

524 West 19th Street
NEW YORK, NEW YORK

Site Management Plan

NYSDEC Site Number: V00553
Voluntary Cleanup Agreement – Index No. D2-0003-02-08

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1.0 INTRODUCTION AND DESCRIPTION OF REMEDIAL PROGRAM

1.1 INTRODUCTION

This document is required as an element of the remedial program at 524 West 19th Street, in the borough of Manhattan, New York City, New York (hereinafter referred to as the "Property" under the New York State (NYS) Voluntary Cleanup Program (VCP) administered by New York State Department of Environmental Conservation (NYSDEC). The Property was remediated in accordance with Voluntary Cleanup Agreement (VCA) # D2-0003-02-08, Site # V00553, which was executed on August 15, 2002.

1.1.1 General

Consolidated Edison Company of New York, Inc. (Con Edison) entered into a VCA with the NYSDEC to investigate and, if necessary, remediate former manufactured gas plant sites (MGPs) that it or its predecessor companies operated historically. The Property covers approximately a 0.1-acre and represents one of many parcels that comprise the grounds of the former W. 18th St. Works former MGP Site located in New York, New York. A map showing the Property's location relative to the former MGP Site and boundaries of this 0.1-acre "Property" is provided in Figure 1. The boundaries of the Property are more fully described in the metes and bounds Property description that accompanies the Deed Restriction, and are attached as Appendix A.

After completion of the remedial work described in the Remedial Action Work Plan (RAWP), some contamination was left in the subsurface at this Property, which is hereafter referred to as 'remaining contamination.' This Site Management Plan (SMP) was prepared to manage remaining contamination at the Property in perpetuity or until extinguishment of the Deed Restriction in accordance with ECL Article 71, Title 36. Remedial action work on the Property began in September 2007, and was completed in September 2008. All reports associated with the Property can be viewed by contacting the NYSDEC or its successor agency managing environmental issues in New York State.

This SMP was prepared by Langan Engineering & Environmental Services, Inc., on behalf of Con Edison and HEEA Development LLC, in accordance with the requirements in NYSDEC DER-10 Technical Guidance for Site Investigation and Remediation, dated December 2002, and the guidelines provided by NYSDEC. This SMP addresses the means for implementing the Institutional Controls (ICs) and Engineering Controls (ECs) that are required by the Deed Restriction for the Property. The 524 West 19th Street site is one parcel of many that currently occupy the grounds of the W.18th Street Former Gas Works Site. A Site-wide SMP will ultimately be developed for the entire W. 18th Street Former Site. The requirements of the Site-wide SMP will supersede this Property-specific SMP and therefore, any provisions in that plan which are not already included as part of this Property-specific SMP shall be adopted and implemented by the Owner.

1.1.2 Purpose

The Property contains remaining contamination after completion of the remedial action. Engineering Controls have been incorporated into the Property remedy to provide proper management of remaining contamination in the future to ensure protection of public health and the environment. A Deed Restriction will be granted to the NYSDEC, and recorded with the New York County Clerk, that provides an enforceable legal instrument to ensure compliance with this SMP and all Engineering Controls and Institutional Controls placed on the Property. The Institutional Controls place restrictions on Property use, and mandate operation, maintenance, monitoring, and reporting measures for all Engineering Controls and Institutional Controls. This SMP specifies the methods necessary to ensure compliance with all Engineering Controls and Institutional Controls required by the Deed Restriction for contamination that remains at the Property. This plan has been approved by the NYSDEC, and compliance with this plan is required by the grantor of the Deed Restriction and the grantor's successors and assigns. This SMP may only be revised with the approval of the NYSDEC.

This SMP provides a detailed description of all procedures required to manage remaining contamination at the Property after completion of the Remedial Action,

including: (1) implementation and management of all Engineering and Institutional Controls; (2) media monitoring; (3) operation and maintenance of all treatment, collection, containment, or recovery systems; and (4) performance of annual inspections, certification of results, and submittal of Inspection Review Reports, submitted at a frequency acceptable to the NYSDEC.

To address these needs, this SMP includes an Engineering and Institutional Control Plan for implementation and management of EC/ICs, which includes a reporting plan for the submittal of data, information, recommendations, and certifications to NYSDEC; (2) a Monitoring Plan for implementation of Property Monitoring; and (3) an Operation and Maintenance Plan for implementation of remedial containment.

It is important to note that:

- This SMP details the site-specific implementation procedures that are required by the Deed Restriction. Failure to properly implement the SMP is a violation of Environmental Conservation Law and the Deed Restriction;
- Failure to comply with this SMP is also a violation of 6 NYCRR Part 375 and the VCA (Index #D2-0003-02-08) for the Property, and thereby subject to applicable penalties.

At the time the SMP was prepared, the SMP and all site documents related to Remedial Investigation and Remedial Action were maintained at the NYSDEC office in Albany, New York.

1.2 PROPERTY BACKGROUND

1.2.1 Property Location and Description

The Property is located in the borough of Manhattan, County of New York, New York and is identified as Block 690 and Lot 46 on the New York Tax Map. The Property is an approximately 0.1-acre area bounded by West 19th Street to the north, and a commercial office building to the south, west, and east (see Figure 1).

1.2.2 Property History

The West 18th Street Works former MGP operated between 1834 and through the early 1900s. The gas plant was located on Block 689 and the ancillary gas holders and the storage yards were located on Blocks 688 and 690 (the Property) and portions of Blocks 691, 666, and 715. Today, these blocks encompass the area between West 20th Street to the north, 10th Avenue to the east, West 16th Street to the south, and portions of Chelsea Piers and 11th Avenue to the west.

The Property was under the Hudson River until at least 1863. Based on previously completed historic reviews of the Property, the Property was occupied by:

- Piers and docks in the 1700s and 1800s;
- A lumber facility from 1895 to 1921 (the lumber facility was surrounded by a Consolidated Gas Company's store yard);
- A parking garage in 1950;
- A "Commercial Property" from 1979 to 1993;
- An auto repair facility from 1994 to 1996; and,
- A commercial art gallery from 1997 to 2007.

A more detailed summary of the historic uses for the Property are presented in the Remedial Action Selection Report and Remedial Action Work Plan (RASR/RAWP) (ARCADIS/BBL, 2007) and West 18th Street Manufactured Gas Plant Site History Report (Con Edison, 2002).

1.2.3 Geologic Conditions

The Property is 50 feet (ft) wide (east to west) by 92 ft long (north to south) and covers an area of approximately 4,600 square-feet (SF). Prior to redevelopment, the Property was occupied by a two-story building that was used as a commercial art gallery and residence. The ground/sidewalk elevation is at approximately el 3 BPMD.¹

¹ All elevations reported herein correspond to the Borough President of Manhattan Datum, which is +2.750-ft above the national Geodetic Vertical Datum.

The Property is underlain by a sequence of strata that includes a fill layer, a low permeability silty-clay layer, a silty-sand layer, and bedrock. The fill layer was encountered from the ground surface up to a depth of approximately 25 ft below the grade surface (bgs) corresponding to el -22 BPMD. The fill consists of undifferentiated sand, silt, gravel, ash, wood, and other urban fill materials as well as reworked sand, silt, peat, and gravel. The silty-clay layer is the uppermost native material underlying the fill layer. The thickness of this silty-clay layer varied from 10 to more than 20 ft. The silty-sand layer extends from the base of the silty-clay layer to bedrock, which can be found at depths greater than 90 ft bgs corresponding to el -87 BPMD.

The groundwater table was encountered in the fill layer at depths of approximately 5 to 6 ft bgs corresponding to el -3 BPMD. Groundwater flow is west/southwest towards the Hudson River.

1.3 SUMMARY OF REMEDIAL INVESTIGATION FINDINGS

A Remedial Investigation (RI) was performed to characterize the nature and extent of contamination at the Property. ARCADIS/BBL completed a RI on the Property on behalf of Con Edison as part of the West 18th Street Manufactured Gas Plant Site RI in accordance with the VCA. The results were summarized in the "Summary Report of Property Remedial Investigation Results West 18th Street Works Former MGP" submitted to Con Edison on November 30, 2006.

The investigation occurred during three different field events between August 2004 and ending in August 2006. The findings of the RI are summarized as follows:

- The Property is underlain by a sequence of soil strata that includes a fill layer and a low-permeability silty-clay layer. The silty-clay layer appeared to provide a vertical barrier that effectively isolated the petroleum and manufactured gas plant (MGP) impacts in the overlying soils from the deeper aquifer unit.
- The groundwater table occurred in the fill layer at a depth of approximately 6 ft bgs, corresponding to el -3 BPMD.
- Petroleum-like impacts were detected in the fill material above and below the groundwater table, to depths up to 10 ft bgs, corresponding to el -7 BPMD.

- MGP-related impacts to the subsurface soil were detected in fill material below the water table and above the low permeability silty-clay layer. These impacts occurred at depths ranging from 10 to 30 ft bgs, corresponding to el -7 BPMD to el -27 BPMD.
- Petroleum and MGP-related impacts, including visual staining, odors, and non aqueous phase liquids (oil and tarry material), and elevated² concentrations of volatile organic compounds (VOCs) and semi-volatile organic compounds (SVOCs) were detected in the fill material above and below the groundwater table up to 30 ft bgs corresponding to el -27 BPMD. These impacts were detected in borings located generally in the western two thirds of the Property.
- Metals were detected in all subsurface soil samples and were generally attributed to the quality of the fill material and the inherent constituents of the native soils.
- The fill that did not exhibit petroleum and MGP-related impacts exhibited SVOC and metal types and concentrations that are typical of historic urban fill.

1.4 SUMMARY OF REMEDIAL ACTIONS

The Property was remediated in accordance with the NYSDEC-approved RASR/RAWP dated March 2007 revised August 2007, prepared by ARCADIS/BBL for Con Edison.

The following is a summary of the Remedial Actions performed at the Property:

1. Containment isolation of MGP-impacted soil by installing interlocking, water-tight sheet pile walls along the Property perimeter that were keyed into the underlying low permeability silty-clay layer. The sheet piles were connected to the existing containment barrier on the adjacent IAC property via low-permeability grout connections to the south and west;
2. Excavation and off-site disposal of the historic urban fill and MGP-impacted material underlying the Property, to approximately 13 ft bgs, or el -10 BPMD, as required for the new development;

² Concentration above NYSDEC recommended soil cleanup objectives per Technical and Administrative Guidance Memorandum (TAGM) 4046.

3. Isolation of MGP-impacted soil beneath the new development by installing a cap that consisted of an 18-inch (in) this layer of clean fill material overlain by 6-in mud slab and waterproofing and vapor barrier membrane beneath the foundation slab;
4. Treatment of groundwater, generated by dewatering, prior to discharge into the combined sewer under a New York City Department of Environmental Protection (NYCDEP) sewer discharge permit;
5. Execution and recording of an Deed Restriction to restrict land use and prevent future exposure to any contamination remaining at the Property; and
6. Development and implementation of a SMP for long term management of remaining contamination as required by the Deed Restriction, which includes plans for: (1) Institutional and Engineering Controls, (2) monitoring, (3) operation and maintenance, and (4) reporting.

Remedial activities were completed at the Property in September 2008.

