JOHN E. OSBORN P.C.

ATTORNEYS AND COUNSELORS AT LAW

JOHN E. OSBORN

CHRISTOPHER J. PLATT
DANIEL H. CROW•
MICHAEL T. CONTOS••

— OF COUNSEL —
CLARE B. CONNAUGHTON
ZOË L. DAVIDSON
THOMAS G. DELUCA•
RICHARD L. ELBERT, A.I.A.•
JAMES H. FRIEND
ANDREW A. GONZALEZ•
ERIC T. HAAS
BERT M. OBERLANDER
MARK C. PENNINGTON
FRANKLIN L. SIMPSON•••

•Also admitted in NJ
••Awaiting admission
•••Also admitted in MA

841 BROADWAY, SUITE 500
NEW YORK, NEW YORK 10003-4704

TELEPHONE 212•576•2670 FAX 212•686•4023

e-mail josborn@OsbornLaw.com
internet www.OsbornLaw.com

WESTCHESTER OFFICE

115 STEVENS AVENUE
VALHALLA, NEW YORK 10595

TELEPHONE 914•741•9870
FAX 914•741•9875

NEW JERSEY OFFICE

11 COMMERCE DRIVE
CRANFORD, NEW JERSEY 06016

TELEPHONE 908•931•1100
FAX 908•276•6220

BY FEDERAL EXPRESS

March 9, 2012

Ms. Robin Hackett
Division of Environmental Remediation
New York State Department of
Environmental Conservation
625 Broadway
Albany, New York 12233-7014

Re: West 19th Street Development Site
NYSDEC BCP Site No. C231017
Certification of Institutional Controls/Engineering Controls

Dear Ms. Hackett:

Enclosed please find the annual certification package for the above-referenced Brownfield Cleanup Program site. Enclosed with this letter are:

1. The completed Institutional and Engineering Controls Certification Form with original signatures;

2. The Periodic Review Report prepared by ELM Engineering, P.C.;

3. "Walkthrough Inspection and Repair Observations" Report by Simpson Gumpertz & Heger, describing the structural inspection and subsequent grout injection work;

4. Report on Testing and Balancing at the West 19th Street Development Site by Independent Testing and Balancing (HVAC report).

Please call me if there are any questions. Thank you for your attention to this matter.

Sincerely,

Mark C Pennington

Mark C. Pennington

Cc: Christian Bryan, IAC
Mimi Raygorodetsky, Environmental Liability Management, LLC
Lauren Smith, Georgetown

ENCLOSURE 1

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Site Management Periodic Review Report Notice

Institutional and Engineering Controls Certification Form

Box 1

Site Details

Site No.	**C231017**
Site Name	**19th Street Development Site**
Site Address:	80 11th Avenue Zip Code: 10011
City/Town:	New York
County:	New York
Allowable Use(s) (if applicable, does not address local zoning):	Commercial and Industrial
Site Acreage:	0.7
Owner:	Responsive Realty, LLC c/o Mendon Leasing Corp, 362 Kingsland Ave., Brooklyn, NY, 10021
Reporting Period:	March 12, 2011 to March 12, 2012

Box 2

Verification of Site Details

	YES	NO	
1. Is the information in Box 1 correct?	☑	☐	
If NO, are changes handwritten above or included on a separate sheet?	☐		
2. Has some or all of the site property been sold, subdivided, merged, or undergone a tax map amendment during this Reporting Period?	☐	☑	
If YES, is documentation or evidence that documentation has been previously submitted included with this certification?	☐		
3. Have any federal, state, and/or local permits (e.g., building, discharge) been issued for or at the property during this Reporting Period?	☐	☑	
If YES, is documentation (or evidence that documentation has been previously submitted) included with this certification?	☐		
4. If use of the site in restricted, is the current use of the site consistent with those restrictions?	☑	☐	
If NO, is an explanation included with this certification?	☐		
5. For non-significant-threat Brownfield Cleanup Program Sites subject to ECL 27-1415.7(c), has any new information revealed that assumptions made in the Qualitative Exposure Assessment regarding offsite contamination are no longer valid?	☐	☐	NA
If YES, is the new information or evidence that new information has been previously Submitted included with this Certification?	☐		
6. For non-significant-threat Brownfield Cleanup Program Sites subject to ECL 27-1415.7(c), are the assumptions in the Qualitative Exposure Assessment still Valid (must be certified every five years)?	☐	☐	NA
If NO, are changes in the assessment included with this certification?	☐		

Box 3

SITE NO. C231017

Description of Institutional Controls

Parcel	Institutional Control
S_B_L Image: **690-12**	Landuse Restriction Site Management Plan
S_B_L Image: **690-54**	Landuse Restriction Site Management Plan

Box 4

Description of Engineering Controls

Parcel	Engineering Control
S_B_L Image: **690-12**	Subsurface Barriers Vapor Mitigation
S_B_L Image: **690-54**	Subsurface Barriers Vapor Mitigation

Attach documentation if the IC/ECs cannot be certified or why IC/ECs are no longer applicable. (See Instructions)

Control Description for Site No. C231017

Parcel: 690-12

An Environmental Easement for the property was filed on July 31, 2006, restricting future use to industrial/commercial, and requiring: 1) monitoring and maintenance of the subsurface barrier, 2) continuous operation of a sub-level ventilation system and 3) annual certification.

Parcel: 690-54

An Environmental Easement for the property was filed on July 31, 2006, restricting future use to industrial/commercial, and requiring: 1) monitoring and maintenance of the subsurface barrier, 2) continuous operation of a sub-level ventilation system and 3) annual certification.

Box 5

Periodic Review Report (PRR) Certification Statements

1. I certify by checking "YES" below that:

   a. The Periodic Review Report and all attachments were prepared under the direction of, and reviewed by, the party making the certification;

   b. To the best of my knowledge and belief, the work and conclusions described in this certification are in accordance with the requirements of the site remedial program, and generally accepted engineering practices; and the information presented is accurate and complete.

YES	NO
☑	☐

2. If this site has an IC/EC Plan (or equivalent as required in the Decision Document), for each Institutional Control or Engineering Control listed in Boxes 3 and/or 4, I certify by checking "YES" below that all of the following statements are true:

   a. The Institutional Control and/or Engineering Control(s) employed at this site is unchanged since the date that the Control was put in place, or was last approved by the Department;

   b. Nothing has occurred that would impair the ability of such Control, to protect human health and the environment; and

   c. Nothing has occurred that would constitute a violation or failure to comply with the Site Management Plan for this Control; and

   d. If a financial assurance mechanism is required by the oversight document for the site, the mechanism remains valid and sufficient for its intended purpose established in the document.

YES	NO
☑	☐

3. If the site has an Operations & Maintenance (O&M) Plan (or equivalent as required in the Decision Document, I certify by checking "YES" below that the O&M Plan requirements (or equivalent as required in the Decision document) are being met.

YES	NO
☑	☐

4. If this site has a Monitoring Plan (or equivalent as required in the remedy selection document), I certify by checking "YES" below that the requirements of the Monitoring Plan (or equivalent as required in the Decision Document) is being met.

YES	NO
☑	☐

Box 6

Control Certifications
Site No. C231017

Site Owner or Designated Representative Signature

I certify that all information and statements in Boxes 2 & 3 are true. I understand that a false statement made herein is punishable as a Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law.

I CHRISTIAN BRYAN (print name) 555 W. 18TH STREET (print business address), am certifying as MC (Owner or Owner's Designated Site Representative [if the site consists of multiple properties, I have been authorized and designated by all site owners to sign this certification]) for the site named in the Site Details section of this form.

Signature of Site Owner or Representative Rendering Certification — Date: 3/8/12

Box 7

Qualified Environmental Professional (QEP) Signature

I certify that all information and statement in Boxes 4 & 5 are true. I understand that a false statement made herein is punishable as a Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law.

I Keith Brodock (print name) 267 Broadway FL 5, New York, NY 10007-2548 (print business address), am certifying as a Qualified Environmental Professional for the Responsive Realty, LLC (Owner or Owner's Representative) for the site named in the Site Details section of this form.

