005

SOIL MANAGEMENT PLAN

124-136 Second Avenue
Brooklyn, New York
Site No. V00405-2

Prepared for

FC GOWANUS ASSOCIATES, INC.
One MetroTech Center North
Brooklyn, New York 11201

ROUX ASSOCIATES, INC.
Environmental Consulting & Management

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Soil Management Plan Implementation Depths

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1A New York State Department of Health Generic Community Air Monitoring Plan

1.0 INTRODUCTION

This Soil Management Plan (SMP) has been prepared by Roux Associates, Inc. (Roux Associates) on behalf of FC Gowanus Associates, LLC (FC Gowanus) for the Former Manufactured Gas Plant, located at 124-136 Second Avenue, Brooklyn, New York (Site). The SMP was required to address the April 18, 2003 letter from James Van Hoesen, of the New York State Department of Environmental Conservation (NYSDEC) to Gregory Lowe, of Forest City Ratner Company (FCRC), and as a condition of the Voluntary Cleanup Agreement (VCA) No. V00405-2 between NYSDEC and FC Gowanus. The Site has been previously remediated per the terms and conditions of the VCA No. V00405-2, as documented in the Remediation Completion Report (Roux Associates, May 2003). This SMP has been prepared as an addendum to the Operation, Maintenance, and Monitoring Plan (OM&M), and is incorporated into the OM&M as Appendix A. The SMP establishes procedures to follow in the event that coal tar impacted media is encountered during activities associated with the commercial development of the Site, and subsurface/intrusive activities as defined below.

1.1 Applicability

SMP procedures will be followed upon encountering soils exhibiting visual or olfactory evidence of impact, during any activity that disturbs soils at the Site. Based on historical remediation activity (by others), and subsurface investigation and remediation work implemented by FC Gowanus as part of the VCA, the SMP shall also be implemented during any and all future Site development and modifications that require the following:

- Subsurface/intrusive activities at any depth greater than the vertical limits of previous remediation efforts within former Gasholders #1, #2, and #3, former Hotspots A and BC, and associated areas, as indicated in the Soil Management Plan Implementation Depths Map (Plate 1); and

- Subsurface/intrusive activities at any depth greater than four feet within the Site limits, excluding former Gasholders #1, #2, and #3, former Hotspots A and BC, and associated areas, as indicated on the Soil Management Plan Implementation Depths Map (Plate 1).

2.0 SITE MANAGEMENT

During construction related and other future Site activities, the potential exists to encounter coal tar impacted soil and/or water. These activities include, but are not limited to, installation of utilities, excavation to facilitate pile installation, installation of drainage lines and catch basins, site grading, and all other subsurface and intrusive activities. If impacted soil and/or water are encountered, the contractor must immediately notify the Site owner and/or owner's representative, who shall then notify NYSDEC. Concentrations of contaminants in the work zone shall be monitored in accordance with the activity specific and site specific Health and Safety Plan (HASP) during excavation or other intrusive activities where the potential exists to encounter coal tar impacted media, as previously defined. All intrusive work areas shall be protected through temporary control measures and all impacted media shall be properly managed as discussed below.

2.1 Temporary Controls

Temporary controls shall be implemented during excavation or other intrusive activities. Temporary fencing and signage shall be used to keep the public out of work areas where the potential exists to encounter coal tar impacted media. Erosion control, including but not limited to hay bales, silt fencing, and temporary berms, shall be used to control the migration of potentially contaminated media across the site into sewers, catch basins and other drainage structures, and into the Gowanus Canal. Traffic control procedures shall be implemented when activities have the potential to affect both onsite and offsite traffic.

2.2 Health and Safety

These procedures shall be followed to manage any excavated/removed material that is deemed coal tar impacted, based on visual and/or olfactory inspection, or field measurement instrumentation.

All personnel handling/managing coal tar impacted media shall be health and safety trained in accordance with OSHA 29 CFR 1910.120(e)1926.65, and be part of an annual medical monitoring program as required by OSHA. Additionally, the onsite contractor will provide a HASP that addresses all hazards and safety concerns associated with the specific Site activities being conducted, including the potential exposure and handling of coal tar impacted media, prior

to initiating work activities. Provisions shall be made to have the appropriate level of personal protective equipment (PPE) available to the Site personnel that will be handling this type of material. PPE shall be containerized and properly disposed after use.

2.3 Coal Tar Impacted Soil

All excavated soil determined to exhibit characteristics of coal tar impact, based on visual and/or olfactory inspection, or field measurement instrumentation, shall be transported to a soil staging location within the Site boundary that will be out of the way of the on-going construction activities. The impacted soil shall be managed in a manner that minimizes any potential for the spread of impacted material across the Site, including onsite transport for temporary storage. All impacted soils, at a minimum, shall be stored on plastic sheeting having a minimum thickness of 10 mils. If necessary, plywood or clean fill will be placed onto the plastic sheeting to prevent tearing of the plastic sheeting from trucks or equipment operating in the soil staging area. A vapor suppression agent/deodorizer shall be available, and applied to the impacted soil, as needed, to mitigate organic vapors (if any) being released from the stockpiled material, and exposed impacted soils within any open excavation. The stockpile shall be covered with a minimum 10-mil thickness plastic sheeting and secured using appropriate methods, included but not limited to, tie down, tires, clean fill or concrete blocks. The staging area shall be situated and constructed in a fashion that will contain any free liquid or runoff from the stockpiled soil.

2.4 Coal Tar Impacted Water

Any Site construction waters determined to exhibit signs of being coal tar impacted (sheen and/or coal tar presence), shall be removed from the open areas or excavations and stored in drums or a portable storage vessel for future offsite disposal, or permissible discharge to the onsite stormwater management structures and/or the New York City Sewer System, in accordance with the discharge permit guidelines provided as part of the New York City Department of Environmental Protection (NYCDEP) Sanitary Discharge Permit secured by the contractor. All impacted construction waters shall be treated to acceptable levels prior to discharge. All impacted construction waters shall be managed to avoid any leakage, spillage, or uncontrolled release to the Site. However, appropriate equipment shall be onsite during any excavation or other intrusive activities, and if any spill occurs, the spill shall be cleaned up immediately.