1.4.1 Removal of Contaminated Materials from the Property

Excavation and off-site disposal of the historic urban fill and MGP-impacted material underlying the Property was completed to approximately 13 ft bgs, or el -10 BPMD, as required for the new development.

Approximately 650 tons (22 trucks) of urban fill were transported by permitted haulers to the Bellmawr facility in Bellmawr, New Jersey.

The MGP-impacted soil/fill and timbers were managed as a non-hazardous industrial waste. The procedure for managing the MGP layer consisted of dynamically loading for direct transport and disposal at the approved disposal facility. Under some circumstances, it was necessary to stockpile MGP material on the Property pending the scheduling of truck trips, or in preparation for trucking activity the following workday. In this case, the MGP material was temporarily stockpiled within the Property and covered with a foam surfactant and/or plastic sheeting to prevent nuisance dust and/or odor

emissions. On February 26, 2008, stabilization with kiln dust was required for MGP-impacted material with excess moisture.

MGP material was transported by Rebco Contracting Corporation of Clifton, New Jersey (Rebco), to one of two permitted, approved facilities:

1. Approximately 4,830 tons (173 trucks) of MGP-impacted soil/fill was transported to ESMI of New Jersey (from February 11, 2008 through the conclusion of remedial activities on July 25, 2008).
2. Approximately 375 tons (16 trucks) of MGP-impacted timbers was transported to the Bayshore (Montecalvo Disposal Services) facility of New Jersey.

1.4.2 Quality of Backfill Placed in Excavated Areas

Item #4 quarry stone and Water Tunnel #2 "mole rock" were imported to the Property for use as backfill and an access ramp.

1.4.2.1 Item #4 Quarry Stone

To satisfy the NYSDEC requirement of 18-in of "clean" material below the building, the Remediation Contractor imported 22 loads (approximately 550 cubic yards [CY]) of item #4 quarry stone to the Property. Quarry stone was imported to the Property and placed from April 18, 2008 to May 5, 2008.

1.4.2.2 Water Tunnel #2 Stone "Mole Rock"

Mole rock was imported to the Property to build an access ramp for pile driving operations. Approximately 1,050 CY (42 trucks) of mole rock were imported from May 15, 2008 to June 19, 2008. Approximately 300 to 350 CY of the rock accidentally commingled with impacted materials at the Site, and the rock was subsequently exported offsite as MGP impacted to the ESMI facility under non-hazardous waste manifests.

1.4.2.3 Kiln Dust

Six 50-pound bags of kiln dust were imported to Property to stabilize some of the saturate MGP impacted soils prior to disposal. The kiln dust was placed on the saturated soils and mixed with an excavator bucket.

1.4.3 On-Site and Off-Site Treatment Systems

No long-term treatment systems were installed as part of the Property remedy.

1.4.4 Engineering and Institutional Controls

Since remaining contamination is present at this Property, Engineering Controls and Institutional Controls have been implemented to protect public health and the environment for the applicable future use. The Controlled Property has the following Engineering Controls: a perimeter containment system, a waterproofing/vapor barrier membrane, structural slab, and building foundation walls.

A series of Institutional Controls are required to implement, maintain, and monitor these Engineering Controls. The Deed Restriction requires compliance with these Institutional Controls, to ensure that:

- All Engineering Controls must be operated and maintained as specified in this SMP;
- All Engineering Controls on the Property must be inspected and certified at a frequency and in a manner defined in this SMP; and
- Data and information pertinent to Site Management for the Controlled Property must be reported at the frequency and in a manner defined in this SMP.

The Deed Restriction use restrictions on the property are identified in Section 2.3 of this SMP. The Deed Restriction places the following restrictions on the Property:

- Use of groundwater underlying the Property is prohibited;
- Vegetable gardens are prohibited in soils on or from the Property;
- All future activities on the Property that would disturb remaining contaminated material must be conducted in accordance with the Excavation Work Plan included in this SMP;
- The potential for vapor intrusion must be evaluated for any buildings developed on the Site, and any potential impacts that are identified must be mitigated; and

- The Property may be used for residential use, provided that the long-term Engineering and Institutional Controls described in the SMP remain in use.

These EC/ICs are designed to:

- Prevent ingestion/direct contact with contaminated soil;
- Prevent inhalation of or exposure to contaminants volatilizing from contaminated soil;
- Prevent ingestion of groundwater with contaminant levels that exceed drinking water standards;
- Prevent contact with or inhalation of volatiles from contaminated groundwater; and
- Prevent contaminated groundwater from migrating off-site.

If the West 18th Street Gas Holder Station site-wide Site Management Plan contains additional provisions not addressed in this SMP or Deed Restriction, the Deed Restriction and SMP will be updated accordingly.

Current and future owners of the building must fully comply with all components of this SMP and the Deed Restriction. Any activities that may compromise the existing site remedy are prohibited.

2.0 ENGINEERING AND INSTITUTIONAL CONTROL PLAN

2.1 INTRODUCTION

2.1.1 General

Remedial activities completed at the Property were conducted in accordance with the NYSDEC-approved RAWP for 524 West 19th Street dated March 2007 and revised August 2007. Since remaining contamination exists beneath the Property, EC/ICs are required to protect human health and the environment. This Engineering and Institutional Control Plan describes the procedures for the implementation and management of all EC/ICs at the Property. The EC/IC Plan is one component of the SMP and is subject to revision by NYSDEC.

2.1.2 Purpose

The purpose of this Plan is to provide:

- A description of all EC/ICs on the Property;
- The basic operation and intended role of each implemented EC/IC;
- A description of the key components of the Institutional Controls created as stated in the Deed Restriction;
- A description of the features that should be evaluated during each annual inspection and compliance certification period;
- A description of plans and procedures to be followed for implementation of EC/ICs, such as the implementation of an Excavation Plan for the safe handling of remaining contamination that may be disturbed during maintenance or redevelopment work on the Property;
- Any other provisions necessary to identify or establish methods for implementing the EC/ICs required by the Property remedy, as determined by the NYSDEC; and
- A description of the reporting requirements for these controls.

2.2 ENGINEERING CONTROLS

2.2.1 Engineering Control Systems

2.2.1.1 Soil Cover System and Engineered Cap

Exposure to remaining contamination in soil/fill and groundwater at the Property is prevented by a cover system placed over the Property. This cover system is comprised of a minimum of 18-in of “clean” material followed by a 6-in mud slab and waterproofing/vapor barrier membrane beneath the foundation slab. In the event the cover system is breached, penetrated or temporarily removed, and any underlying remaining contamination is disturbed, procedures should be implemented in compliance with this SMP and the Deed Restriction. Procedures for the inspection and maintenance of this cover are provided in Section 2.5.

2.2.1.2 Perimeter Containment System

A low-permeability barrier wall along the Property perimeter was keyed into the underlying low-permeability silty-clay layer to isolate the MGP-impacted soils below. This was accomplished through the installation of AZ-18 sheet piles along the northeast and east perimeters sealed at the interlocks with Adeka™ P-200 sealant, and tied into the adjacent IAC containment barrier at the northwest and southern portions of Property via a grout column connection. Procedures for monitoring the perimeter containment system are included in Section 2.5.

2.2.1.3 Waterproofing/Vapor Barrier System

The waterproofing/vapor barrier membrane system was installed to mitigate the potential migration of impacted groundwater and/or vapors associated with residual contamination in the subsurface soil. The system is composed of a continuous high density polyethylene (HDPE) vapor membrane underlying the structural slab and outside the foundation walls. Grace Construction Product's structural waterproofing products used as part of the system include Hydroduct Drainage Composite (Hydroduct), Preprufe® 300R Waterproofing Membrane (Preprufe® 300R), Preprufe® 160R Waterproofing Membrane (Preprufe® 160R), Preprufe® TapeLT, and a Bituthene® Liquid Membrane. All conduit, pipe, and pile penetrations through the structural slab and foundation walls were sealed in accordance with the manufacturer's specifications. Procedures for monitoring the system are included in Section 2.5.

2.2.1.4 Structural Slab and Foundation Walls

The structural slab and building foundation walls extend to the edge of the Property and prevent unintentional contact with the contaminated soils remaining below the new Property grade. A Site Plan depicting the Engineering Controls implemented is provided as Figure 2. Specifications and cut sheets for the waterproofing/vapor barrier system components and perimeter containment system are included as Appendix B and Appendix C, respectively. Procedures for monitoring the system are included in Section 2.5.

2.3 INSTITUTIONAL CONTROLS

A series of Institutional Controls is required by the RASR/RAWP to: (1) implement, maintain and monitor Engineering Control systems; (2) prevent future exposure to remaining contamination by controlling disturbances of the subsurface contamination; and; (3) limit the use and development of the Property to multi-family residential use only. Adherence to these Institutional Controls on the Property is required by the Deed Restriction and will be implemented under this Site Management Plan. These Institutional Controls are:

- Compliance with the Deed Restriction by the Grantor and the Grantor's successors and assigns with all elements of this SMP;
- All Engineering Controls must be maintained as specified in this SMP;
- Required notifications for periodic NYSDEC reports and certain occurrences;
- Routine inspections of the structural slab and building foundation elements; and
- Annual certification of continued effectiveness.

Institutional Controls may not be discontinued without an amendment to or extinguishment of the Deed Restriction.

The Property has a series of Institutional Controls in the form of Property restrictions. Adherence to these Institutional Controls is required by the Deed Restriction. Property restrictions that apply to the Controlled Property are:

- The Controlled Property may be used for restricted residential, commercial, and/or industrial use as long as the following long-term Engineering Controls are employed:
 - The lower level and first floor of the building on the Controlled Property may be used only for commercial and/or industrial purposes. The remaining floors of the building may be used for residential use; and
 - The underground low permeability barrier walls installed along the northern, eastern, and portions of the southern and western property lines of the Controlled Property as part of the Remedial Action Plan approved for the Controlled Property by the NYSDEC on October 15,

2007, shall not be cut, removed or rendered ineffective by Grantor, Grantor's successors and assigns, or any lessees or persons using the Controlled Property; provided however, that incidental penetrations or cutting necessary for electric, gas, steam, sewer, telephone, water and other utility cables, conduits, pipes, and mains may be made through the aforementioned underground interlocking sheet pile barrier wall in accordance with the SMP approved for the Controlled Property by the NYSDEC and any NYSDEC-approved amendments to such SMP.

- All soil beneath the building on the Controlled Property must be covered by a barrier layer comprised of a moisture/vapor barrier, a 6-in mud slab overlying a 18-in thick clean soil layer as set forth in the NYSDEC-approved SMP approved for the Controlled Property;
- Any proposed soil excavation on the Controlled Property below the barrier layer requires prior notification and prior approval of the NYSDEC and the excavated soil must be managed, characterized, and properly disposed of in accordance with NYSDEC regulations and directives;
- There shall be no vegetable gardens on the Controlled Property, excluding containers which are isolated from native soil and use imported soil; and
- The groundwater on the Controlled Property shall not be used for any purpose unless it is first treated in a manner deemed acceptable to the NYSDEC and New York State Department of Health (NYSDOH) to render such groundwater acceptable for its proposed use.