Signature of Qualified Environmental Professional, for the Owner or the Owner's Representative, Rendering Certification — Stamp (if required): 3/8/12 — Date: 3/8/12

ELM ENGINEERING, PC
AFFILIATED WITH THE ELM GROUP

267 BROADWAY | FIFTH FLOOR | NEW YORK NY 10007
TEL 212.962.4303 FAX 212.962.4302
WWW.ELMENGINEERINGPC.COM

MEMORANDUM

TO: **Ms. Robin Hackett**
New York State Department of Environmental Conservation

FROM: **Mimi S. Raygorodetsky**
ELM Engineering, P.C.

DATE: **March 9, 2012**

RE: **19th Street Development Site, 80 Eleventh Avenue, New York, NY**

ELM Engineering, P.C . (ELM Engineering), on behalf of the volunteers (multiple entities) to Brownfield Cleanup Agreement No. W2-1012-04-07, is hereby submitting this Periodic Review Report (PRR) for the property located at 80 Eleventh Avenue, New York, NY (Site).

I. INTRODUCTION

A. Site Summary

The Site, 80 Eleventh Avenue (Block 690, Lot 12 and Block 690, Lot 54), is one parcel of numerous parcels that comprise the former West 18th Street Gas Works Site, a former manufactured gas plant (MGP) operated by predecessors of Consolidated Edison Company of New York (Con-Ed). Former MGP operations impacted subsurface soil, groundwater, and soil vapor conditions on the Site.

The Site was redeveloped with a modern ten-story office building and was concurrently remediated circa 2008. Remediation was conducted pursuant to a Brownfield Cleanup Agreement (BCA), Index No. W2-1012-04-07, between the volunteers (multiple entities) and the New York State Department of Environmental Conservation (NYSDEC). In August 2006, Remedial Engineering, P.C. submitted a Final Engineering Report to NYSDEC that presented the results of environmental remediation as required by the NYSDEC. On August 31, 2006, NYSDEC issued a Certificate of Completion approving the completion of the active remediation outlined in the Site BCA.

The institutional and engineering controls that comprised part of the Site remedy are summarized below.

Institutional Control (IC)

An environmental easement was recorded for the Site on August 2, 2006. The environmental easement imposes Site use restrictions, required monitoring and maintenance of the engineering controls, and prohibits any modification or removal of the engineering controls without prior notification and/or approval of the NYSDEC.

Engineering Controls (ECs)

Two engineering controls comprise a portion of the Site remedy:

- Subsurface barriers, consisting of:
    - A barrier layer (comprised of a mud slab, waterproof/vapor barrier membrane, structural concrete slab and foundation walls); and
    - Site perimeter watertight sheeting and grouting.
- Continuous venting of the garage sub level of the building with an active mechanical venting system.

The Site perimeter watertight sheeting and grouting is located beneath the building foundation, and is therefore presumed to be in place and functional.

B. Effectiveness of Remedial Program

The Site Management Plan (SMP) prepared by Turner Construction Company and dated July 18, 2006, outlines the inspection, operation and maintenance activities for the barrier layer and the venting system. Following initial occupancy (January 2008), IAC/Georgetown 19th Street LLC ("IAC/Georgetown") has implemented the Monitoring Plan (MP) and Operations and Maintenance Plan (OMP) contained within the SMP. The institutional and engineering controls have been certified and approved on an annual basis between 2007 and 2011. The most recent certification was submitted to NYSDEC March 21, 2011 and approved on April 19, 2011.

The Site remediation, with the exception of the ongoing monitoring, and operations and maintenance, has been completed. Each annual certification, including the certification for 2012 discussed herein, has demonstrated that that remedy continues to be effective in achieving the remedial objective for the Site: the protection of human health and the environment.

C. Compliance

No areas of non-compliance relative to the SMP were identified during the reporting period.

D. Recommendations

One change to the annual inspection requirements of the Monitoring Plan is proposed:

The Monitoring Plan for the Site states that the barrier layer and venting system inspections are to be performed by qualified "structural" engineers and "HVAC professionals and/or mechanical engineers", respectively, and that these engineers have familiarity with the ECs. ELM Engineering has provided engineering oversight of the inspections (which have been performed by structural and HVAC engineers) over the past six years (including 2012) and has found that the inspections, while identifying the need for some repairs, have been routine. Based on our experience, we conclude that a qualified Professional Engineer (PE) registered in the state of New York that is familiar with the ECs can adequately perform the inspections and make any necessary recommendations for repair.

As such, ELM proposes that the MP be modified to also allow for inspections to be performed by a "qualified Professional Engineer licensed in the state of New York". A PE is qualified by experience and training, not by general area of practice. Therefore, a qualified PE familiar with the ECs would have the knowledge and competency to inspect the ECs and make any recommendations necessary to ensure that the ECs continue to be protective of human health and the environment.

Specifically, ELM proposes the following changes to the Monitoring Plan:

1. Wherever the phrase "qualified structural engineer(s)" appears, it shall be replaced with "qualified structural engineer(s) or a qualified Professional Engineer licensed in the state of New York".

2. Wherever the phrase "qualified HVAC professionals and/or mechanical engineers" it shall be replaced with "qualified HVAC professionals or a mechanical engineer or a qualified Professional Engineer licensed in the state of New York".

Changes to the frequency for submittal of PRRs or for discontinued Site management are not recommended at this time.

II. SITE OVERVIEW

A. Site Location

The Site (Tax Block 690, Lot 46) is located in the West Chelsea neighborhood of Manhattan, between West 18th and West 19th Streets and Tenth and Eleventh Avenues. The Hudson River is approximately 200 feet to the west. The area around the Site contains a mix of commercial, residential, and industrial establishments. High-rise residential buildings are located on blocks immediately to the north, east and south of the Site.

Prior to remediation, the Site consisted of a two-story brick structure (demolished prior to the start of remediation) that served as a mid- to long-term parking garage and a small vacant lot in the southwestern part of the property. Remedial investigations were performed in 2002 and 2003 by Blasland, Bouck and Lee, Inc. (BBL). Soil, groundwater, and soil vapor were found to be contaminated primarily with volatile and semi-volatile compounds.

B. Remediation Chronology

The Remedial Action Work Plan prepared by BBL was developed to achieve several remedial goals, including the removal of impacted soil to a depth of 15 feet, limiting the migration of subsurface contaminants on and off the Site, and preventing the exposure of future Site occupants to any vapors or impacted material.

In 2005, foundation piles were installed and excavation of impacted soil commenced. Across the Site, the excavation depth varied from 12 feet to 25 feet. A subsurface perimeter barrier wall was installed to ensure any remaining contamination is contained such that it cannot migrate off the Site. As part of the foundation construction design, a barrier layer was installed to prevent the potential intrusion of volatile organic vapors into the building. Once the foundation was completed, a basement level mechanical venting system was installed to prevent vapors from accumulating in the unlikely event of a vapor barrier breach. The NYSDEC issued a Certificate of Completion on August 31, 2006.

No changes to the selected remedy or the Site have occurred since remedy selection.

III. EVALUATION OF REMEDY

IAC/Georgetown has completed five certifications (2007-2011) for the IC/ECs at the Site which have been approved by NYSDEC. Each year, the inspection of the venting system has determined that the system continues to function as designed, and the initial inspection of the barrier layer has identified cracks, staining, efflorescence or observations of water that

require repair. Each year, repairs have been made to the barrier layer system and re-inspection has determined that the barrier layer continues to function as designed. At the completion of the inspection/repair process, a certification has been made to NYSDEC that the engineering controls continue to function as designed and the remedy remains protective of public health and the environment.

IV. IC/EC PLAN COMPLIANCE REPORT

A. IC/EC Requirements and Compliance

Institutional Control

The institutional control for the Site is an environmental easement. The easement stipulates the following:

1. Designates the Site for commercial and/or industrial use only (not residential);
2. Requires monitoring and maintenance of the engineering controls developed for the Site;
3. Grants NYSDEC uncontrolled access to the Site;
4. Stipulates that any disturbance or alteration to the barrier layer may occur only after notification to and/or approval from the NYSDEC;
5. Requires annual certification of the engineering controls.

The SMP further restricts the use of groundwater at the Site without proper treatment or permission from the NYSDEC.

John E. Osborn P.C., as part of the 2012 annual certification, has confirmed with the City of New York Register's Office for the Borough of Manhattan that the easement remains in place, and no changes or legal amendments have been made to the easement filing.

Engineering Controls

Two engineering controls comprise a portion of the Site remedy:

- Subsurface barriers, consisting of:
    - A barrier layer (comprised of a mud slab, waterproof/vapor barrier membrane, structural concrete slab and foundation walls); and

- Site perimeter watertight sheeting and grouting.