2.5 Air Monitoring

During intrusive activities where there is the potential to encounter coal tar impacted media, in addition to the air monitoring performed by the contractor as a requirement of the HASP, air monitoring will be conducted. Air monitoring shall consist of the use of a photoionization detector (PID) or similar equipment to monitor the concentration of Volatile Organic Compounds (VOCs), downwind of the active work area. VOC concentrations shall be collected every 15 minutes and recorded. If the PID indicates VOC concentrations are greater than 5 parts per million (ppm) in two consecutive monitoring periods (i.e., a 15 minute average greater than 5 ppm), work shall immediately cease and a re-evaluation of Site activities shall be conducted. Necessary engineering controls shall be implemented, such as vapor suppression techniques, excavation method modifications, etc., to mitigate the VOC levels. If this threshold is exceeded, the New York State Department of Health (NYSDOH) and NYSDEC shall be notified, and the NYSDOH Generic Community Air Monitoring Plan, including VOC and particulate monitoring, shall be instituted (Appendix A).

2.6 Odor and Dust Control

Excavation or other intrusive activities shall be conducted in a manner that minimizes the possibility of creating odors and/or dust. If the Site control practices are insufficient at managing odor emissions from work areas, an odor suppressant system shall be used to further control odors. During all excavation or other intrusive activities in which coal tar impacted soils could be encountered, odor suppressant material shall be onsite and readily available for use. Dust control measures shall be utilized to minimize dust during excavation and intrusive activities. Generally, the application of water, in such quantities and frequencies as required to prevent dust from becoming a nuisance to the surrounding area, shall be utilized as the primary means of dust control. Alternative methods may also be appropriate.

2.7 Equipment/Personnel Decontamination

All equipment and personnel that come into contact with impacted media (soil and/or water) during the completion of construction related and future activities at the Site, shall be properly decontaminated at the completion of those activities, prior to leaving the exclusion zone. This equipment includes hand tools, excavator buckets, dump trucks, etc. The equipment will be inspected after decontamination to ensure that all residual contamination has been removed. A

temporary decontamination pad will be located adjacent to the exclusion zone in an area out of the way of the ongoing Site activity. The decontamination pad will be appropriately sized based upon the type of Site activity conducted and the equipment requiring decontamination. The pad shall be constructed of wood, soil, concrete, or other suitable material, provided that the top layer is of an impermeable material with bermed/raised edges to the necessary height to contain any liquids or soils that are removed/recovered during decontamination. All waters/waste generated during decontamination procedures shall be contained, collected, and managed for future offsite disposal, or onsite water treatment (if appropriate).

2.8 Impacted Soil Management

All stockpiled soil shall be inspected and sampled to determine if it may be utilized as Site fill material, or if it will require proper offsite disposal. Samples shall be analyzed for VOCs, SVOCs, and metals, at the rate of one composite sample per 200 cubic yards. If the results indicate concentrations below the NYSDEC-approved reuse limits, the soil shall be utilized as onsite fill. Otherwise the soil shall be properly characterized and disposed offsite at a permitted waste treatment/disposal facility. If the waste characterization sampling indicates that the soil requires proper offsite disposal, air monitoring shall be performed, in accordance with Section 2.5, during all soil load-out activities. In addition, load-out activities shall be conducted in a manner that minimizes vapor emissions from transport vehicles or roll-off containers. All waste transport vehicles shall have the loads covered with secured plastic, or tight impermeable tarp, and be inspected and free of exterior contamination, prior to departure from the Site. Each waste load shall have the necessary transport documentation (waste manifest).

2.9 Backfilling

Upon removal of coal tar impacted material encountered during intrusive Site activities, backfilling shall proceed with non-impacted material generated at the Site through grading and/or excavation, or with clean fill brought onsite. Any fill material from an offsite source shall be sampled and analyzed to insure compliance with all applicable regulatory/legal requirements. The results of this sampling will be provided, upon request, to NYSDEC for review.

2.10 Notification/Reporting

NYSDEC shall be notified at least five days prior to commencement of any Site activities requiring management under the SMP guidelines. Upon completion of such activities, the owner or owner's representative shall notify NYSDEC, and provide written documentation (in addition to the immediate verbal notification by the owner's representative) of any coal tar impacted media encountered, and the methods of management onsite and/or offsite. Report topics shall include, but not be limited to, a discussion of any coal tar impacted media encountered during excavation and/or other intrusive activities, volume of soil/water removed, volume of soil/water disposed, disposal methods and locations, waste characterization and disposal documentation, and a figure depicting the locations where the impacted media was encountered.

Respectfully submitted,

ROUX ASSOCIATES, INC.

Daren Moss
Project Hydrogeologist/
Project Manager

REMEDIAL ENGINEERING, P.C.

Charles J. McGuckin, P.E.
Principal Engineer

NINTH STREET

GOWANUS CANAL

CANAL

INLET

HAMILTON PLAZA

4'

FORMER HOTSPOT BC

16'

15'

8'

13'

8'

16'

24'
FORMER GASHOLDER #1

22'
FORMER GASHOLDER #2

FORMER HOTSPOT A

11'

15'

4'

6'
FORMER GASHOLDER #3

8'

12'

TENTH STREET

AVENUE

ELEVENTH STREET

SECOND

60' 0 60'

TWELFTH STREET

HAMILTON PLACE

SOIL MANAGEMENT PLAN (SMP) PROCEDURES TO BE IMPLEMENTED DURING INTRUSIVE WORK BELOW INDICATED DEPTHS AS SHOWN, OR BELOW 4 FT BGS FOR ALL OTHER SITE AREAS

- SITE BOUNDARY
- OFFSITE BUILDING

- 24 FEET BELOW GRADE SURFACE (FT BGS)
- 22 FT BGS
- 16 FT BGS
- 15 FT BGS
- 13 FT BGS
- 12 FT BGS
- 11 FT BGS
- 8 FT BGS
- 6 FT BGS
- 4 FT BGS

Title:

SOIL MANAGEMENT PLAN IMPLEMENTATION DEPTHS

124–136 SECOND AVENUE
BROOKLYN, NEW YORK

Prepared For:

FC GOWANUS LLC

ROUX ASSOCIATES, INC.
Environmental Consulting & Management

Compiled by: D.M.	Date: 19MAY03	PLATE
Prepared by: G.M.	Scale: AS SHOWN	1
Project Mgr: W.F.	Office: NY	
File No: FCR0121701	Project: 92401Y04	

APPENDIX 1A

New York State Department of Health
Generic Community Air Monitoring Plan

APPENDIX 1A

New York State Department of Health
Generic Community Air Monitoring Plan

A Community Air Monitoring Plan (CAMP) requires real-time monitoring for volatile organic compounds (VOCs) and particulates (i.e., dust) at the downwind perimeter of each designated work area when certain activities are in progress at contaminated sites. The CAMP is not intended for use in establishing action levels for worker respiratory protection. Rather, its intent is to provide a measure of protection for the downwind community (i.e., off-site receptors including residences and businesses and on-site workers not directly involved with the subject work activities) from potential airborne contaminant releases as a direct result of investigative and remedial work activities. The action levels specified herein require increased monitoring, corrective actions to abate emissions, and/or work shutdown. Additionally, the CAMP helps to confirm that work activities did not spread contamination off-site through the air.

The generic CAMP presented below will be sufficient to cover many, if not most, sites. Specific requirements should be reviewed for each situation in consultation with NYSDOH to ensure proper applicability. In some cases, a separate site-specific CAMP or supplement may be required. Depending upon the nature of contamination, chemical- specific monitoring with appropriately-sensitive methods may be required. Depending upon the proximity of potentially exposed individuals, more stringent monitoring or response levels than those presented below may be required. Special requirements will be necessary for work within 20 feet of potentially exposed individuals or structures and for indoor work with co-located residences or facilities. These requirements should be determined in consultation with NYSDOH.

Reliance on the CAMP should not preclude simple, common-sense measures to keep VOCs, dust, and odors at a minimum around the work areas.

Community Air Monitoring Plan

Depending upon the nature of known or potential contaminants at each site, real-time air monitoring for volatile organic compounds (VOCs) and/or particulate levels at the perimeter of the exclusion zone or work area will be necessary. Most sites will involve VOC and particulate monitoring; sites known to be contaminated with heavy metals alone may only require particulate monitoring. If radiological contamination is a concern, additional monitoring requirements may be necessary per consultation with appropriate NYSDEC/NYSDOH staff.

Continuous monitoring will be required for all ground intrusive activities and during the demolition of contaminated or potentially contaminated structures. Ground intrusive activities include, but are not limited to, soil/waste excavation and handling, test pitting or trenching, and the installation of soil borings or monitoring wells.

Periodic monitoring for VOCs will be required during non-intrusive activities such as the collection of soil and sediment samples or the collection of groundwater samples from existing monitoring wells. "Periodic" monitoring during sample collection might reasonably consist of taking a reading upon arrival at a sample location, monitoring while opening a well cap or overturning soil, monitoring during well baling/purging, and taking a reading prior to leaving a sample location. In some instances, depending upon the proximity of potentially exposed individuals, continuous monitoring may be required during sampling activities. Examples of such situations include groundwater sampling at wells on the curb of a busy urban street, in the midst of a public park, or adjacent to a school or residence.

VOC Monitoring, Response Levels, and Actions

Volatile organic compounds (VOCs) must be monitored at the downwind perimeter of the immediate work area (i.e., the exclusion zone) on a continuous basis or as otherwise specified. Upwind concentrations should be measured at the start of each workday and periodically thereafter to establish background conditions. The monitoring work should be performed using equipment appropriate to measure the types of contaminants known or suspected to be present. The equipment should be calibrated at least daily for the contaminant(s) of concern or for an appropriate surrogate. The equipment should be capable of calculating 15-minute running average concentrations, which will be compared to the levels specified below.

- If the ambient air concentration of total organic vapors at the downwind perimeter of the work area or exclusion zone exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities must be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities can resume with continued monitoring.

- If total organic vapor levels at the downwind perimeter of the work area or exclusion zone persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities must be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities can resume provided that the total organic vapor level 200 feet downwind of the exclusion zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less - but in no case less than 20 feet, is below 5 ppm over background for the 15-minute average.

- If the organic vapor level is above 25 ppm at the perimeter of the work area, activities must be shutdown.

All 15-minute readings must be recorded and be available for State (DEC and DOH) personnel to review. Instantaneous readings, if any, used for decision purposes should also be recorded.

Particulate Monitoring, Response Levels, and Actions

Particulate concentrations should be monitored continuously at the upwind and downwind perimeters of the exclusion zone at temporary particulate monitoring stations. The particulate monitoring should be performed using real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM-10) and capable of integrating over a period of 15 minutes (or less) for comparison to the airborne particulate action level. The equipment must be equipped with an audible alarm to indicate exceedance of the action level. In addition, fugitive dust migration should be visually assessed during all work activities.

- If the downwind PM-10 particulate level is 100 micrograms per cubic meter (mcg/m^3) greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques must be employed. Work may continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed 150 mcg/m^3 above the upwind level and provided that no visible dust is migrating from the work area.

- If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than 150 mcg/m^3 above the upwind level, work must be stopped and a re-evaluation of activities initiated. Work can resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 mcg/m^3 of the upwind level and in preventing visible dust migration.

All readings must be recorded and be available for State (DEC and DOH) personnel to review.