2.4 EXCAVATION PLAN

The Property remedy allows for multi-family residential use. Any future intrusive work that will penetrate, encounter or disturb the remaining contamination, and any modifications or repairs to the existing cover system will be performed in compliance with this SMP and Deed Restriction. The Property owner and associated parties preparing the remedial documents submitted to the State, and parties performing this work, are completely responsible for the safe performance of all invasive work, the structural integrity of excavations, and for structures that may be affected by

excavations (such as building foundations and bridge footings). The Property owner will ensure that Property development activities will not interfere with, or otherwise impair or compromise, remedial activities that were performed per the approved RAWP.

2.4.1 Notification

At least 10 days prior to the start of any activity that is reasonably anticipated to encounter remaining contamination, the Property owner or their representative will notify the NYSDEC Site Management Project Manager. The appropriate contact information is provided in Appendix D, attached to this SMP.

This notification will include:

- A detailed description of the work to be performed, including the location, area and extent, plans for Property re-grading, intrusive elements or utilities to be installed below the soil cover, or any work that may impact an Engineering Control;
- A summary of environmental conditions anticipated in the work areas, including the nature and concentration levels of contaminants of concern, potential presence of grossly contaminated media, and plans for any pre-construction sampling;
- A schedule for the work, detailing the start and completion of all intrusive work;
- A statement that the work will be performed in compliance with this Excavation Plan and 29 CFR 1910.120;
- A copy of the contractor's health and safety plan, in electronic format;
- Identification of disposal facilities for potential waste streams; and
- Identification of sources of any anticipated backfill, along with all required chemical testing results.

2.5 INSPECTIONS AND NOTIFICATIONS

2.5.1 Annual Inspections

Annual inspections will be conducted to inspect the integrity of the structural slab and building foundation walls. The inspection shall be conducted by property maintenance staff who have received training as outlined in Section 2.8. The inspection report will include the following:

- The names of the person who performed the inspection;
- The inspection date;
- A description of what was inspected and what was found;
- Sketches of where potential or emerging issues are occurring; and
- Color photos (when appropriate).

Findings of the annual inspection shall be summarized in the annual Inspection Report,. This report will be prepared and submitted annually for the first two years. Based on the findings of the annual inspections during this period, as presented in the Inspection Report, the Volunteer may propose an alternate reporting frequency to the NYSDEC Project Manager. Any modifications to reporting will be made in consultation with the owner and only with the concurrence of NYSDEC.

If an emergency, such as a natural disaster or an unforeseen failure of any of the Engineering Controls occurs, an inspection of the Property will be conducted within 5 days of the event to verify the effectiveness of the EC/ICs implemented at the Property by a qualified environmental professional as determined by NYSDEC.

2.5.2 Indoor Air Quality Testing

Indoor air sampling is required by the RAWP to confirm the effectiveness of the soil cover system and engineered cap installed beneath the building and in the event that the vapor barrier is compromised in the future.. This sampling will be performed initially after the exterior of the building has been completed or the exterior has been sufficiently enclosed such that air in the basement has been effectively isolated and the air quality inside the building is deemed representative of ambient conditions without

undue influence from completion of finished interior surfaces and or ambient air. In the event sampling is performed prior to completion of the building exterior, then the air in the basement will be isolated by installing sealed barriers constructed of polyethylene plastic sheeting. If this approach is used, an additional air sample will be collected to assess potential contribution of VOCs from the plastic sheeting to the indoor air quality as described below. The initial sampling will also be performed prior to the building being routinely occupied. The following is provided as guidance to effectively characterize the air quality in the building:

- Indoor air samples will be collected in three locations within the basement of the building. In addition, one ambient air sample will be collected near the entrance to the building along the West 19th Street sidewalk. The air samples will be collected from a height of 3 to 5 ft above the ground surface.
- If the timing of sampling necessitates the need to isolate the basement with plastic sheeting prior to sampling, an additional air sample will be collected. This sample will be collected by placing a Summa canister in a cardboard box and packing it with the same plastic sheeting used for the isolation barriers. The sample will then be collected at the same time and same manner as all other air samples.
- The air sampling will be conducted in general accordance with the "Final Guidance for Evaluating Soil Vapor Intrusion in New York," NYSDOH, October 2006. The air samples will be analyzed for VOCs using United States Environmental Protection (USEPA) Method TO-15. Samples will be collected in laboratory-supplied, certified-clean 2.7-liter capacity Summa canisters. The flow regulators will be calibrated by the analytical laboratory to collect the sample over a 24-hour period. After sample collection, the air samples will be shipped under proper chain-of-custody procedures via courier to a NYSDOH Environmental Laboratory Accreditation Program (ELAP)-certified laboratory.

Prior to the testing, the sample location and adjacent spaces will be inspected to determine if any materials are present with the potential to affect the indoor air quality (i.e. equipment, cleaning supplies, etc.). Any identified materials will be

documented by completing a NYSDOH Indoor Air Quality Questionnaire and Building Inventory. The sampling area will then be ventilated by opening windows and interior doors. After ventilation is performed for a period of at least three hours, the doors and windows will be closed. The Site will then remain sealed for approximately 24 hours prior to the collection of the samples.

- Sampling will be performed at a time when the room is unoccupied. All windows and exterior doors will remain closed. Sampling personnel will avoid lingering in the immediate area of the Summa canisters. Flow rates for the indoor and outdoor samples will be identical, and samples will be collected concurrently.
- The field samplers will maintain a sample log sheet summarizing the following:
 1. Sample identification;
 2. Date and time of sample collection;
 3. Sample height;
 4. Identity of samplers;
 5. Sampling methods and devices;
 6. Volume of air sampled;
 7. Pressure of canisters before and after samples collected; and
 8. Chain of custody protocols from sampling point to lab analysis.

Within two weeks after receiving the final air data, a report will be prepared. The report will include a description of the sampling scope of work; a figure showing sample locations; summaries of field measurements and observations; product inventory findings; and analytical data compared to applicable guidance values; and conclusions and recommendations.

If the barrier is breached in the future, follow-up indoor air sampling may be required to assess the breach [and any subsequent repairs to the vapor barrier](#).

2.5.3 Required Notifications

Routine required notifications to be submitted by the property owners to the NYSDEC shall include the following:

- An Inspection Report summarizing the findings of routine inspections of the foundation elements (slab and wall) and any damages and repairs made to the vapor and waterproofing barrier and foundations elements; and
- An annual certification of continued effectiveness to certify that the institutional and engineering controls are in place and remain protective of public health and the environment.

Non-routing notifications to be submitted by the property owners to the NYSDEC on an as-needed basis, according to events at the Property, include the following:

- Sixty days advance notice of any proposed changes in Property use that are required under the terms of the VCA, 6NYCRR Part 375, and/or Environmental Conservation Law.
- 10-day advance notice of any proposed ground-intrusive activities.
- Notice within 48-hours of any damage or defect to the foundations structures that reduces or has the potential to reduce the effectiveness of other Engineering Controls and likewise any action to be taken to mitigate the damage or defect.
- Notice within 48-hours of any emergency, such as a fire, flood, or earthquake that reduces or has the potential to reduce the effectiveness of Engineering Controls in place at the Property, including a summary of actions taken, or to be taken, and the potential impact to the environment and the public.
- Follow-up status reports on actions taken to respond to any emergency event requiring ongoing responsive action shall be submitted to the NYSDEC within 45 days and shall describe and document actions taken to restore the effectiveness of the Engineering Controls .

Notifications will be made to NYSDEC Site Management Project Manager. The appropriate contact information is provided in Appendix D, attached to this SMP. In the

event that NYSDEC develops a centralized notification system, that system will be used instead.

2.5.4 Reporting

The results of the inspection will be evaluated as part of the EC/IC certification to confirm that the:

- EC/ICs are in place, are performing properly, and remain effective;
- The Property remedy continues to be protective of public health and the environment and is performing as designed in the RAWP and Remedial Action Report (RAR).

This certification process will be further discussed in section 2.6.2.

2.6 REPORTING PLAN

2.6.1 Introduction

An Inspection Report will be prepared by the property owners and submitted to NYSDEC no later than 90 days after the start of each calendar year, beginning one year after the approval of this SMP. The Inspection Report will be prepared in accordance with NYSDEC DER-10 "Technical Guidance for Site Investigation and Remediation". The frequency of submittal of the Inspection Report may be modified with approval from the NYSDEC.

This report shall include the following information:

- Identification of all EC/ICs required by the RAWP for the Property;
- An assessment of the effectiveness of all ECs/ICs for the Property;
- An evaluation of the ECs/ICs for adequacy in meeting remedial goals;
- Results of the required annual Property inspections and severe condition inspections, if any; and
- Certification of the EC/ICs.

2.6.2 Certification of Engineering and Institutional Controls

Inspection of the EC/ICs will occur on an annual basis. An annual certification is required to be submitted by the property owners to certify the continued effectiveness of the EC/ICs in place at the Property. This certification, stamped and signed by a Professional Engineer licensed to practice in New York State, must accompany the Inspection Report which will be submitted to the NYSDEC annually for the first two years of building occupancy. An alternate reporting frequency as agreed upon by the NYSDEC Project Manager may be proposed in the future depending on the initial inspection findings, as described in Section 2.5.1 of this SMP. The certification must:

- Identify on-site required ECs/ICs;
- Evaluate whether the controls should remain in-place ;
- Evaluate whether the controls continue to be effective for the protection of public health and the environment;
- Confirm that where Engineering Controls are a component of the remedy, the corresponding Institutional Controls are maintained;
- Confirm that access is available to the Property by NYSDEC and NYSDOH to evaluate continued maintenance of such controls; and
- Confirm that Property use is compliant with the Deed Restriction.

2.6.3 Inspection Report

An Inspection Report will be submitted annually for the first two years, beginning one year after the approval of this SMP. The report will be submitted within 90 days after the start of each calendar year. The submittal frequency for the Inspection Report may be modified with approval from the NYSDEC.

This report shall include the following information:

- EC/IC certification;
- All applicable inspection forms;
- A Property evaluation, which includes the following:
 - A Site location map;
 - A summary of the annual inspection;

- A summary of unusual occurrences such as building foundation wall damage and repair and any preplanned intrusion for the underlying soils;
- Any changes to the property manager and alternative emergency contact information;
- Any changes from this approved SMP, with justification provided for each change; and
- The overall performance and effectiveness of the remedy.

The Inspection Report will be submitted, in hard-copy format, to the NYSDEC Regional Office located closest to the Property, and in electronic format to NYSDEC Central Office and the NYSDOH Bureau of Environmental Exposure Investigation.

2.7 ORGANIZATIONAL RESPONSIBILITIES

The organizations involved in the implementation of this SMP and their responsibilities are shown in the below Table 1. Current contact information specific to the below organizations is provided in Appendix D. This information should be maintained current.