- Continuous venting of the garage sub level of the building with an active mechanical venting system.

The Site perimeter watertight sheeting and grouting is located beneath the building foundation, and is therefore presumed to be in place and functional. The SMP does not provide an OMP or an MP for this engineering control.

Barrier Layer

As part of the 2012 certification process, Simpson, Gumpertz & Heger (SGH), a structural engineer, visited the Site on February 7, 2012 and inspected the perimeter foundation walls and the foundation slab. SGH observed isolated evidence of efflorescence and water infiltration in the basement concrete walls. As a result of their observations, SGH recommended grout injection to repair the observed cracks, staining, efflorescence or observations of water in the barrier layer. Grout injection was performed by Starbrite Waterproofing Co., Inc. on March 1, 2012, in accordance with recommendations from SGH and the OMP. SGH re-inspected the barrier layer at the completion of the grout repair program and determined that the barrier layer is effectively inhibiting water infiltration. The findings are documented in an attached report.

Venting System

As part of the 2012 certification process, Independent Testing & Balancing Corp. (IB&T), an HVAC engineer, performed an inspection of the venting system on February 7th, 2012, to verify that the fans are meeting design air flows consistent with the requirements of the SMP. IB&T found the system to be operating consistent with design criteria. The findings are documented in an attached report.

B. IC/EC Certification.

Both the structural and HVAC engineers have determined that the barrier layer and venting systems continue to function as designed. John Osborn, P.C. has determined that the environmental easement remains in place. As such (and because no other changes to the remedy or Site have occurred during the reporting period), ELM Engineering confirms that the remedy continues to be protective of human health and the environment. The ICs and ECs have been certified in the attached Institutional and Engineering Controls Certification Form.

V. MONITORING PLAN COMPLIANCE & O&M PLAN COMPLIANCE

A. Components

The OMP was developed to provide procedures to operate and maintain institutional and engineering controls on the Site. The OMP includes a detailed protocol to be followed in the event that any compliance issues are noted in connection with the environmental easement during annual inspection of the institutional controls. The OMP also includes repair procedures for the engineering controls that are part of the Site remedy. These repairs may become necessary as determined through evaluation of Site information gathered in accordance with the Monitoring Plan. These operation and maintenance actions ensure that the Site remedy continues to be effective for the protection of public health and the environment through continued implementation of the engineering and institutional controls.

Barrier Layer

The IAC/Georgetown instructs its management team to perform preventative maintenance of the barrier layer. The team has been instructed to monitor daily activities that have the potential to compromise the integrity of the barrier layer. Examples of such activities would include, but are not limited to:

1. Movement or storage of heavy objects with the potential to affect the integrity of the barrier layer;

2. Installation of floor drains, elevator pits or other building features that may compromise the barrier layer;

3. Spilled liquid or chemicals in direct contact with the barrier layer;

4. Activities (e.g., foundation construction) at adjacent properties.

The management team has been instructed to look for and report to the Building Manager any actions or conditions that have the potential to compromise the intended remedial function of the barrier layer. The Building Manager will immediately contact a dedicated qualified professional to determine if these activities have impacted the integrity of the barrier layer and if the barrier layer requires repair.

Venting System

The OMP requires the venting system to be maintained and operated in accordance with its manufacturer's specifications. The IAC/Georgetown has instructed their management team

to be aware of the operating standards of the venting system and to make observations that may indicate that the system is not in compliance with its operation standards, including but not limited to:

1. Persistent odors or exhaust in the cellar of the building; and

2. Fans are not operational.

The management team has been instructed to look for and report any actions or conditions that have the potential to compromise the intended function of the venting system to the Building Manager. The Building Manager will immediately contact the dedicated qualified professional to determine if these activities have impacted the function of the venting system and if the venting system requires repair. As necessary, preventative maintenance (e.g., replacing filters, cleaning lines, etc) repairs and/or adjustments will be made to ensure the system's continued effectiveness.

B. Summary of O&M Completed

Monitoring consistent with the protocol described in Section V.A. was performed by the building management team during the reporting period. No actions or conditions that have the potential to compromise the intended remedial function of the barrier layer or the venting system were observed by the management team during this reporting period.

C-E. Conclusions/Recommendations

Based on the results of the O&M activities completed during the reporting period, the engineering controls continue to perform as designed. No deficiencies in complying with the O&M Plan were noted during the reporting period.

VI. OVERALL PRR CONCLUSIONS AND RECOMMENDATIONS

The requirements of the SMP were met during the reporting period. As part of the 2012 annual certification process, both the ICs and ECs for the Site have been documented to be in place and functional as designed. ELM Engineering confirms that the remedy continues to be protective of human health and the environment.

ELM Engineering does not recommend changing the frequency of the submittal of Periodic Review Reports at this time.

Please feel free to contact ELM at 212-962-4301 with any questions regarding this Periodic Review Report.

cc: Christian Bryan – IAC

Lauren Smith - Georgetown

Mark Pennington – John E. Osborn, P.C.

Peter Zimmermann – ELM Engineering, P.C.

Attachments –

Walkthrough Inspection and Repair Observations, prepared by Simson Gumpterz & Heger, dated March 8, 2012

Report on Surveying the West 19th Street Development Site at 555 West 19th Street, prepared by Independent Testing & Balancing, dated February 21, 2012

Site Management Periodic Review Report Notice – Institutional and Engineering Controls Certification Form

SIMPSON GUMPERTZ & HEGER
Engineering of Structures
and Building Enclosures

8 March 2012

Mr. Keith Brodock
Project Manager
ENVIRONMENTAL LIABILITY MANAGEMENT, LLC
267 Broadway, Fifth Floor
New York, NY 10007

Project 120115.00 – Walkthrough Inspection and Repair Observations
West 19th Street Development Site
528 West 19th Street, New York, NY

Dear Mr. Brodock:

You asked us to perform a visual inspection and to oversee necessary repairs in the below-grade level of the above-named building. This report summarizes our observations, repair recommendations, repair observations, and further recommendations.

1. EXECUTIVE SUMMARY

The purpose of this annual visual inspection is to identify cracks and visible evidence of water infiltration into the below-grade level, per the inspection requirements set forth in the Monitoring Plan Section 3.2, developed as part of the New York State Department of Conservation Brownfield Cleanup Program.

On 7 February 2012, Kirk M. Stauffer and Sarju Mulmi of Simpson Gumpertz & Heger, Inc. (SGH) performed a visual inspection of the accessible portions of the below-grade slabs and foundation walls. We did not make any probes or perform tests to evaluate or observe the components of the barrier-layer system behind the below-grade slabs and foundation walls. We noted isolated active water infiltration (wet or leaking areas) and isolated cracks in the slabs and foundation walls. We also noted isolated areas with evidence of previous water infiltration, such as stain growth, sediment deposits, and efflorescence build-up. We did not perform any tests to identify or measure actual vapor infiltration into the below-grade level, as this was beyond the agreed scope of our work and expertise. However, active water infiltration, evidence of previous water infiltration, and visible cracking can be used as indicators of breaches in the barrier-layer system with potential for vapor infiltration, when the groundwater table is lower than a potential breach (e.g. cracks). Upon completion of our survey, we recommended injection repairs for areas where we observed active water infiltration or evidence of previous water infiltration, in accordance with best maintenance practices and the Operations and Maintenance Plan (OMP).

On 1 March 2012, Cheryl M. Saldanha of SGH visited the building to observe the contractor, Starbrite Waterproofing, perform the repairs to the barrier-layer system that we recommended. The repairs were done in accordance with our recommendations and following the procedures outlined in the OMP. As of the completion of our repairs, there is no active water infiltration within the below-grade level of the building, and the barrier-layer system is effectively

functioning to inhibit water infiltration. To confirm continued effectiveness of the barrier-layer system, as described above, preventative maintenance should be performed on an ongoing basis in accordance with Section 3.0 of the OMP.

2. BACKGROUND

2.1 Description of the Site

The West 19th Street Development Site is an office building located on one of many parcels used as a former manufactured-gas plant (Photo 1). The building is a mid-rise structure with an undulating glass curtain-wall facade. The building has one below-grade level that includes a concrete pressure slab and cast-in-place concrete foundation walls. The foundation slab is supported on piles. The below-grade level is used for parking, mechanical equipment, and storage.