APPENDIX B

Underslab Venting System Modification
Correspondence
July 11, 2003

ENVIRONMENTAL CONSULTING & MANAGEMENT
ROUX ASSOCIATES INC

209 SHAFTER STREET
ISLANDIA, NEW YORK 11749-5074 TEL 631-232-2600 FAX 631-232-9898

July 11, 2003

Ms. Dawn Hettrick
New York State Department of Health
547 River Street
Troy, New York 12180

Re: Underslab Venting System Construction Modifications
Former Manufactured Gas Plant (MGP)
124-136 Second Avenue, Brooklyn, New York
Agreement Index Number: A2-0430-0009

Dear Ms. Hettrick:

As a follow-up to our recent discussion, this correspondence is to memorialize the underslab vent system (USV) design/construction modifications that will be implemented during the installation of the USV, as required by the referenced Voluntary Cleanup Agreement between FC Gowanus Associates, LLC (FC Gowanus) and the New York State Department of Environmental Conservation (NYSDEC). As intended, the USV and associated appurtenances will function as an engineering control to limit the potential for migration of organic vapors into the retail space interior by providing an underslab barrier in conjunction with a preferential passive piping system.

The building is constructed on piles, and will have a structural concrete slab floor. As such, the following modifications will be made during the USV installation:

- The 2-inch mud slab will no longer be installed, as the rebar supports have been modified to avoid any damage to the vapor barrier.
- The thickness of the vapor barrier will be increased from 6 mil to 10 mil as an increased protective measure.
- All penetrations will now be sealed at the floor surface with a waterproof silicone-based sealant (or approved equal). This provides a much greater level of quality control than the originally proposed sealing of the vapor barrier penetrations below the floor slab.

All system components will be inspected during installation. Any damage will be repaired prior to the pouring of the floor slab.

This correspondence will be incorporated into the Operation, Maintenance, and Monitoring Plan (OM&M) as an addendum to the section pertaining to the USV. Upon installation completion, an As-Built drawing will be generated indicating the described modifications, and post-construction USV layout.

Please contact me immediately with any questions.

Thank you for assistance regarding these changes.

Sincerely,

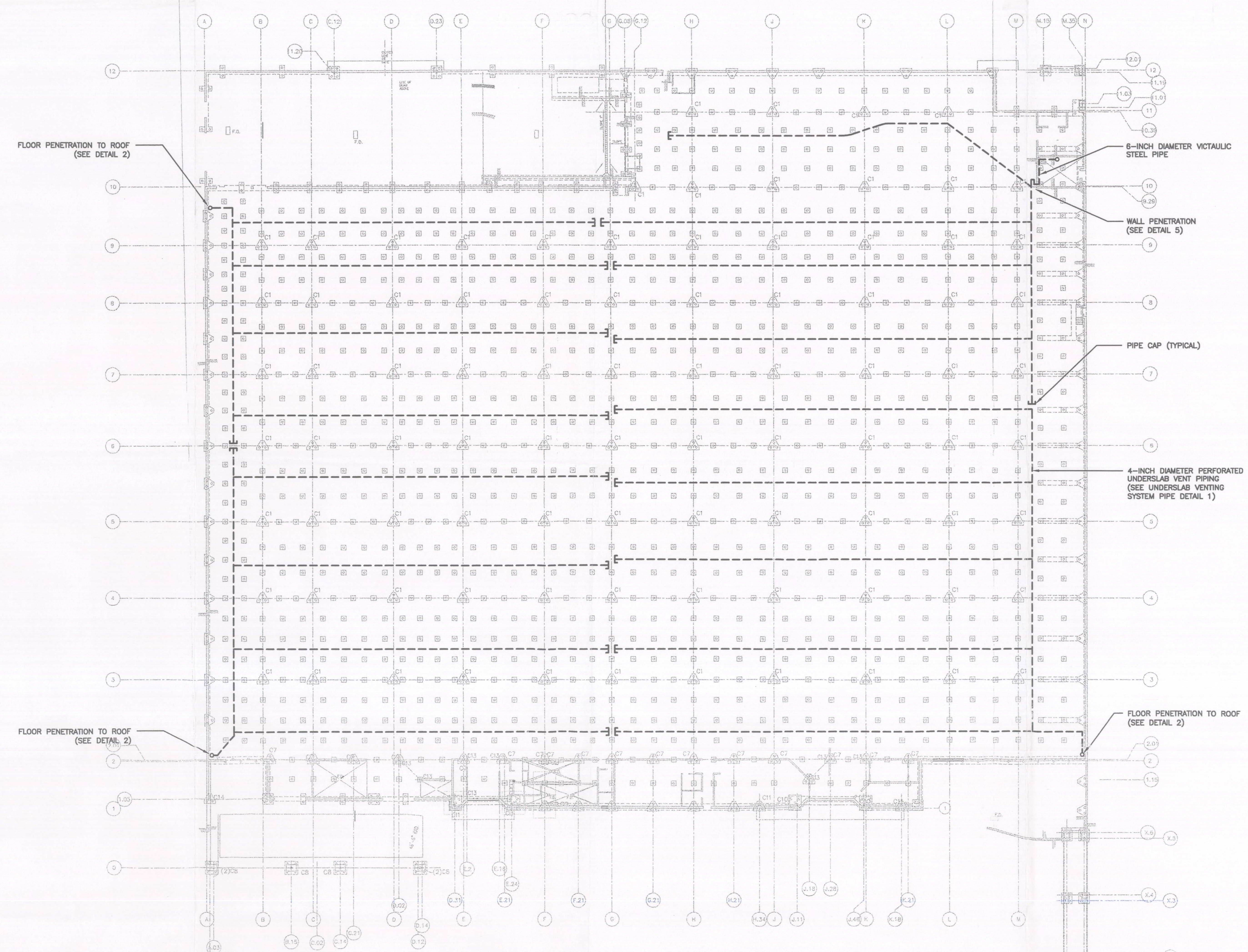
ROUX ASSOCIATES, INC.

William A. Fisher; CHMM
Senior Engineer/
Project Manager

REMEDIAL ENGINEERING, P.C.

Charles McGuckin, P.E.
Principal Engineer

cc: Anthony Karwiel, NYSDEC
Gregory Lowe, FC Gowanus Associates, LLC
Michael Goldban, FC Gowanus Associates, LLC
Mark Chertok, Sive Paget & Riesel, P.C.
Warren Karp, Greenberg Traurig, LLP
Lindsay McGrady, Lowes Companies, Inc.
Michael Johneas, E.W. Howell, Inc.