Table 1 – Organizational Responsibilities

Organization	Primary Responsibilities
Property Owner: HEEA Development	<ul style="list-style-type: none"> • Performance of Annual Inspections • Preparation of Inspection Report with Certification of Continued Effectiveness for submittal to the NYSDEC with a copy to Con Edison • Notification to NYSDEC of planned intrusive activities • Providing training to property personnel • Conduct citizen participation activities as necessary
Property Management: To be Determined	<ul style="list-style-type: none"> • Supervision and training of Property personnel • Maintain records on-site • Contingency response coordination
Participant: Con Edison	<ul style="list-style-type: none"> • Review, and update, of the SMP as necessary • Review and comment on initial inspection reports and annual certifications • Conduct citizen participation activities as necessary
Regulatory Agency: NYSDEC	<ul style="list-style-type: none"> • Provide regulatory oversight • Participate in citizen participation activities as necessary

2.8 TRAINING

The property manager, alternative emergency contact, and maintenance personnel shall receive initial training and an annual refresher training that will include the following topics:

- This SMP’s notification and contingency plan requirements;
- Property-specific standard operating procedures; and

- Health and safety.

Records documenting the training dates, the scope and length of training provided, and the names and titles of the individuals attending the training will be maintained by the property manager.

3.0 OPERATION AND MAINTENANCE PLAN

The Property remedy does not rely on any mechanical systems, such as sub-slab depressurization systems or air sparge/ soil vapor extraction systems to protect public health and the environment. Therefore, the operation and maintenance of such components is not included in this SMP.

4.0 CONTINGENCY PLAN

This contingency plan describes the procedures to be utilized in the event of an unusual event that impacts or has the potential of impacting the engineering controls (structural slab, building foundation walls, and waterproofing and vapor barrier).

4.1 Emergency Telephone Numbers

In the event of any environmentally-related situation or unplanned occurrence requiring assistance, the Owner or Owner's representative(s) should contact the appropriate party from the contact list below. For emergencies, appropriate emergency response personnel should be contacted. Any building staff discovering an emergency situation shall immediately contact the property manager, or, in this person's absence, an alternate emergency contact, to report the following:

- Employee's name;
- Location of where the impact has occurred or has the potential of occurring;
- Time of discovery; and,
- Full description of the situation.

The names of the property manager and alternative emergency contact and their emergency contact information are included in Table 2. Table 2 shall be updated as necessary. Figure 3 illustrates a map to the nearest hospital.

These emergency contact lists must be maintained in an easily accessible location at the Property.

Table 2: Emergency Contact Numbers

Property Manager:	See Appendix D
Alternative Emergency Contact:	See Appendix D
Medical, Fire, Ambulance and Police:	911
New York City Police Department (switchboard):	(646) 610-5000
Hospital: St. Vincent's Hospital Manhattan 170 West 12th Street New York, New York 10011	(212) 604-7000
One Call Center:	(800) 272-4480 (3 day notice required for utility markout)
Poison Control Center:	(800) 222-1222
Pollution Toxic Chemical Oil Spills:	(800) 424-8802
NYSDEC Spills Hotline/ NYSDEC 24-Hour Oil & Hazardous Material Notification	(800) 457-7362 (518) 457-7362 (outside New York State)
United States Environmental Protection Agency (US EPA)	(732) 548-8730
NYCDEP	311 (212) 639-9675 (outside New York City)

The property manager or alternate emergency contact will, if necessary, immediately inspect the affected area to identify the character and extent of the situation. This shall include an assessment to the possible hazards to human health or the environment that may result from the situation and initiate a response to correct it.

If the release of impacted soils or groundwater into the building structure has occurred or is likely to occur, the property manager or alternate emergency contact shall notify the NYSDEC. The property manager or alternate emergency contact shall also contact other appropriate organizations and federal, state, and local agencies as required.

If the property manager, the alternate emergency contact, or a local authority determines that an affected area might become or has become a threat to human health, the basement and any other potential impacted space shall be cordoned off until the situation is corrected by appropriately trained personnel.

4.2 Evacuation Plan

If the property manager, alternative emergency contact, or local authorities determine that evacuation of the building would be necessary or prudent, the property security department or local authority would initiate evacuation in accordance with Property evacuation plans and procedures. Property evacuation plans and procedures will be established by the property security department at a later date and included as an addendum to this SMP.

4.3 Fire/Explosion

In the case of a fire or explosion, evacuation of the area will be immediately conducted and the New York City Fire Department will be contacted following the procedure outlined below. The property manager or alternative emergency contact will be contacted as soon as possible. Emergency contacts are listed in Table 2.

It is important to assure the rapid and accurate transfer of information to appropriate personnel in the event of an emergency situation. To simplify the procedure, emergency reporting situations can be reported by dialing 911. This includes incidents requiring police assistance, fire department, or medical emergencies. Be sure to observe the following Incident Reporting Procedure and provide the following information to the dispatcher:

1. Caller's Full Name;

2. Nature of the incident (i.e., fire);
3. The location of the incident (i.e., street location and nearest intersection). The more specific, the better;
4. What is needed (i.e., fire department, ambulance, etc.);
5. If you are able, where you will meet emergency responders;
6. If applicable, a call back number;
7. Status of the situation (i.e., whether the situation is stabilized, or under control);
and
8. If anyone is injured or in need of emergency assistance.

Figures



Reprinted from *New York and New Jersey USGS Quadrangle Maps – Jersey City, Patterson, Brooklyn, Central Park*



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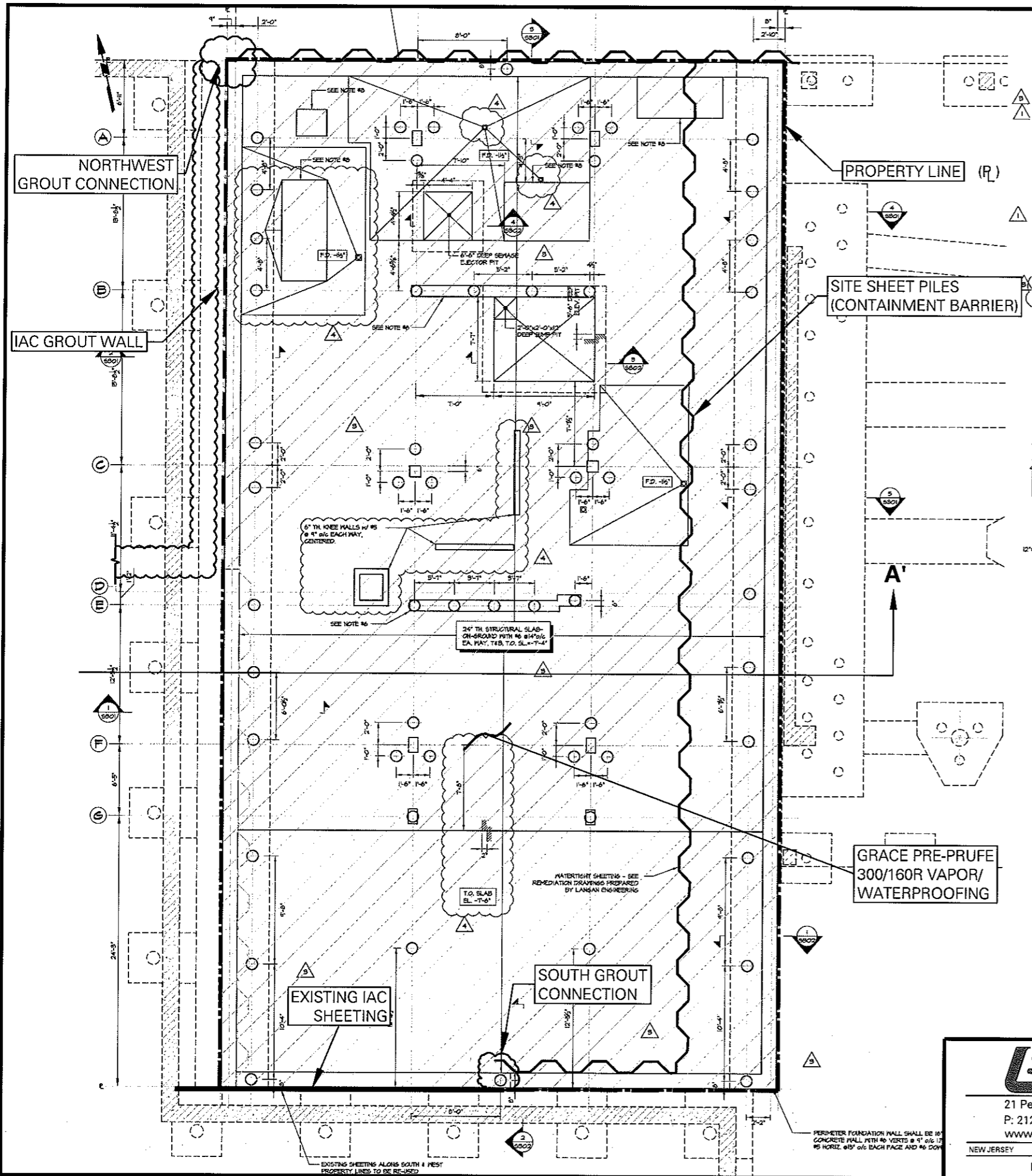
524 West 19th Street

SITE LOCATION MAP

NEW YORK

NEW YORK

PROJ. NO:	SCALE	DATE	FIG:
5709502	NTS	12/17/08	1

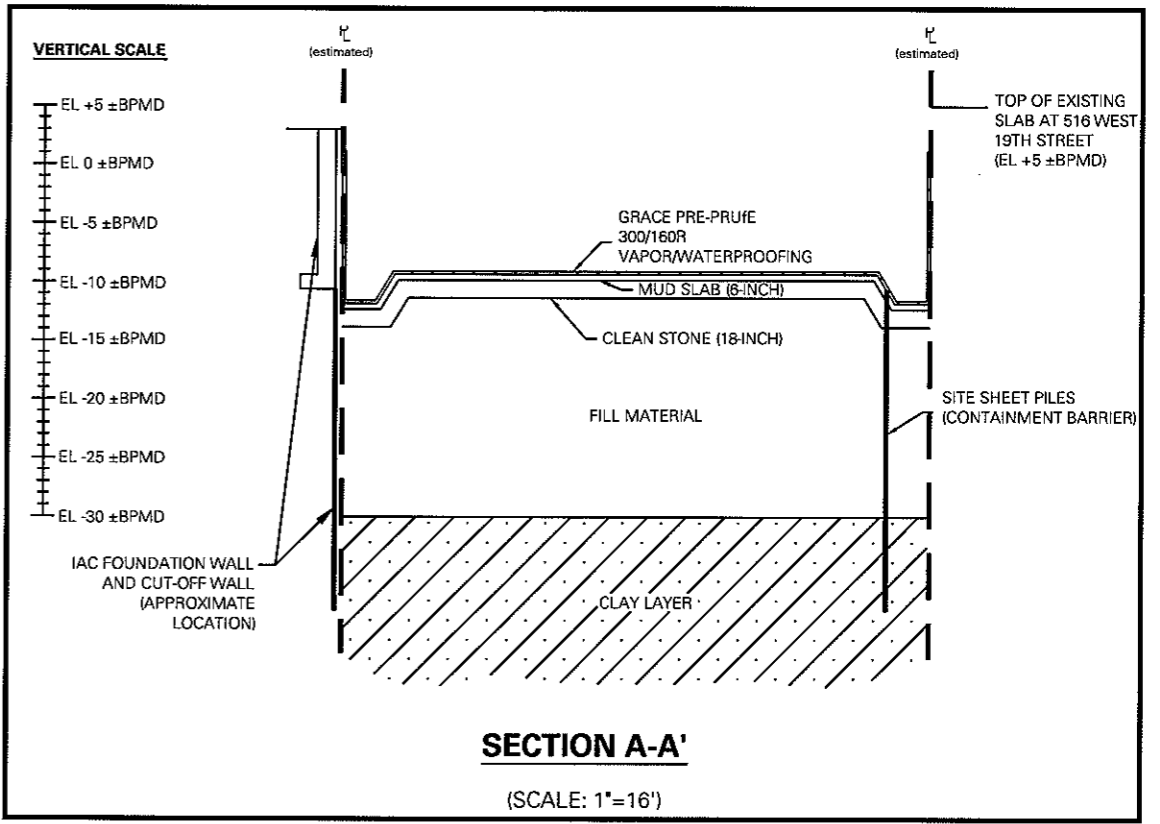


LEGEND:

- PROPERTY LINE (R)
- SITE SHEET PILES (CONTAINMENT BARRIER)
- GROUT CONNECTIONS
- GRACE PRE-PRUFE 300R/160R VAPOR/WATERPROOFING

NOTES:

1. BASE PLAN IS DRAWING S100 "FOOTING AND FOUNDATION PLAN", DATED 02/01/08, BY ROBERT SILMAN ASSOCIATES, PC.
2. ELEVATIONS PROVIDED ARE WITH RESPECT TO THE BOROUGH PRESIDENT OF MANHATTAN DATUM (BPMD).