The approximately 0.7-acre site is located on Block 690, Lots 12 and 54, between West 18th and West 19th Streets, and Tenth and Eleventh Avenues in the Borough of Manhattan, New York. Contamination of the site was remediated concurrently with construction for the current office building. Furthermore, remediation was conducted pursuant to a Brownfield Cleanup Agreement with New York State Department of Environmental Conservation (NYSDEC), effective 14 July 2004 (Index No. W2-1012-04-07, Site No. C231017). The remediation on the site was documented in a Final Engineering Report, prepared by Roux Associates, Inc., and dated 17 August 2006. A Certificate of Completion was issued for the site remediation dated 31 August 2006.

In accordance with the NYSDEC-approved remediation and the environmental easement established pursuant to the site's Brownfield Cleanup Agreement, we understand that the following engineering controls are in place on the site:

- Watertight, corrugated metal sheeting and jet grouting around the perimeter of the site.
- A barrier-layer system. The designed barrier-layer system consists of the following components:
  - Mud slab.
  - Waterproofing/vapor barrier membrane, manufactured by Grace Construction Products.
  - Structural concrete slab or foundation walls.
  - Subsequent to the construction, grout injection at the foundation walls and slabs was employed at areas of former and suspected leaks.
- An active venting system in the below-grade level of the building.

2.2 Description and Purpose of the Barrier-Layer Monitoring Program

The Site Management Plan (SMP) states that, "the interior face of the perimeter foundation walls and foundation slab shall be inspected once a year or in the event of a severe weather event (e.g., flooding) or other event that might compromise the foundation integrity". The purpose of the visual inspection is to identify "the presence and density of cracks and/or evidence of water infiltration".

Visible conditions identified as allowing or potentially allowing vapor infiltration shall be either repaired per the OMP, or monitored with a photoionization detector (or other monitoring equipment) and telltales. The repair outlined in the OMP involves chemical grout injection with Hydro Active Sealfoam, a grout manufactured by DeNeef. For additional information on the chemical grout, see Appendix A of this report.

Furthermore, "the visual inspection shall note any evidence of water infiltration; which could indicate that the vapor membrane adhered to the exterior side of the wall may have been breached. If it is determined by the qualified structural engineer that water is discharging through the crack(s) or in the area of the crack(s), then:

1. The source of the water infiltration will be determined and addressed; and

2. The most practicable means of repair to the vapor membrane and/or other barrier-layer system components should be determined and implemented per the guidance provided in the OMP".

The SMP states that, "the structural engineer shall include in the final report any additional information as to the cause of the crack(s) and/or vapor membrane breach and how further such breaches will be avoided in the future".

2.3 Review of Previous Reports

ELM Engineering, P.C. (ELM Engineering) has previously provided SGH with the following relevant documents:

- Waterproofing Recommendation letter by Remedial Engineering, P.C. Environmental Engineers, dated 4 February 2005. This letter describes revisions to the Site Operations Plan (SOP), dated 24 June 2004. The revisions to the SOP include substitution of the Grace products, as listed above, in lieu of a Liquid Boot membrane as the waterproofing/vapor barrier.

- Site Management Plan for West 19th Street Development Site, dated 18 July 2006 and approved by the NYSDEC on 10 August 2006. This document outlined SGH's scope of work for the visual inspection of the below-grade level for evidence of water infiltration through the barrier layer. The pertinent sections of this report are included in Appendix A.

- Limited Structural Evaluation Letter by Rand Engineering and Architects (Rand) dated 9 January 2007. The survey performed by Rand was conducted on 8 December 2006 when the construction was nearing completion. Remediation on the project site was documented in a Final Engineering Report, prepared by Roux Associates, Inc. and dated 17 August 2006.

- Certificate of Completion from NYSDEC, dated 31 August 2006.

In preparation for this year's visual inspection, we also reviewed our previous reports:

- Walkthrough Inspection and Repair Observation, Barrier Layer Engineering Control letter dated 5 September 2007, and updated 24 March 2008.

- Walkthrough Inspection of Barrier Layer Engineering Control letter dated 18 February 2009.
- Operations and Maintenance Plan Repairs letter dated 8 April 2009.
- Walkthrough Inspection of Barrier Layer Engineering Control letter dated 12 February 2010.
- Operations and Maintenance Plan Repairs letter dated 10 March 2010, and revised 12 March 2010.
- Operations and Maintenance Plan Repairs letter dated 14 April 2010.
- Walkthrough Inspection of Barrier Layer Engineering Control with Operations and Maintenance Plan Repairs Update letter dated 16 March 2011.

3. OBSERVATIONS

On 7 February 2012, representatives of SGH met with Mr. Keith Brodock and Mr. James L'Esperance, of ELM Engineering, to walk through the below-grade level of the building, and to conduct a visual inspection. On 1 March 2012 we revisited the building to observe repairs being performed by the contractor, Starbrite Waterproofing.

At the time of our visual inspection, the below-grade level of the building was being used for parking, storage, and mechanical equipment. The building was occupied at the time of our inspection, and cars were parked in the garage portion of the below-grade level. Some of the storage and mechanical rooms contained objects, which prohibited us from viewing the entire surface of the perimeter foundation walls and the foundation slab in some areas. We inspected the unobstructed concrete floor slab and foundation walls for visible cracks and/or any evidence of water infiltration, as well as looked for areas of stain growth, sediment deposits, or efflorescence build-up.

During the visits, we observed evidence of previous repairs. We also observed several locations with small-width (hairline) concrete cracks, stain growth, sediment deposits, efflorescence build-up, and isolated areas of active water infiltration.

A summary of our observations from our 7 February 2012 site visit follows. Please refer to the Engineering Control Checklist – Cracking, in Appendix B, and an annotated plan in Appendix C for a graphical representation of our surveys. In Appendix C, an X-Y coordinate system is shown. In our observations below, we use this coordinate system to help locate where our observations were made.

3.1 2012 Evidence of Previous Repairs

We observed numerous grout injection ports from previous repairs in the below-grade level of the building. Primarily, the ports were at the foundation walls and at wall-to-slab interface. We also observed some grout injection ports at the interior portions of the footprint.

The grout injection ports we observed were artifacts of previous repairs that included:

- 16 and 24 January 2008 by Starbrite Waterproofing, under our observation.
- 26 March 2009 by SSESCO Inc., under our observation.
- 25 February 2010, 1 March 2010, and 2 April 2010 by SSESCO Inc., under our observation.
- 17 and 18 February 2011 by SSESCO Inc., under our observation.

To our knowledge, no new grout injection ports were installed at the site since our last visual inspection in February 2011.

3.2 2012 Foundation Slab Observations

A traffic-bearing waterproofing coating is applied to the foundation slab in the parking portion of the below-grade level, as well as in the mechanical and storage rooms along the north and east perimeter walls. The traffic-bearing waterproofing coating prevents us from determining if there are small-width (hairline) cracks in the concrete slab on grade. However, we did not observe cracks through the traffic-bearing waterproofing coating, and we did not notice any pockets of water trapped under the traffic-bearing waterproofing coating.

Traffic-bearing waterproofing coating is not applied in the storage rooms along the west foundation wall (X=60, Y=140) and (X=115, Y= 35). In these storage rooms, we noted small-width cracks in what appears to be a raised concrete topping slab. The cracks appear to be isolated shrinkage cracks that show no evidence of current or previous water infiltration.

We observed one isolated area that could be attributed to active water infiltration in the parking portion of the below-grade level. This observation was made during our site visit on 7 February 2012.

- We found water on the surface of the slab along the west foundation wall (X=80, Y=80), adjacent to the slab-wall interface. The water was located on top of hardened excess grout that was spilled across the slab surface (Photos 2 and 3).

3.3 2012 Foundation Wall Observations

The foundation wall is a cast-in-place reinforced concrete wall that encloses the entire perimeter of the below-grade space. The interior of the wall is typically painted with white paint. In locations where the slab on grade has a traffic-bearing waterproofing coating, the coating extends vertically up the wall for 4 to 6 in. There are also several penetrations through the north foundation wall where underground utilities enter the building.

As described in the paragraphs that follow, we observed isolated instances of active water infiltration, predominantly near the slab-wall interface locations. We also observed several isolated areas with evidence of previous water infiltration, such as stain growth, sediment deposits, and efflorescence build-up. All observations described in this section were made on 7 February 2012, unless otherwise noted.