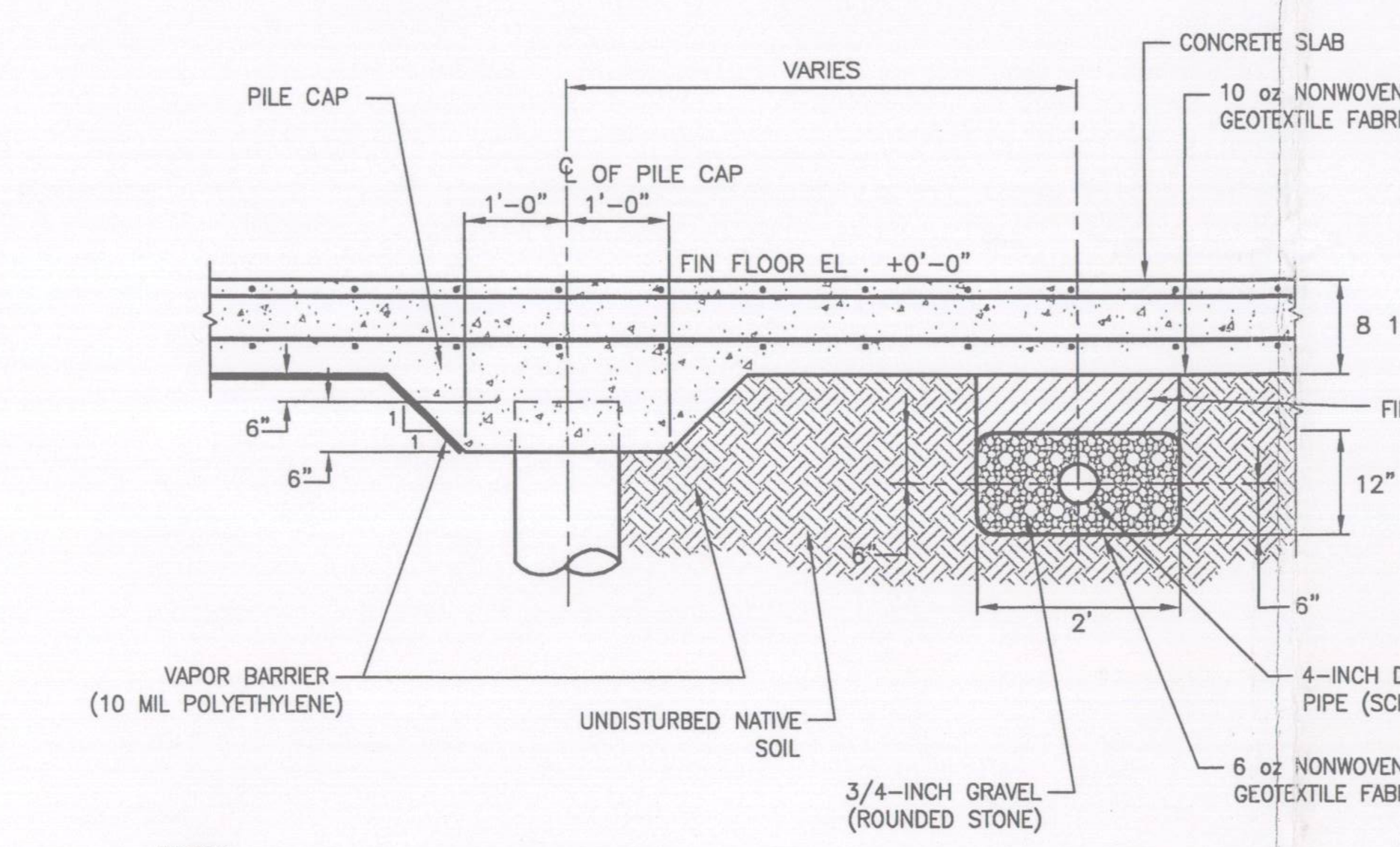


NOTES:

1. FOUNDATION PLAN OBTAINED FROM URBITRAN/ROSENBLOOM ARCHITECTS, NOVEMBER 2002.
2. CONTRACTOR SHALL COORDINATE INSTALLATION OF UNDERSLAB VENTING SYSTEM WITH THE FOUNDATION, MECHANICAL AND ELECTRICAL CONTRACTORS. LAYOUT MAY REQUIRE FIELD CONDITION MODIFICATION.
3. CONTRACTOR SHALL REFER TO THE LOWE'S OF GOWANUS DESIGN DRAWINGS AND TECHNICAL SPECIFICATIONS PREPARED BY URBITRAN/ROSENBLOOM ARCHITECTS, et. al, FOR ADDITIONAL INFORMATION.

FOUNDATION PLAN

SCALE: 1" = 30'-0"