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NEW JERSEY PENNSYLVANIA NEW YORK CONNECTICUT FLORIDA NEVADA

NJ Certificate of Authorization No: 24GA27996400

524 West 19th Street
**SITE PLAN -
 ENGINEERING CONTROL PLAN**

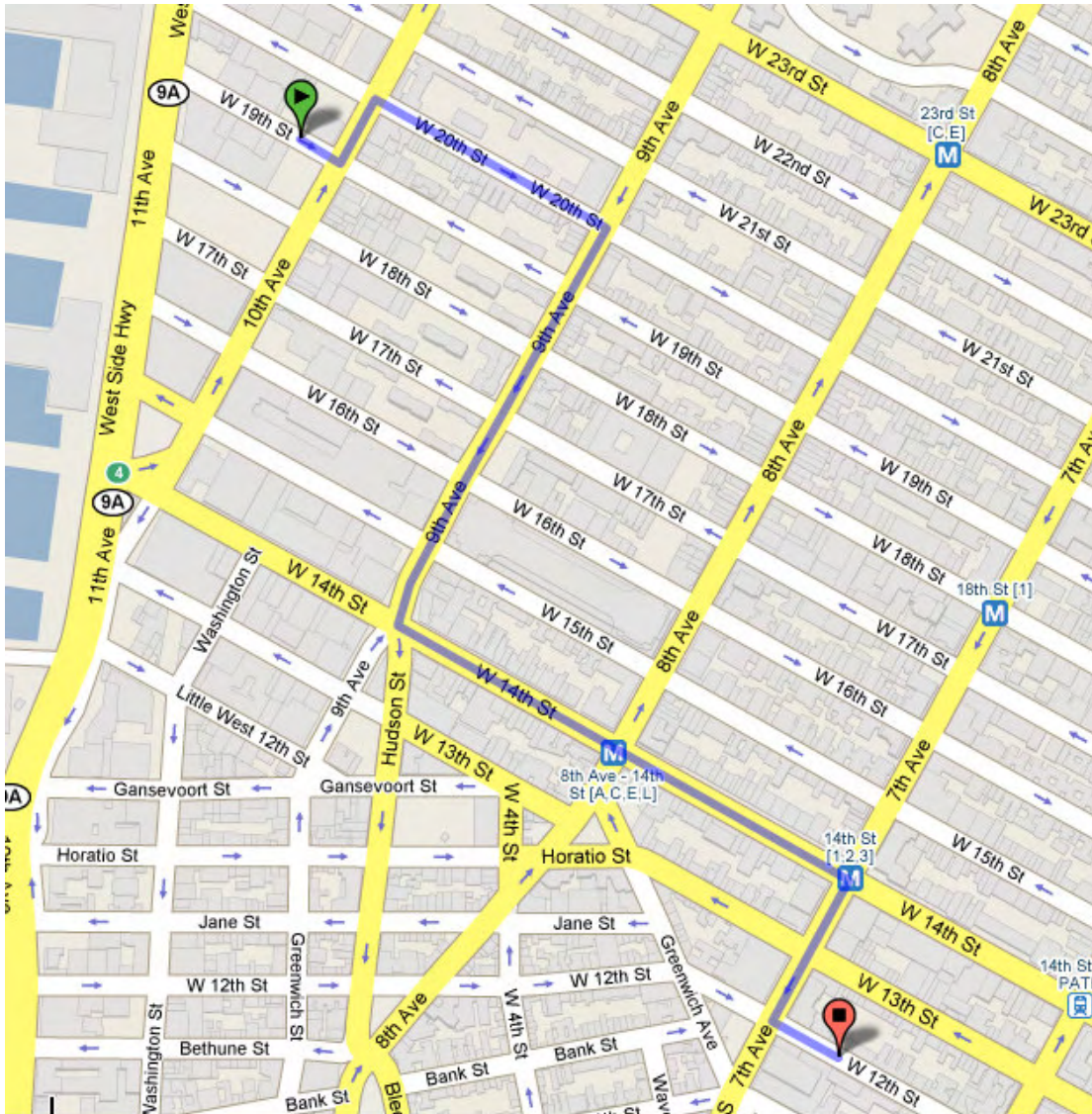
NEW YORK NEW YORK

Project No. 5709502 Date 10/24/08 Scale 1"=10' Dwg. No. 2

FIGURE 3 MAP TO NEAREST HOSPITAL (St. Vincent's Hospital Manhattan)

Site Location: 524 West 19th Street, New York, NY

**Hospital Location: St. Vincent's Hospital Manhattan
170 West 12th Street, New York, NY 10011
Information Line (212) 604-7000**



Appendix A

Deed Restriction

Appendix B

Waterproofing/Vapor Barrier Specifications and Cut Sheets

WARRANTY

Preprufe® Waterproofing Membrane

Ten Year Material Warranty

WARRANTY NO. _____
 NAME OF BUILDING _____
 LOCATION OF BUILDING _____
 NAME OF OWNER _____
 CONTRACTOR _____
 PRODUCT _____
 TOTAL AREA (SF) _____
 DATE OF COMPLETED INSTALLATION _____

SPECIMEN

W.R. Grace & Co.-Conn. (GRACE) hereby warrants that for a period of ten (10) years from the date of completion of installation identified above:

1. Water will not leak directly through any individual Preprufe sheet as a result of deterioration of the sheet caused by ordinary wear and tear and the effects thereof.
2. The Preprufe sheet will bridge ruptures caused by cracking of the immediate substrate up to 1/16th of an inch wide.

If at any time during such ten (10) year period the Preprufe sheet is found by GRACE not to comply with this warranty, then GRACE will supply to the owner replacement Preprufe sheet in a quantity equal to the material found to be nonconforming, with a value not to exceed the purchase price for the material paid to GRACE for the original installation.

This warranty does not apply to any failure caused by or due to workmanship or improper installation of the Preprufe sheet, abuse of the Preprufe sheet, or chemical incompatibility with other materials, acts of God, inadequate or faulty design of the subject structure or to repairs or installations made by other persons. In addition, this warranty does not cover any costs or expenses associated with 1) the removal, excavation or replacement of any material in connection with the testing, repair, removal or replacement of the Preprufe sheet and, 2) damages or repairs of any kind or nature to the subject building or its' contents from leaking water or otherwise.

THE FOREGOING WARRANTY IS EXCLUSIVE AND IS IN LIEU OF ANY AND ALL OTHER GUARANTEES OR WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION THE IMPLIED WARRANTY OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE REMEDIES OF THE OWNER FOR ANY BREACH OF THIS WARRANTY SHALL BE LIMITED TO THOSE HEREIN PROVIDED TO THE EXCLUSION OF ANY AND ALL OTHER REMEDIES. GRACE SHALL NOT BE LIABLE IN ANY CASE FOR ANY DAMAGE TO THE BUILDING OR THE CONTENTS THEREOF, NOR WILL IT BE RESPONSIBLE FOR SPECIAL, INCIDENTAL, CONSEQUENTIAL, OR PENAL DAMAGES. NO AGREEMENT VARYING OR EXTENDING THE FOREGOING WARRANTY REMEDIES WILL BE BINDING UPON GRACE UNLESS IN WRITING, SIGNED BY A DULY AUTHORIZED OFFICER OF GRACE.

W.R. GRACE & CO.-Conn.
Grace Construction Products

By _____ Date 04/15/04
 Title Warranty Administrator

W. R. Grace & Co.-Conn. 62 Whittemore Avenue Cambridge, MA 02140 www.gcp-grace.com

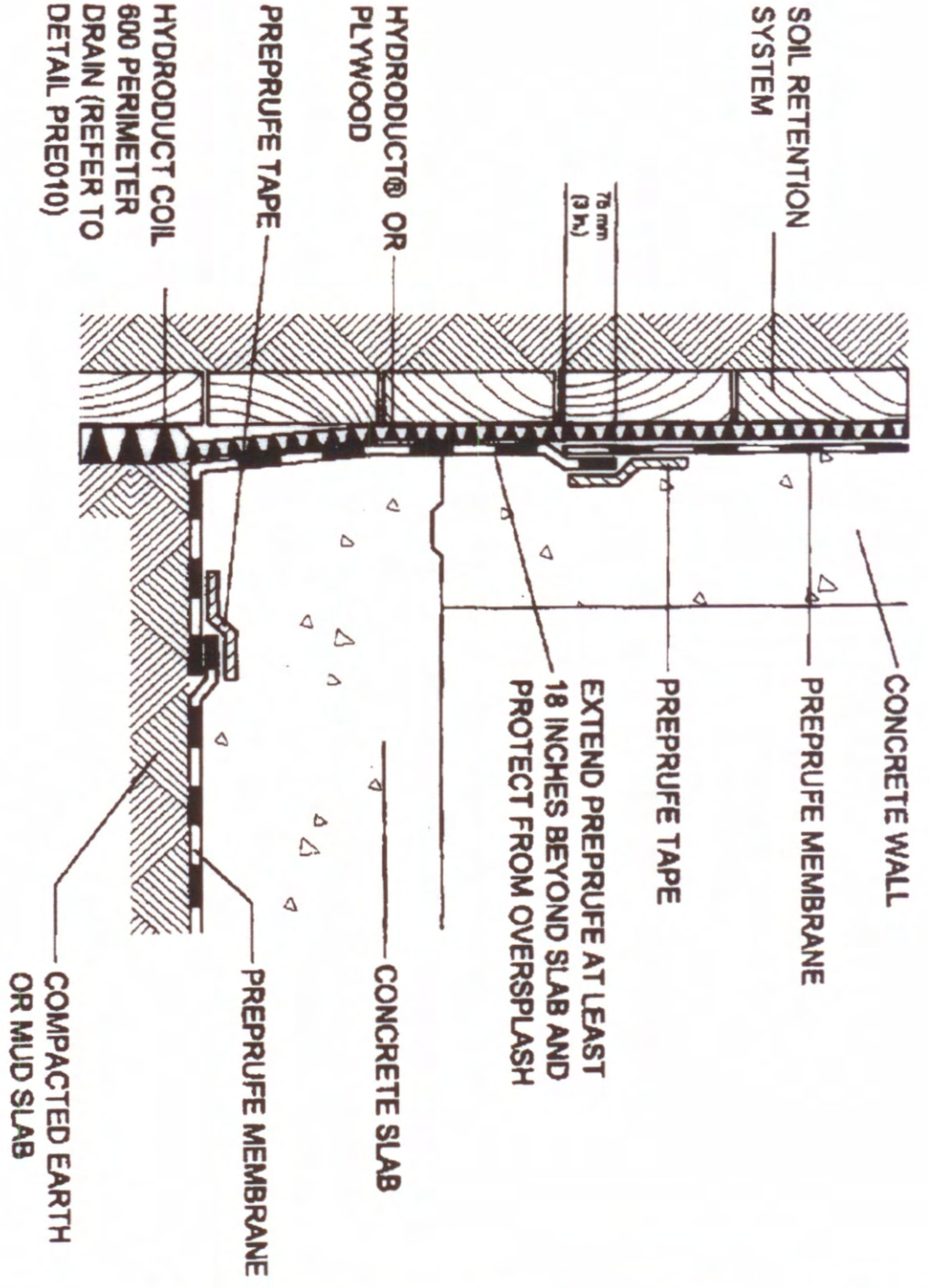
Preprufe is a registered trademark of W.R. Grace & Co.-Conn.