3.3.1 2012 Active Water Infiltration in Foundation Wall

- We found active water infiltration at the far northwest corner of the building in the water meter room (X=40, Y=200). We removed the vinyl baseboard and noted that the intersection of the slab and north foundation wall was wet over a length of approximately 2 ft (Photos 4 and 5). We had previously observed active water infiltration in this location during our 2011 walkthrough survey. Subsequently, this area had been grout injected under our observation on 17 and 18 February 2011. (This area was subsequently repaired in 2012, see Repair #8 in Section 5.0)

3.3.2 2012 Foundation Wall Evidence of Previous Water Infiltration

- We noted stain growth and sediment deposits on the painted wall surface and on the stair stringer at a location near the northwest corner of the building (X=50, Y=170), in the vicinity of a step in the foundation slab. The staining is located on the west foundation wall above and below a metal staircase near previous grout injection ports (Photos 6 and 7). (This area was subsequently repaired in 2012, see Repair #7 in Section 5.0)

- We observed efflorescence build-up behind the traffic coating where it turns up the wall in the parking area at (X=70, Y=120). The efflorescence build-up had accumulated behind the traffic coating on the surface of hardened excess grout from a previous injection (Photos 8 and 9). (This area was subsequently repaired in 2012, see Repair #6 in Section 5.0)

- We noted several areas along the south wall (Y=20) that have efflorescence build-up. The locations of efflorescence build-up on the south wall are located as follows:

  - At a control joint in the wall located near (X=210, Y=20) (Photos 10 and 11). This area has been previously grout injected. (This area was subsequently repaired in 2012, see Repair #1 in Section 5.0)
  - At an area in the wall located near a previous grout injection near (X=200, Y=20) (Photo 12). (This area was subsequently repaired in 2012, see Repair #2 in Section 5.0)
  - At a control joint in the wall located near (X=170, Y=20) (Photo 13). This area does not appear to have been previously grout injected. (This area was subsequently repaired in 2012, see Repair #3 in Section 5.0)
  - At an area of the wall located near a previous grout injection (X=150, Y=20) (Photos 14 and 15). (This area was subsequently repaired in 2012, see Repair #4 in Section 5.0)
  - We observed efflorescence has built up behind the traffic coating where it turns up the wall in the parking area near (X=130, Y=20). The efflorescence had accumulated behind the traffic coating on the surface of excess grout on the wall (Photo 16). (This area was subsequently repaired in 2012, see Repair #5 in Section 5.0)

- We noted moderate stain growth (when compared to the 2011 condition) on the east wall of the oil tank room near (X=200, Y=190) (Photos 17 and 18). (This area was subsequently repaired in 2012, see Repair #9 in Section 5.0)

3.3.3 2012 Observation of 2011 Repair Locations

- Three of the four repairs performed in 2011 have performed satisfactorily and have exhibited no evidence of active or previous water infiltration in 2012. The status of the four repairs follows:
    - The repair near the northwest corner of the building (X=40, Y=200) exhibits signs of active water infiltration (as detailed previously in section 3.3.1 of this report) (Photos 4 and 5). (This area was subsequently repaired in 2012, see Repair #8 in Section 5.0)
    - The repair of the foundation wall at the wall-slab interface near the southeast corner of the building (X=240, Y=20) appears to be effective and has stopped the active water infiltration (Photos 19 and 20).
    - The repair near the inside corner of the foundation wall (X=210, Y=100) appears to be effective and has stopped the active water infiltration (Photos 23 and 24).
    - The repair in the foundation slab near (X=210, Y=90) appears to be effective and has stopped the active water infiltration (Photos 21 and 22).

4. DISCUSSION AND RECOMMENDATIONS

Below is our discussion and recommendations for repairs to the barrier-layer system as part of the OMP.

4.1 2012 Recommendations for 2011 Repairs

In 2011, four locations with evidence of water infiltration were grout injected. We observed that three of the four previous repairs appear to be effective in terms of preventing water infiltration; we observed active infiltration at only one repair. We do not recommend any further action with regards to the previously repaired areas that do not have active water infiltration.

One of the areas of active water infiltration, observed in this year's walkthrough, was recently repaired, as described in Section 3.3.1. The water meter room area (X=40, Y=200) was repaired under SGH observation on 26 March 2009 and was dry in 2010. In 2011, SGH again observed active water infiltration at this location, and it was repaired. Active water infiltration was observed again in 2012.

Upon completion of our inspection, we recommended that the previously repaired area that exhibited continued active water infiltration be repaired by further grout injection, as described in the OMP as part of best maintenance practice. This area was subsequently repaired (see Section 5 below for detailed description).

4.2 2012 Foundation Slab Recommendations

Consistent with the previous year's findings, the pattern and size of the small-width cracks in the concrete topping slab inside of the storage rooms (X=60, Y=140) and (X=115, Y= 35), are typical for concrete shrinkage cracks. These cracks result from the loss of moisture from the surface of the concrete during curing, are typically shallow in depth, and would not allow water to penetrate through the slab. As such, we believe that they do not represent a breach or significant damage to the barrier-layer system. The isolated growth of the cracks may be

attributed to environmental factors, such as temperature and humidity. We recommend no remedial action be taken at this time in this area.

We do not recommend repairing the location of the foundation slab where we observed water on top of excess injection grout material near (X=80, Y=80). Based on where we observed the water (on top of the excess injection grout material and not trapped behind it), it is likely that it came from sources internal to the building, such as precipitation brought in on cars, or by washing of cars. We will continue to monitor this location.

4.3 2012 Foundation Wall Recommendations

Per the OMP, only cracks where the water is actively discharging through the crack are required to be repaired, and potential breaches in the barrier-layer system should be monitored. However, upon completion of our inspection, we recommended that all of the locations listed above in Section 3.3.1 and 3.3.2 (be repaired using the grout injection technique described in the OMP; this included not only repair of areas of active water infiltration, but also locations with stain growth, sediment deposits, and efflorescence build-up indicating previous water infiltration. Please refer to Appendix C for all locations of recommended repairs. All of the recommended repairs were subsequently performed (see Section 5 below for detailed description).

5. REPAIRS

All repairs related to our recommendations were performed by Starbrite Waterproofing on 1 March 2012 under the observation of Cheryl M. Saldanha of SGH. All areas slotted for repairs were grout injected following the OMP guidelines, and the work was completed on 1 March 2012. We observed the following repairs:

- Repair 1 (X=210, Y=20): We observed grout injection repairs at a vertical control joint in the foundation wall that had been previously grouted. The contractor injected grout into five injection ports. The grout was injected until it came out of the control joint for a height of about 5 ft above the slab (Photo 25).

- Repair 2 (X=200, Y=20): We observed grout injection repairs at a vertical crack in the wall that had been previously grouted. The contractor injected grout into eight injection ports until the grout came out of the crack for a height of about 5 ft above the slab (Photo 26).

- Repair 3 (X=170, Y=20): We observed grout injection repairs at a vertical control joint in the foundation wall that had not been previously grouted. The contractor injected grout into five injection ports until grout came out of the control joint for a height of about 3 ft above the slab (Photo 27).

- Repair 4 (X=150, Y=20): We observed grout injection repairs at a vertical crack in the wall that had been previously grouted. The contractor injected grout into six injection ports until it came out of the crack to a height of about 3 ft above the slab (Photo 28).

- Repair 5 (X=130, Y=20): We observed grout injection repairs at a location where significant efflorescence build-up occurred at a crack in the wall. The contractor injected grout into four injection ports until it came out of the crack to a height of about 3 ft above the slab (Photo 29).

- Repair 6 (X=70, Y=120): We observed grout injection repairs at a location where significant efflorescence build-up occurred behind the traffic coating at a crack in the wall. The contractor injected grout into two injection ports until the grout came out of the crack about 2 ft above the floor slab (Photo 30).

- Repair 7 (X=50, Y=170): We observed grout injection repairs at a location where relatively significant stain growth and significant amounts of sediment was deposited on the wall and staircase near the step in the slab. The contractor injected grout into four injection ports. The grout was injected until it came out of cracks in the wall above and below the staircase (Photos 31 and 32).

- Repair 8 (X=40, Y=200): We observed grout injection repairs at a location where active water infiltration was observed during our initial 2012 inspection. The contractor injected grout into three injection ports. The grout was injected until it came out of cracks and adjacent ports, all within a height of 6 inches above the slab (Photo 33).