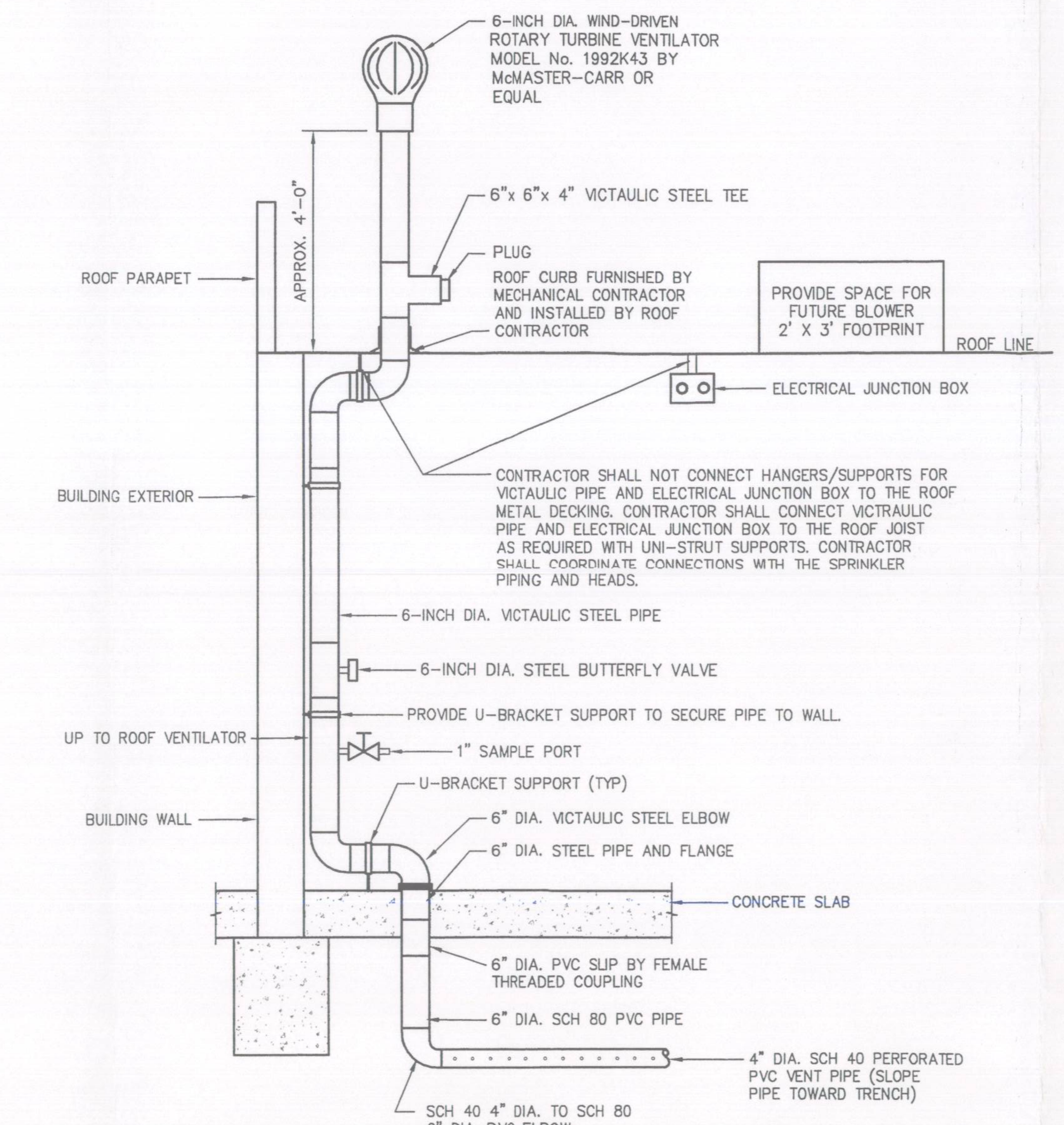


NOTES:

1. CONTRACTOR SHALL COORDINATE WITH MECHANICAL, CIVIL AND ELECTRICAL CONTRACTORS FOR ALL UTILITY CROSSINGS.
2. THE PERFORATED PIPE SHALL BE ROUTED AROUND THE ELECTRICAL CONDUIT WHERE REQUIRED.
3. THE SURFACES TO BE LINED SHALL BE FREE OF ALL ROCKS, STONES, SHARP OBJECTS OR CONSTRUCTION DEBRIS OF ANY KIND.
4. INSTALL GEOTEXTILE NONWOVEN FABRIC AND VAPOR BARRIER DIRECTLY ON NATIVE SOIL. MATERIAL OVERLAPS SHALL BE A MINIMUM OF 18".
5. ALL PENETRATIONS THROUGH THE FLOOR SLAB SHALL BE SEALED USING A SILICONE BASED WATERPROOF SEALANT OR EQUIVALENT.