We hope the information here will be helpful. It is based on data and knowledge considered to be true and accurate and is offered for the user's consideration. Investigation and verification, however, do not warrant the results to be obtained. Plans and all statements, recommendations or suggestions in connection with our activities of sale which apply to all goods supplied by us. No statement, recommendation or suggestion is intended for any use which would infringe any patent or copyright. Grace Construction Products, © W. R. Grace & Co.-Conn., 62 Whittemore Ave., Cambridge, MA 02140. In Canada: W.R. Grace & Co. Canada Ltd 294 Chestnut Lane West, Ajax, Ontario, L2B 1G4.

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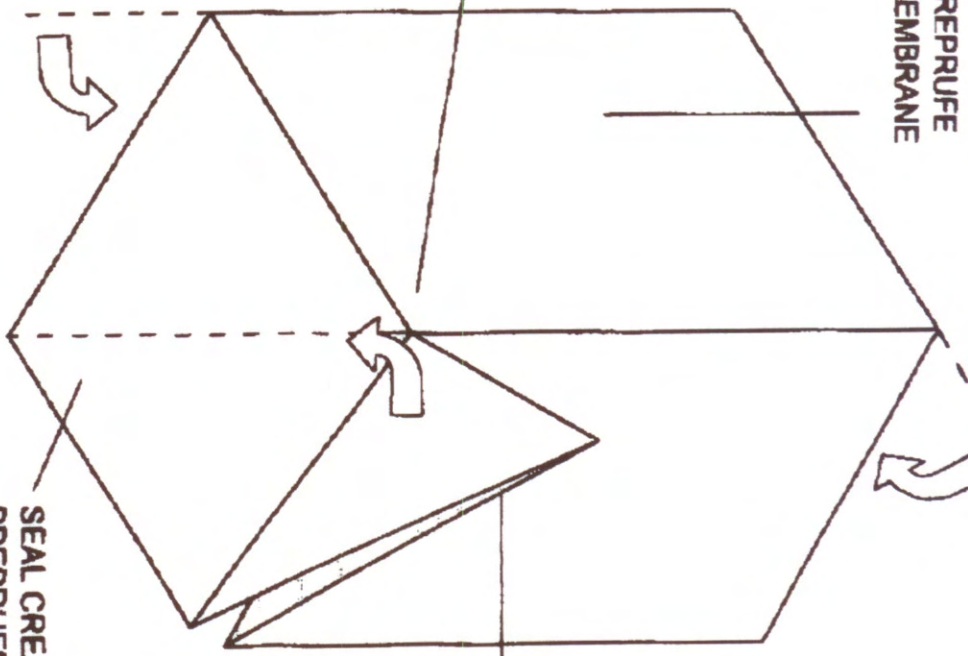
GRACE
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 toll free 866-333-3726