- Repair 9 (X=200, Y=190): We observed grout injection repairs at a location where relatively significant stain growth took place between our 2011 and 2012 inspections. The contractor injected grout into three injection ports at three individual cracks. The grout was injected until it came out of the cracks (Photo 34).

The locations of all repairs are shown in plan (by number) in Appendix C.

6. SUMMARY

We did not look for or measure vapor infiltration during our inspection; however, because the below-grade level of the building is reportedly below the groundwater table, evidence of water infiltration can be used to estimate the likelihood of vapor infiltration, especially during periods after significant accumulation of precipitation. We identified the following conditions that we recommended be repaired or remediated during our visual inspection on 7 February 2012:

- Active water infiltration in one location of previous (2011) repairs, shown on plan in Appendix C and described in Section 3.3.1.

- Two locations of stain growth, as shown on plan in Appendix C and described in Section 3.3.2.

- Six locations with deposits of efflorescence build-up, as shown on plan in Appendix C and described in Section 3.3.2.

We recommended that these nine areas be repaired in accordance with the grout injection technique described in the OMP. These nine areas were then repaired (per Section 3.0 of the OMP) under our observation on 1 March 2012.

We do not recommend that the small-width cracks we observed in the concrete topping slab of the storage rooms be repaired at this time. These cracks were generally narrow in width, likely a result of shrinkage, and did not appear to be structurally significant; therefore, we did not attempt to determine the cause, and believe that remediation is not needed at this time.

At the time of our final visual inspection immediately following the repairs, there were no areas of active water infiltration in the below-grade level of the building, and the barrier-layer system is effectively functioning to inhibit water infiltration. To confirm continual effectiveness of the barrier-layer system, as described above, preventative maintenance should be performed on an ongoing basis in accordance with Section 3.0 of the OMP.

Sincerely yours,

Kirk M. Stauffer
Staff II – Structures

Milan Vatovec
Senior Principal
NY License No. 083106

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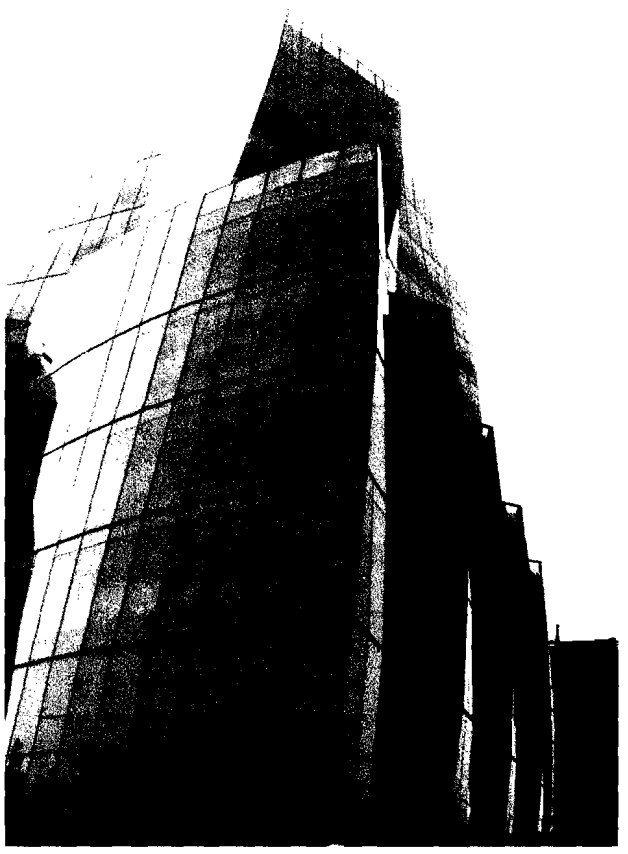


Photo 1

Overview of exterior of IAC building.

Photo 2

2012 photo of water on top of grout residue near X=80, Y=80.

Photo 3

2012 photo of water on top of grout residue near X=80, Y=80.

Photo 4

2012 photo of water infiltration in northwest corner near X=40, Y=200.

Photo 5

2012 detail photo of water infiltration in northwest corner near X=40, Y=200.

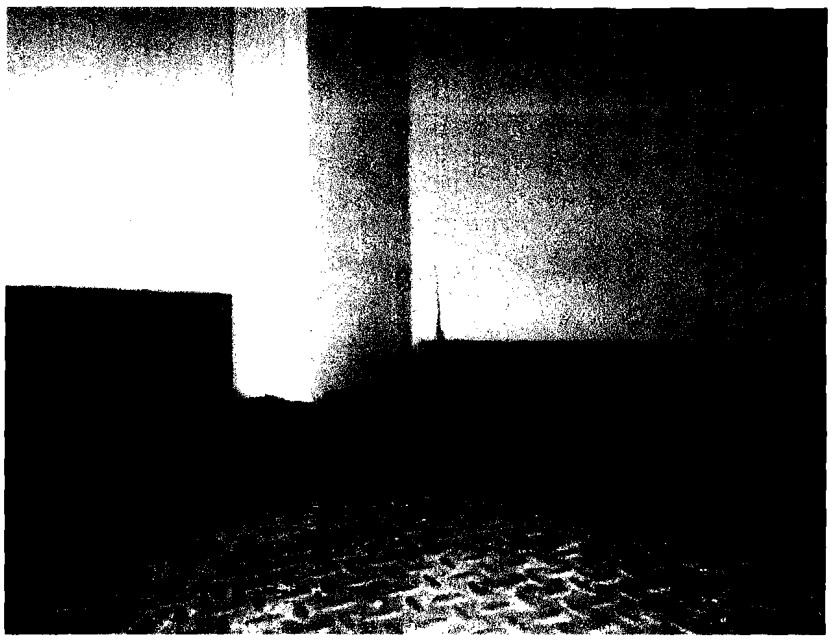


Photo 6

2012 photo of staining on surface of paint at stairwell near X=50, Y=170.

Photo 7

2012 photo of staining on surface of paint below stairwell near X=50, Y=170.

Photo 8

2012 photo of efflorescence buildup on surface of excess grout behind traffic coating near X=70, Y=120.

Photo 9

2012 photo of efflorescence buildup on surface of excess grout behind traffic coating near X=70, Y=120.

Photo 10

2012 photo of efflorescence build up on surface of traffic coating at control joint near X=210, Y=20.

Photo 11

2012 photo of efflorescence build up on surface of traffic coating at control joint near X=210, Y=20.

Photo 12

2012 photo of efflorescence build up on surface of traffic coating near X=200, Y=20.

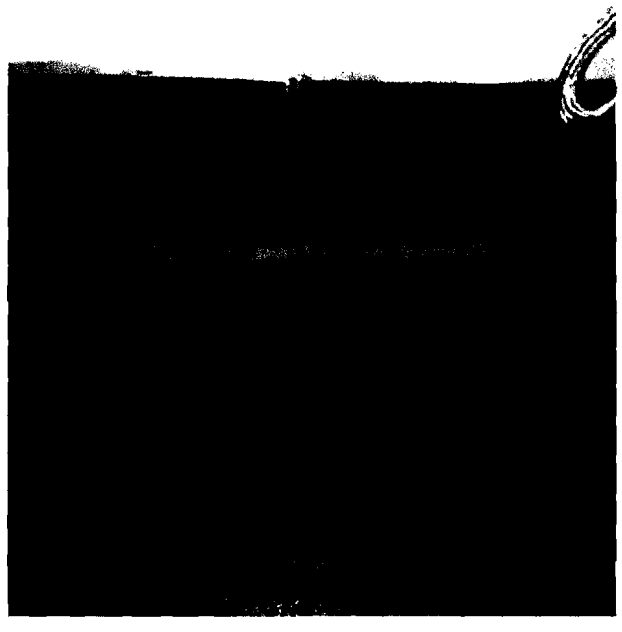


Photo 13

2012 photo of efflorescence build up on surface of traffic coating at control joint near X=170, Y=20.

Photo 14

2012 photo of efflorescence build up on surface of traffic coating near X=150, Y=20.

Photo 15

2012 photo of efflorescence build up on surface of traffic coating near X=150, Y=20.

Photo 16

2012 photo of efflorescence buildup behind traffic coating on surface of excess grout near X=130, Y=20.