(1) UNDERSLAB VENTING SYSTEM PIPE DETAIL

NOT TO SCALE

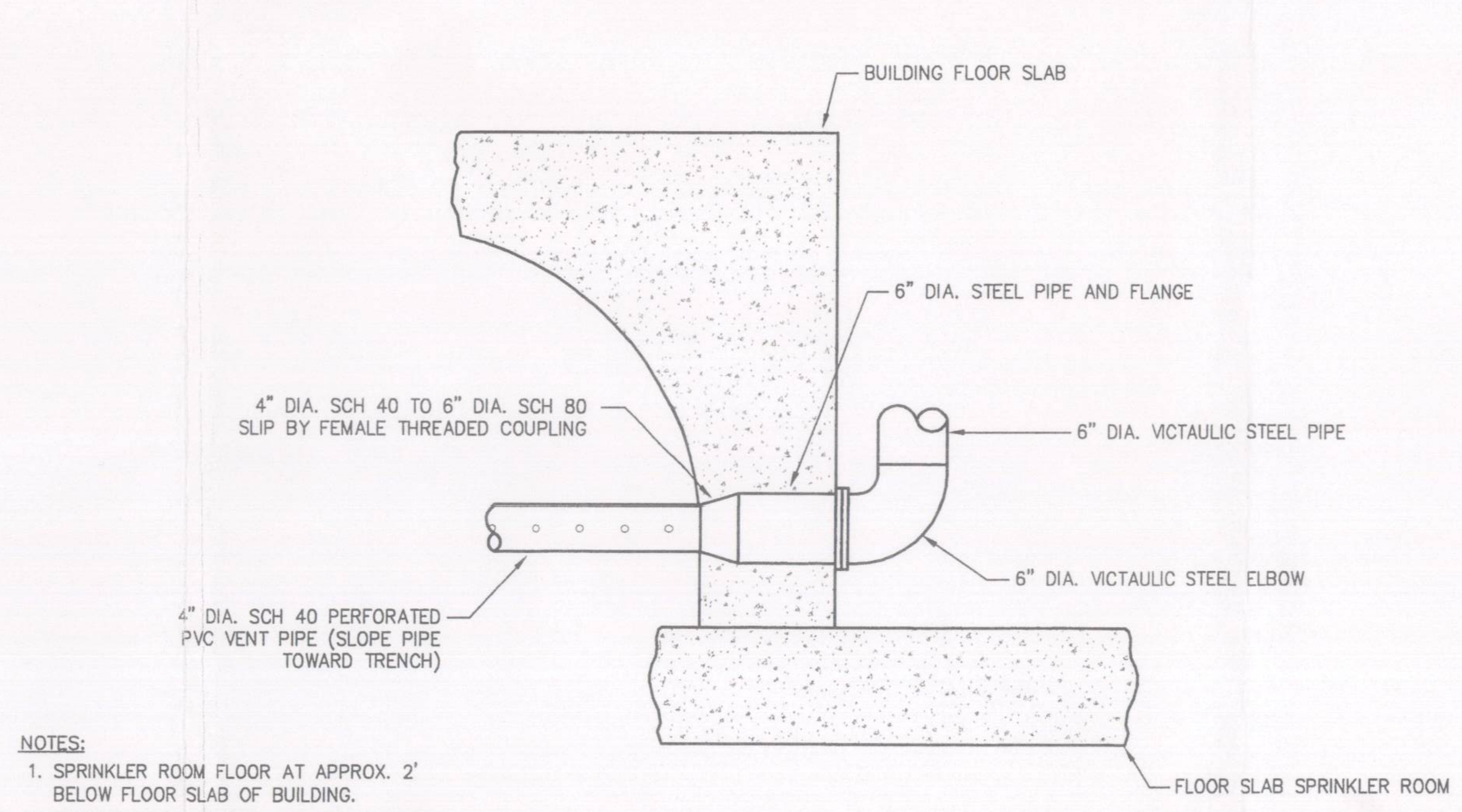


(2) UNDERSLAB VENT DETAIL (TYPICAL)

NOT TO SCALE

NOTES:

1. PROVIDE ELECTRICAL/CONTROL CONDUIT TO LOCATION OF EACH UNDERSLAB VENT LOCATION. COORDINATE WITH ELECTRICAL CONTRACTOR.
2. ELECTRICAL CONDUIT SHALL BE SIZED FOR 230/460 VOLT, THREE PHASE, 30 AMPS 60 Hz, FOR FUTURE BLOWER MOTORS. INSTALL PULL WIRES IN EMPTY CONDUIT.
3. LOCATION OF SAMPLE PORT TO BE LOCATED APPROXIMATELY 9 FEET ABOVE FINISHED FLOOR ELEVATION UNLESS FLOOR PENETRATION IS LOCATED IN LOCKED SECURE ROOM (i.e.SPRINKLER ROOM). THE SAMPLE PORT SHALL BE LOCATED APPROXIMATELY 4 FEET ABOVE FINISHED FLOOR ELEVATION IN SECURE ROOM.
4. JULY 24, 2003 MODIFICATIONS TO THE USV SYSTEM AS PER ROUX ASSOCIATES CORRESPONDENCE TO NYSDOH, JULY 11, 2003.

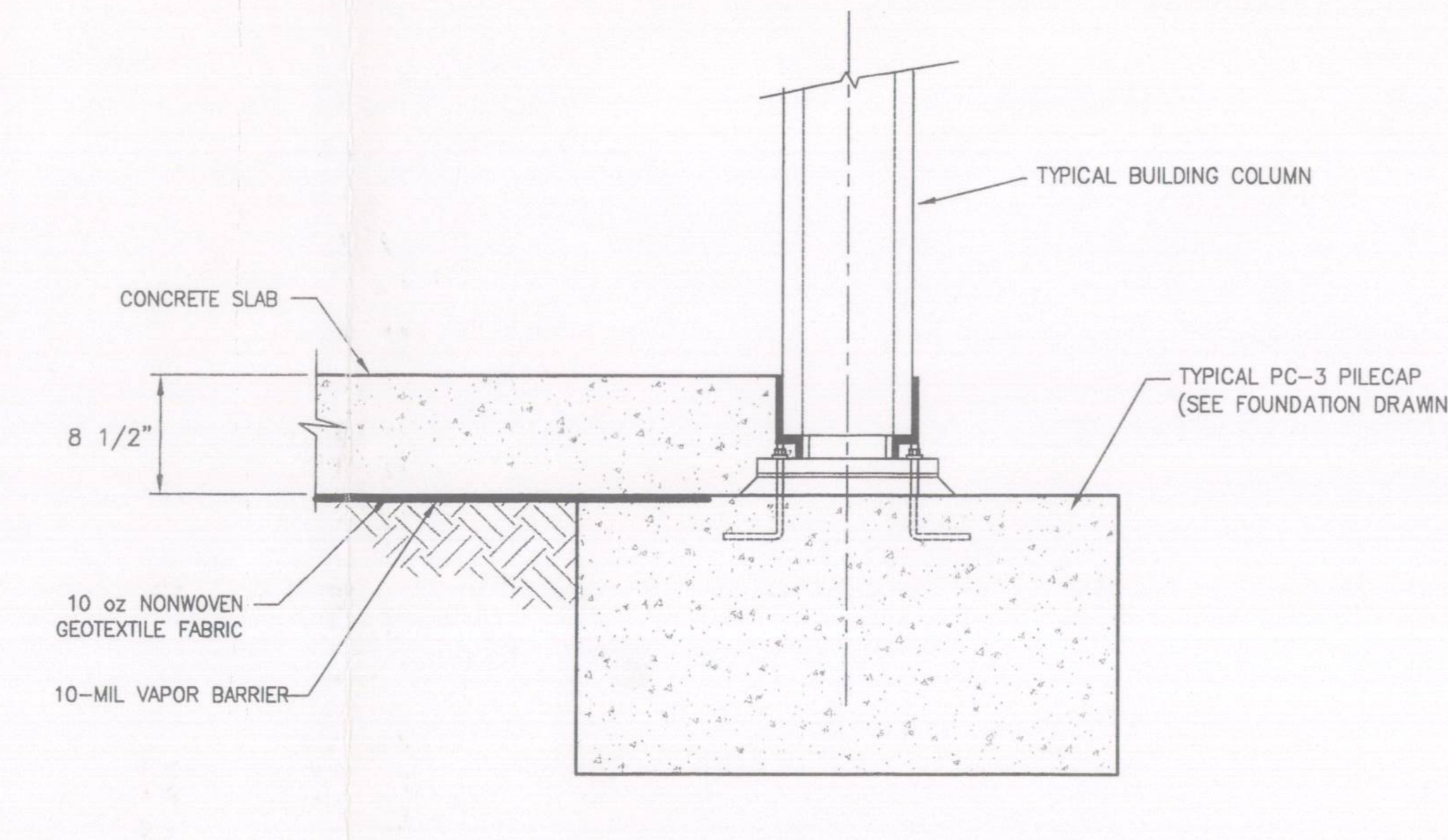


NOTES:

1. SPRINKLER ROOM FLOOR AT APPROX. 2' BELOW FLOOR SLAB OF BUILDING.
2. SAMPLE PORT LOCATED APPROX 4' ABOVE THE FLOOR.
3. ROOF PENETRATION AND COMPLETION AS SHOWN IN DETAIL 2.