**BLIND SIDE WALL TO SLAB TIE-IN
 PREPRUFE® WATERPROOFING SYSTEM**

DRAWING: PRE 009
SCALE: Not to scale
EFFECTIVE DATE: 03/31/2007
SUPERSEDING: 990003

PREPRUFE
MEMBRANE

SEAL APEX OF
CORNER WITH
PREPRUFE TAPE
CORNER PATCH



CREASE
PREPRUFE
MEMBRANE AND
FOLD DOWN AS
INDICATED BY
ARROW

SEAL CREASE WITH
PREPRUFE TAPE

FOOTNOTE: DO NOT TAPE FOLD ONTO EITHER VERTICAL FACE

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INSIDE CORNER

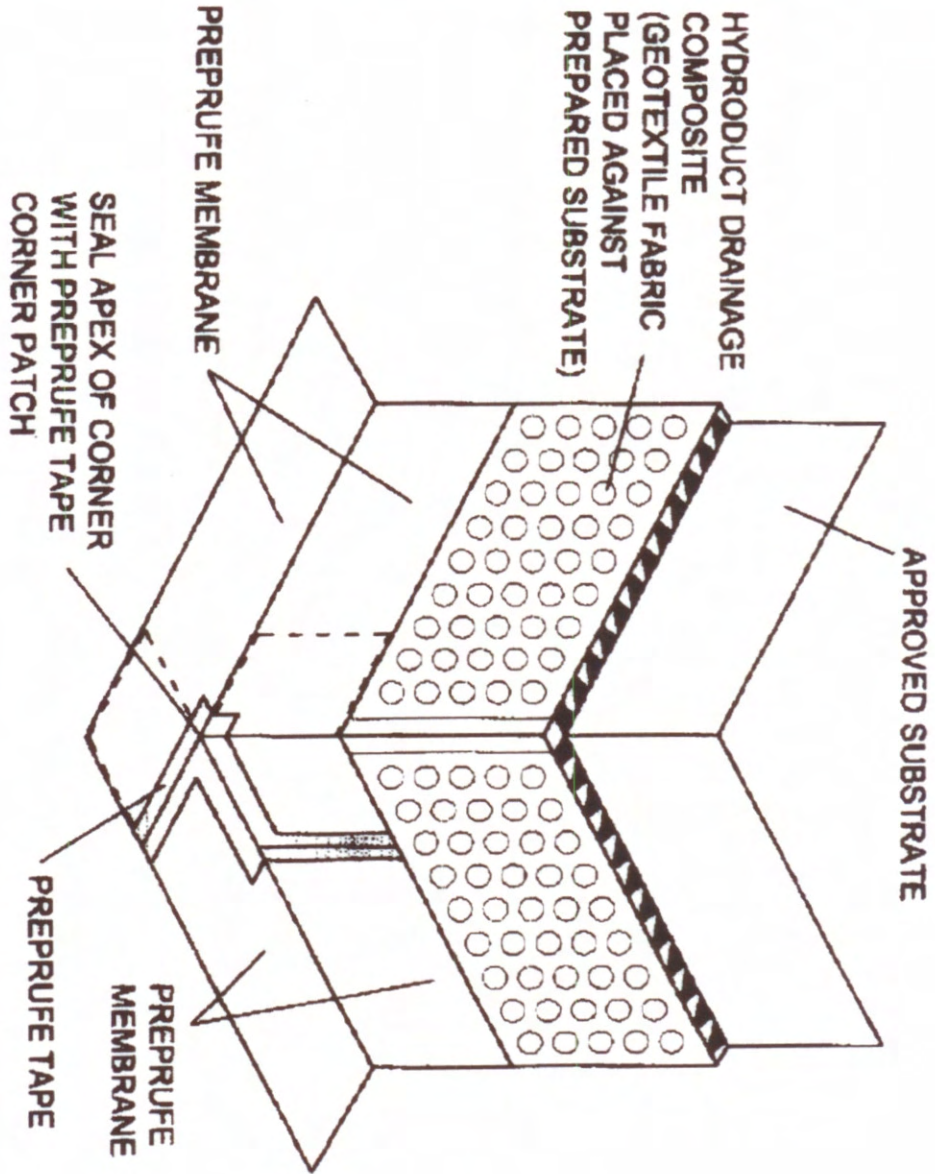
PREPRUFE® WATERPROOFING SYSTEM

DRAWING: PRE 033

SCALE: Not to scale

EFFECTIVE DATE: 03/01/2007

SUPERCEDS: 06/05/03

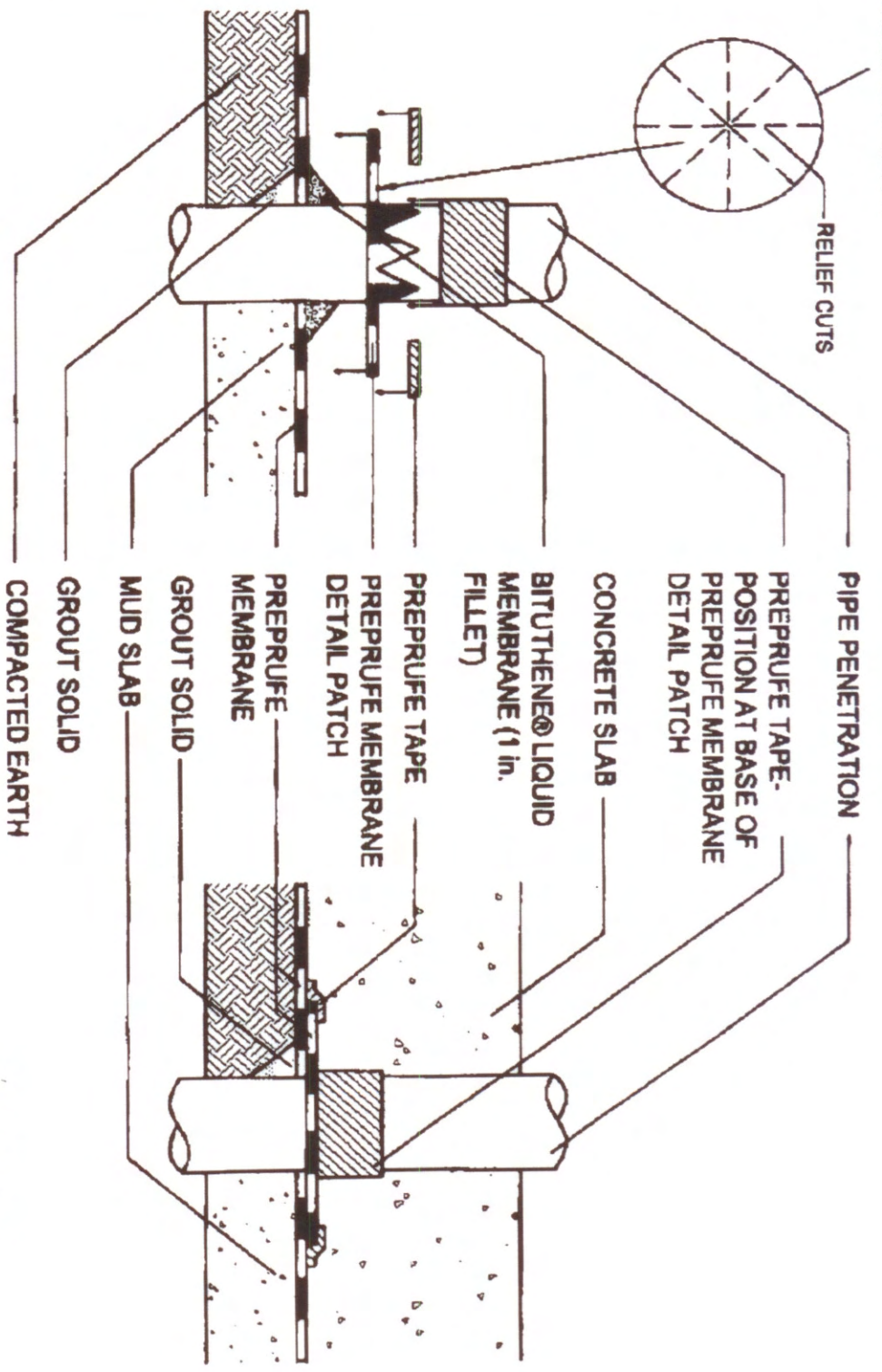


**75 MM (6 IN)
MINIMUM**

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OUTSIDE CORNER
PREPRUFE® WATERPROOFING SYSTEM

DRAWING: PRE CSM
SCALE: Not to scale
EFFECTIVE DATE: 08/31/2007
SUPPLEMENT: 050003



ASSEMBLY

FINISHED

FOOTNOTE: ALL PENETRATIONS TO BE GROUTED. A MINIMUM OF 6 INCHES IS REQUIRED BETWEEN PENETRATIONS TO ENSURE PROPER DETAILING. AVOID PLACEMENT OF MULTIPLE PENETRATIONS.



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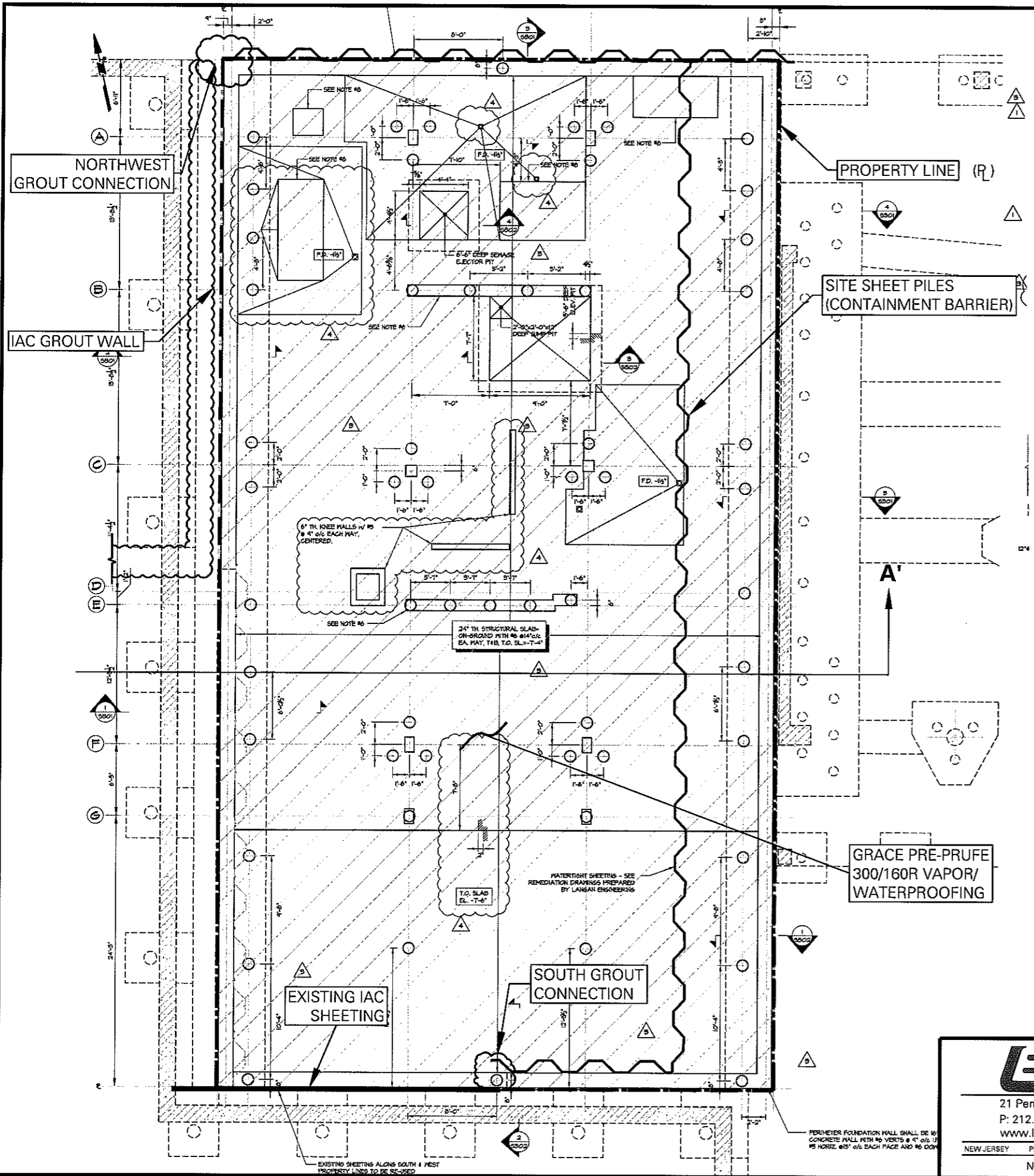
PIPE PENETRATION FOR WALL OR SLAB PREPRUFE® WATERPROOFING SYSTEM

DRAWING: PRE 034
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EFFECTIVE DATE: 02/17/2007
SUPERCEDSS: 090503

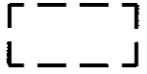



Appendix C

Perimeter Containment Barrier Documentation

1. "Site Plan – Engineering Control Plan", Prepared by Langan Engineering
2. "Northwest Grout Column Cut-Off Wall", Prepared by Langan Engineering
3. "South Cut-Off Connection", prepared by Langan Engineering
4. "524 West 19th Street – As Built Plan", prepared by Posillico Environmental

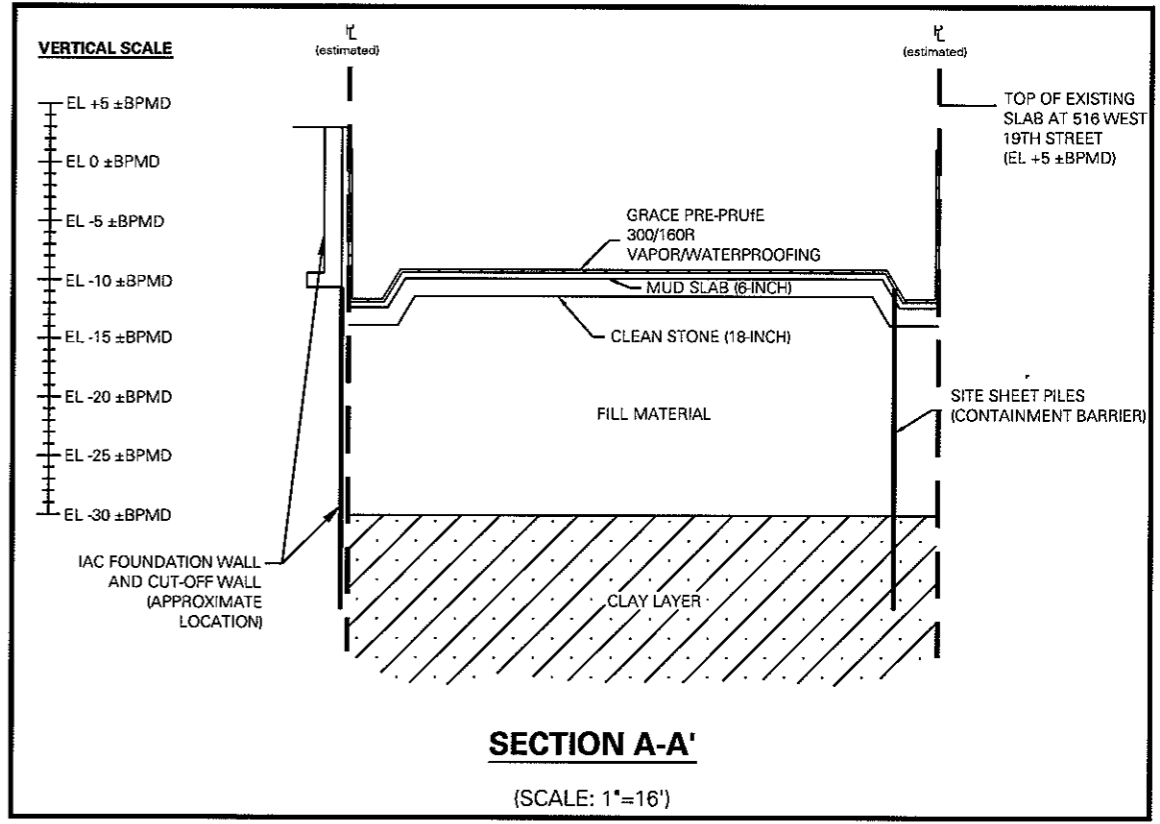


LEGEND:

-  PROPERTY LINE (R_L)
-  SITE SHEET PILES (CONTAINMENT BARRIER)
-  GROUT CONNECTIONS
-  GRACE PRE-PRUFE 300R/160R VAPOR/WATERPROOFING

NOTES:

1. BASE PLAN IS DRAWING S100 "FOOTING AND FOUNDATION PLAN", DATED 02/01/08, BY ROBERT SILMAN ASSOCIATES, PC.
2. ELEVATIONS PROVIDED ARE WITH RESPECT TO THE BOROUGH PRESIDENT OF MANHATTAN DATUM (BPM D).