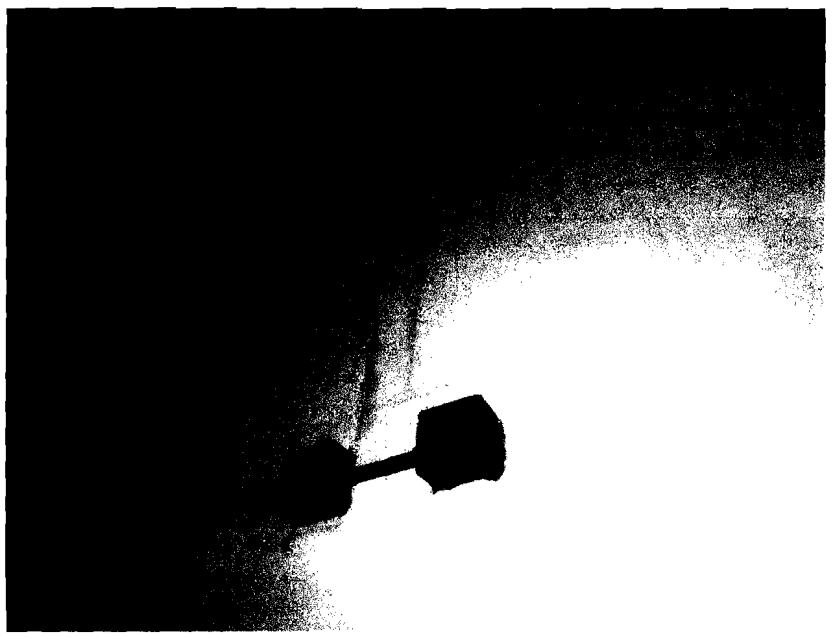


Photo 17

2012 photo of staining on east wall of oil tank room X=200, Y=190.

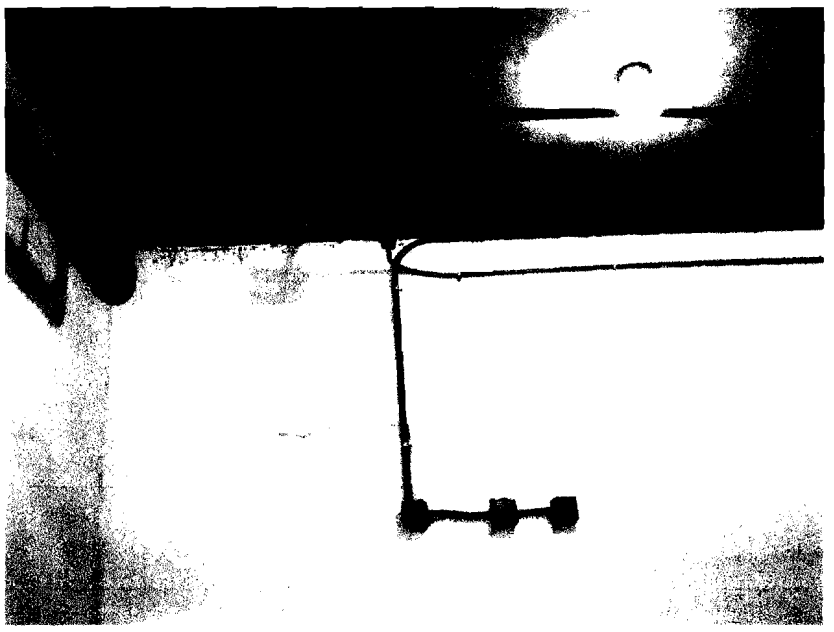


Photo 18

2011 photo of staining on east wall of oil tank room X=200, Y=190.

Photo 19

2012 photo of previous grout injection near X=240, Y=20.

Photo 20

2011 photo of grout injection near X=240, Y=20.

Photo 21

2012 photo of previous grout injection near X=210, Y=90.

Photo 22

2011 photo of grout injection near X=210, Y=90.

Photo 23

2012 photo of grout injection near X=210, Y=100.

Photo 24

2011 photo of grout injection near X=210, Y=100.