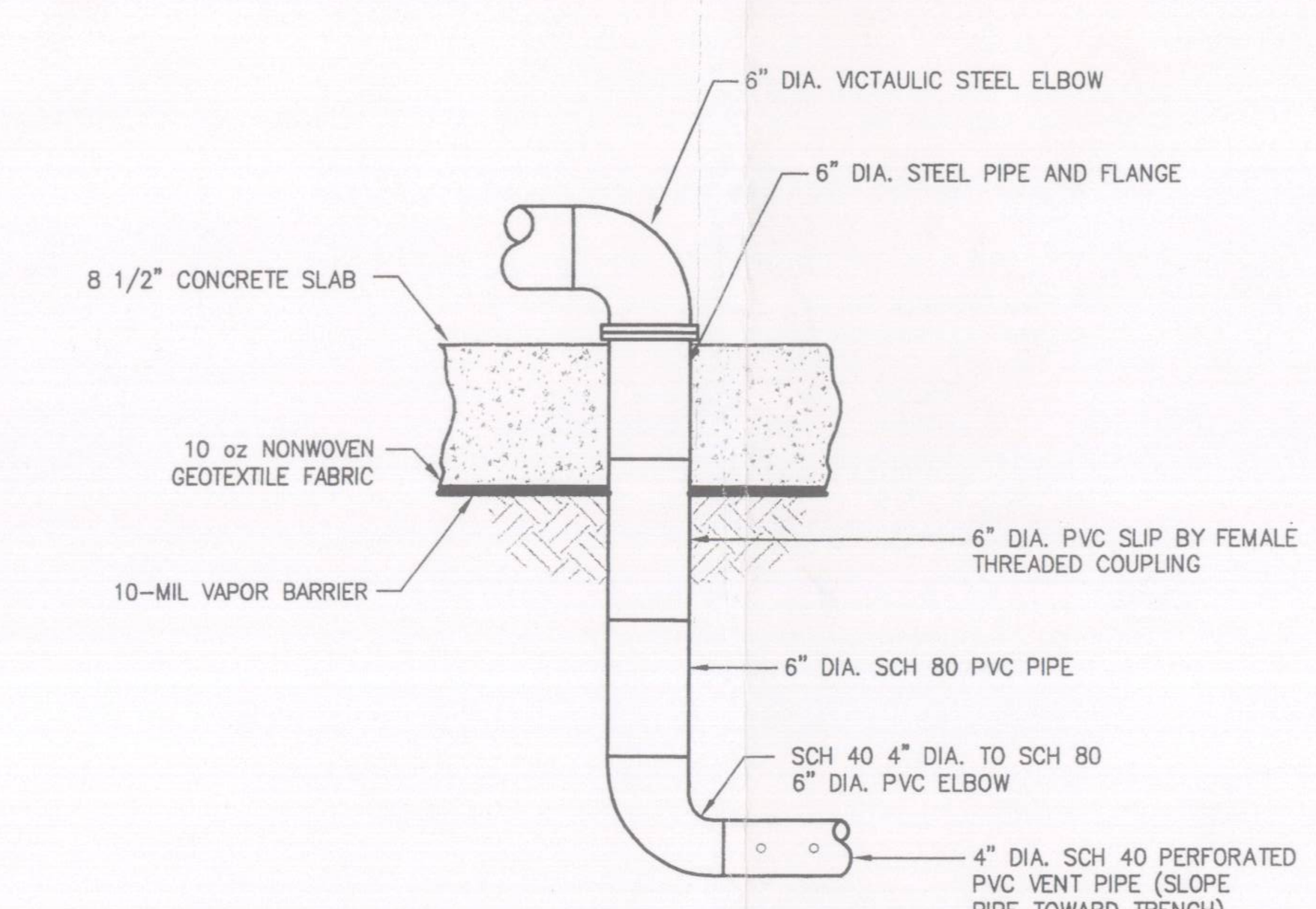
(5) SPRINKLER ROOM WALL PENETRATION DETAIL

NOT TO SCALE



(4) VAPOR BARRIER DETAIL FOR PC-3 PILE CAPS AND/OR GRADE BEAMS

NOT TO SCALE



(3) FLOOR PENETRATION DETAIL

NOT TO SCALE

LOWE'S HOME CENTERS, INC.
P.O. BOX 1111 N. WILKESBORO, NC 28656

REVISIONS

◇ PRE-BID SET ISSUE DATE △ POST BID SET ISSUE DATE

DATE	DESCRIPTION
9/20/02	DRAFT SUBMISSION
11/15/02	DRAFT REVISED
7/24/03	REVISED SEE NOTE 4

ENVIRONMENTAL ENGINEERS:
REMEDIAL ENGINEERING, P.C.
209 Shafter Street
Islandia, New York 11749
(631) 232-2600
FAX (631) 232-9898

LOWE'S ENGINEERING AND CONSTRUCTION
HWY 268 EAST, EAST DOCK N. WILKESBORO, NC 28659
336.658.4000 (V) 336.658.3257 (F)

UNDERSLAB VENTING SYSTEM AS-BUILT

LOWE'S OF GOWANUS
BROOKLYN, NEW YORK

PROJECT No: | DRAWN BY: | CHECKED BY:

ORIGINAL ISSUE DATE: 09/20/02
PERMIT SET ISSUE DATE:
CONSTRUCTION SET ISSUE DATE:
DRAWING NUMBER:

USV-1