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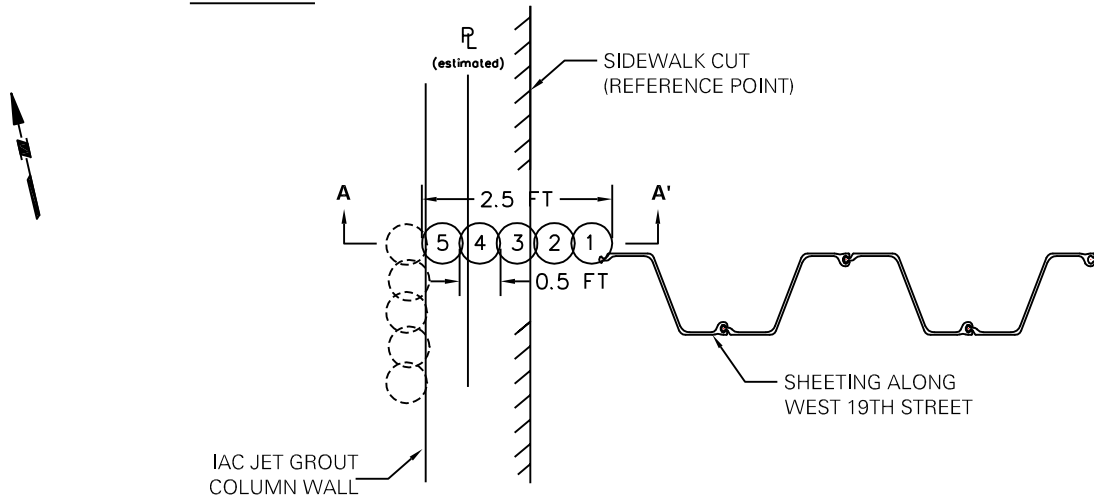
NJ Certificate of Authorization No: 24GA27996400

524 West 19th Street
**SITE PLAN -
ENGINEERING CONTROL PLAN**

NEW YORK NEW YORK

Project No. 5709502	Date 10/24/08	Scale 1"=10'	Dwg. No. 1
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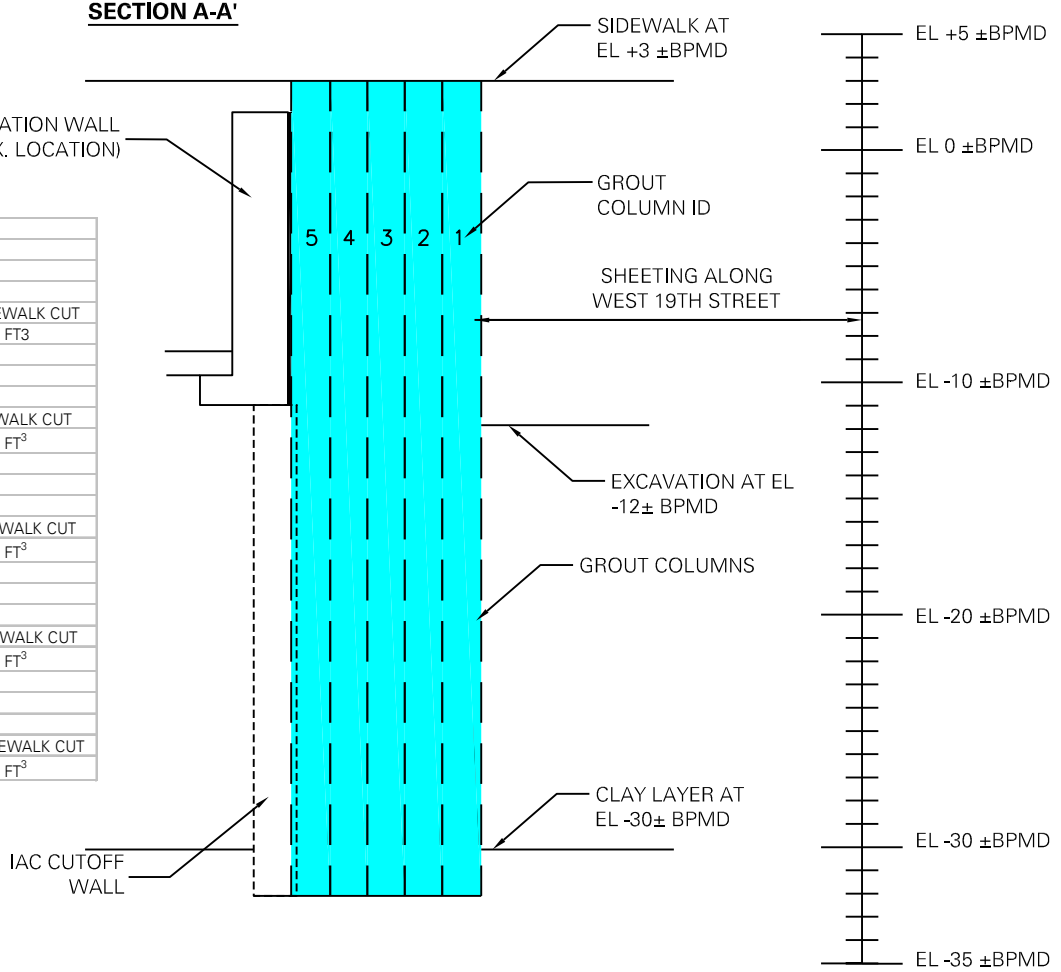
PLAN VIEW



VERTICAL SCALE

SECTION A-A'

GROUT COLUMN DATA	
GROUT COLUMN #1	
DEPTH:	35 FT
LOCATION:	11 IN EAST OF SIDEWALK CUT
GROUT:	APPROXIMATELY 8 FT ³
GROUT COLUMN #2	
DEPTH:	35 FT
LOCATION:	5 IN EAST OF SIDEWALK CUT
GROUT:	APPROXIMATELY 8 FT ³
GROUT COLUMN #3	
DEPTH:	35 FT
LOCATION:	2 IN WEST OF SIDEWALK CUT
GROUT:	APPROXIMATELY 8 FT ³
GROUT COLUMN #4	
DEPTH:	35 FT
LOCATION:	8 IN WEST OF SIDEWALK CUT
GROUT:	APPROXIMATELY 8 FT ³
GROUT COLUMN #5	
DEPTH:	35 FT
LOCATION:	15 IN WEST OF SIDEWALK CUT
GROUT:	APPROXIMATELY 8 FT ³



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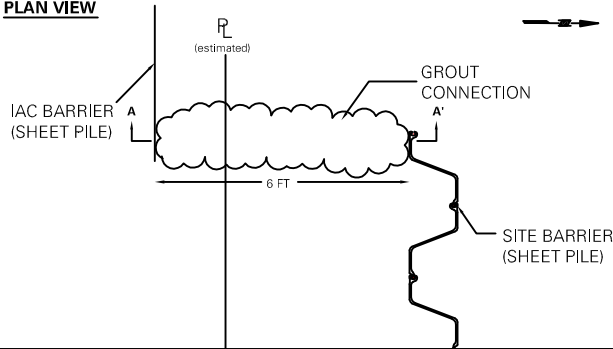
524 West 19th Street

NORTHWEST GROUT COLUMN CUT-OFF WALL

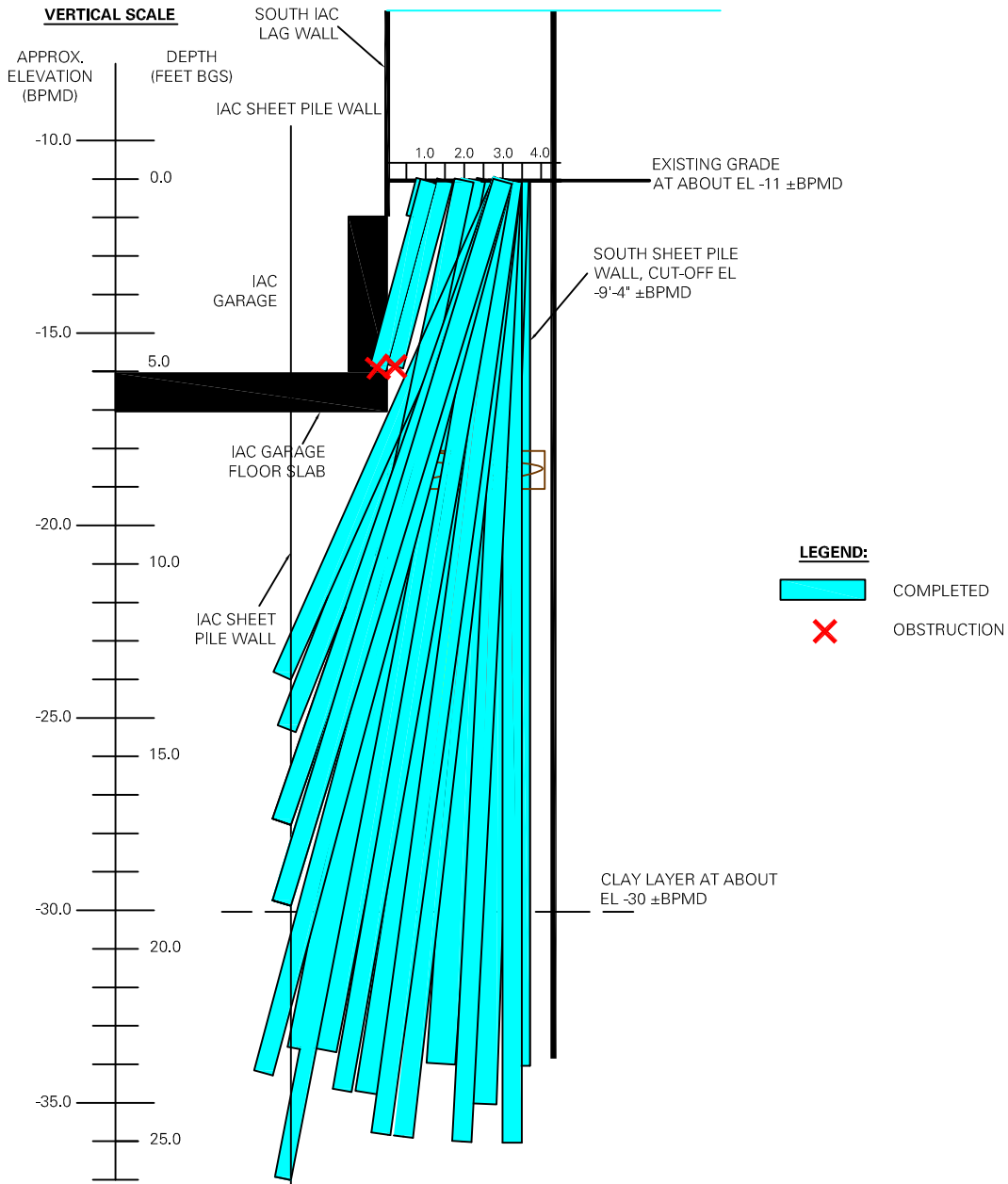
NEW YORK NEW YORK
 Project No. 5709502 Date 10/24/08 Scale NTS Dwg. No. 2

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PLAN VIEW



SECTION A-A'



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524 West 19th Street

SOUTH CUT-OFF CONNECTION

NEW YORK

NEW YORK

Project No. 5709502	Date 10/24/08	Scale NTS	Dwg. No. 3
------------------------	------------------	--------------	---------------

Appendix D

Project Contact Information

**APPENDIX D
PROJECT CONTACT INFORMATION**

HEEA Development

Project Manager: Jeff Spiritos
Address: 276 Riverside Drive
New York, NY 10025
Phone: 917.453.2288

Property Management: To Be Determined

Con Edison

Project Manager: Neil O'Halloran
Address: Building 138, 2nd Floor
31-01 20th Avenue
Astoria, NY 11105
Phone: 718.204.4145

New York State Department of Environmental Conservation

Project Manager: Bill Ottoway
Address: Remedial Bureau C, 11th Floor
625 Broadway
Albany, NY 12233-7014
Phone: 518.402.9564