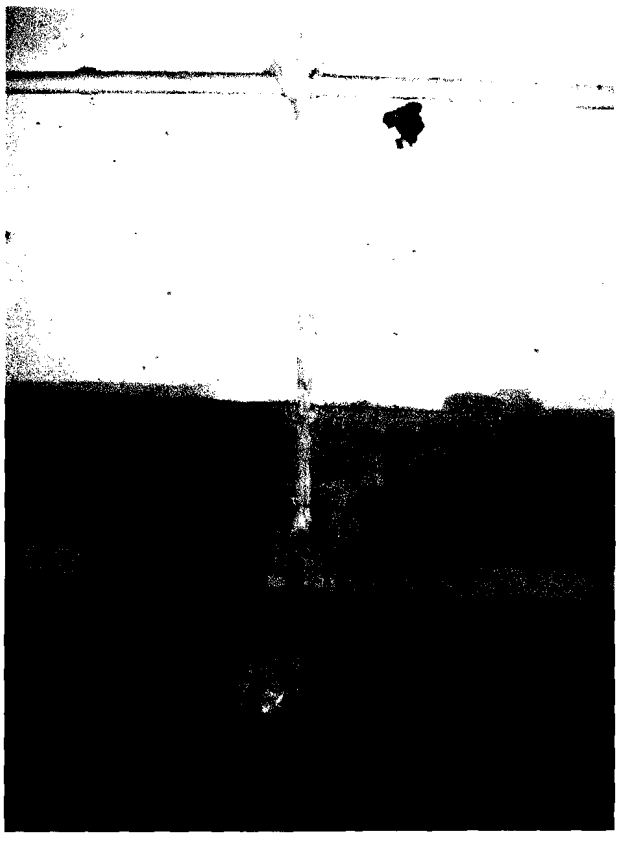


Photo 25

2012 Repair #1 near
(X=210, Y=20)

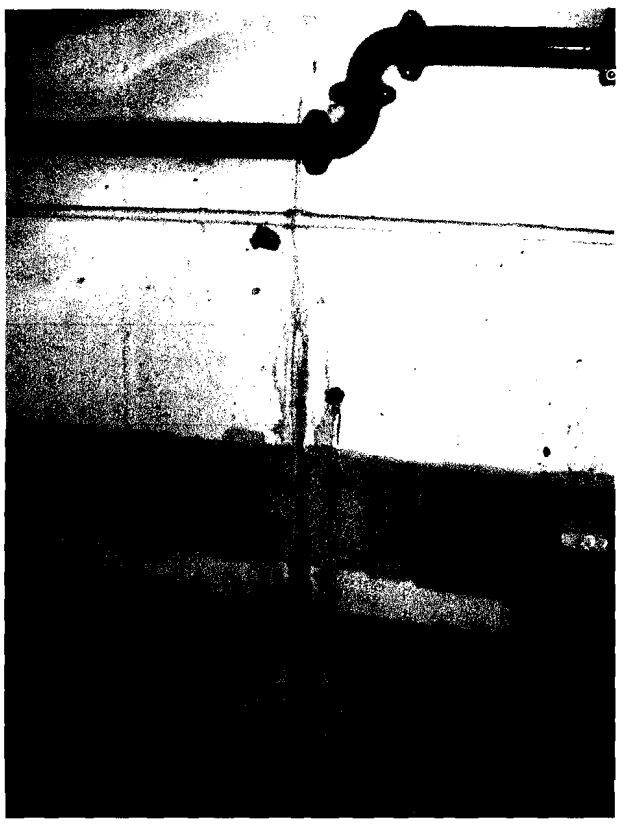


Photo 26

2012 Repair #2 near
(X=200, Y=20)

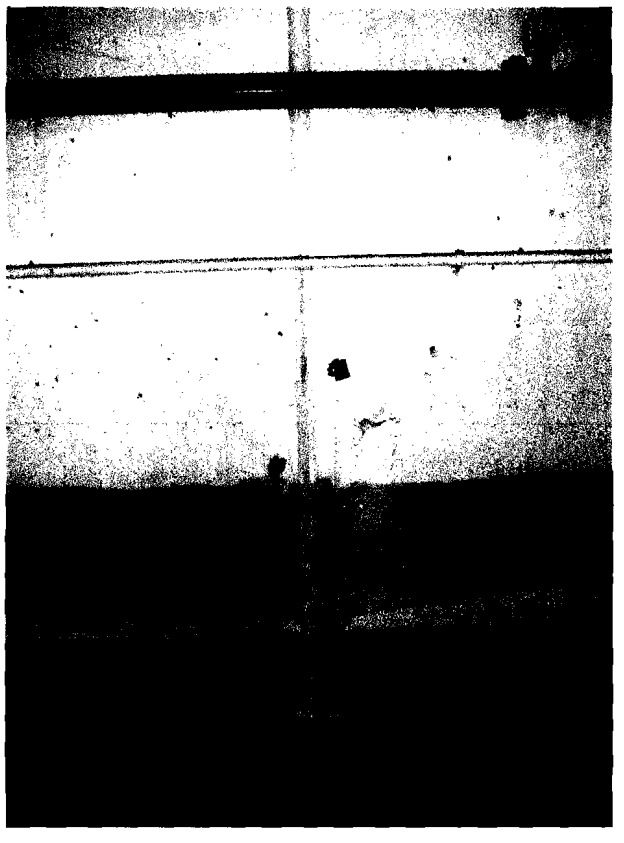


Photo 27

2012 Repair #3 near
(X=170, Y=20)

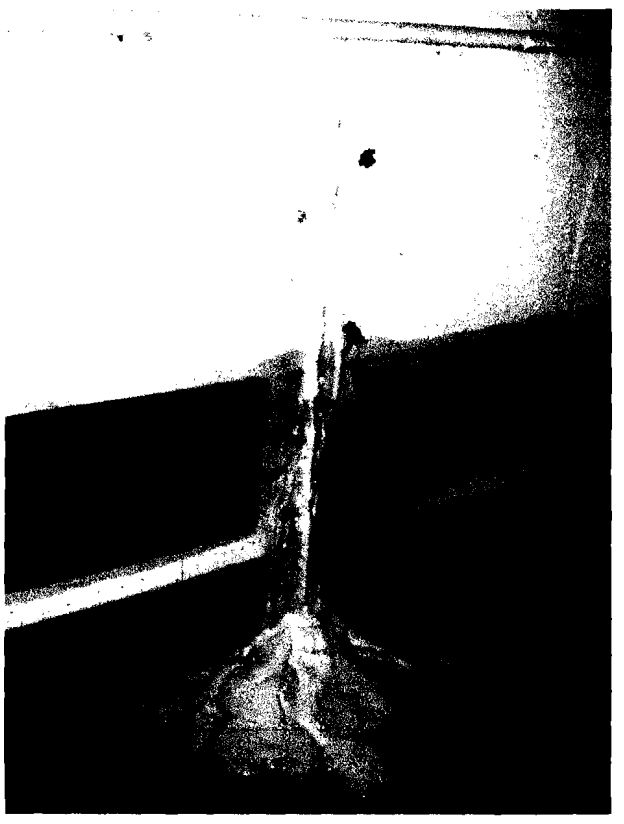


Photo 28

2012 Repair #4 near
(X=150, Y=20)

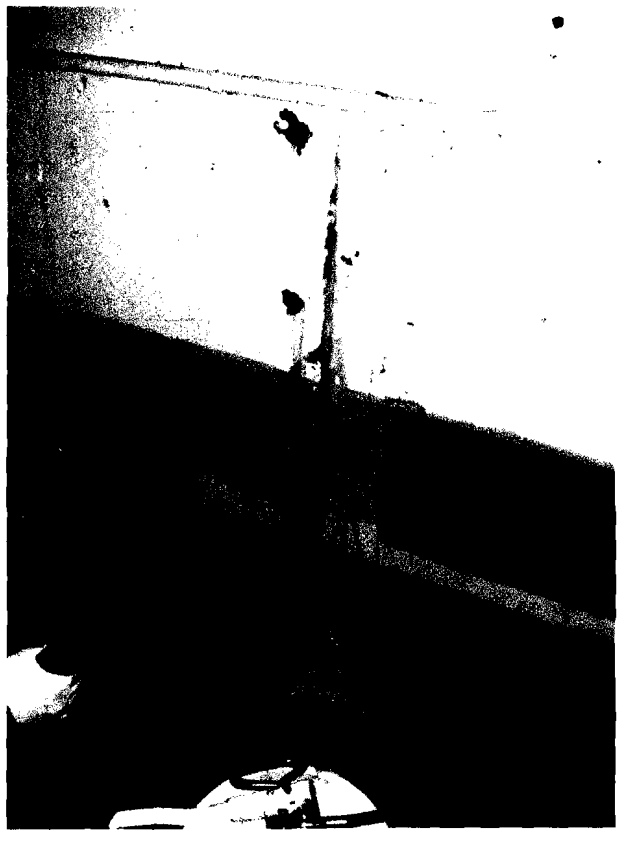


Photo 29

2012 Repair #5 near
(X=130, Y=20)

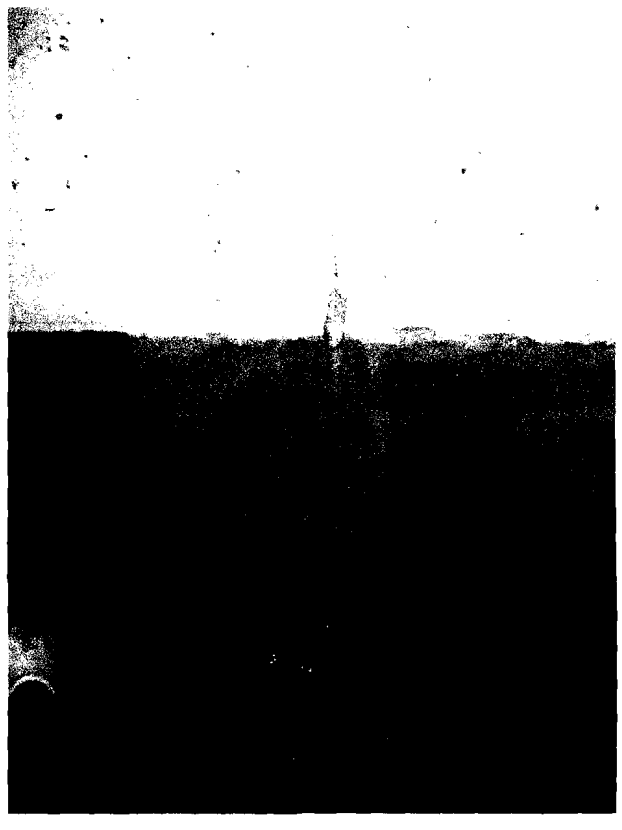


Photo 30

2012 Repair #6 near
(X=70, Y=120)

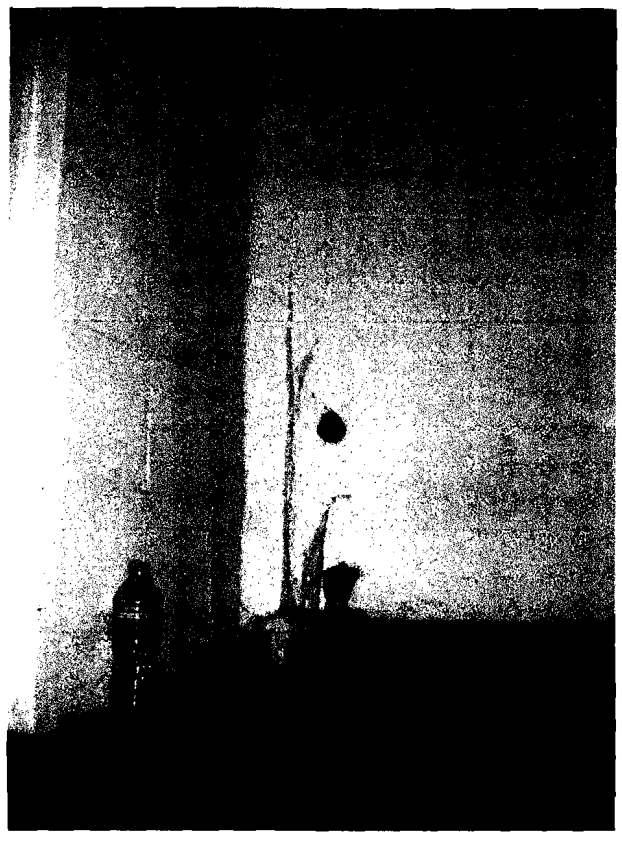


Photo 31

2012 Repair #7 near
(X=50, Y=170)

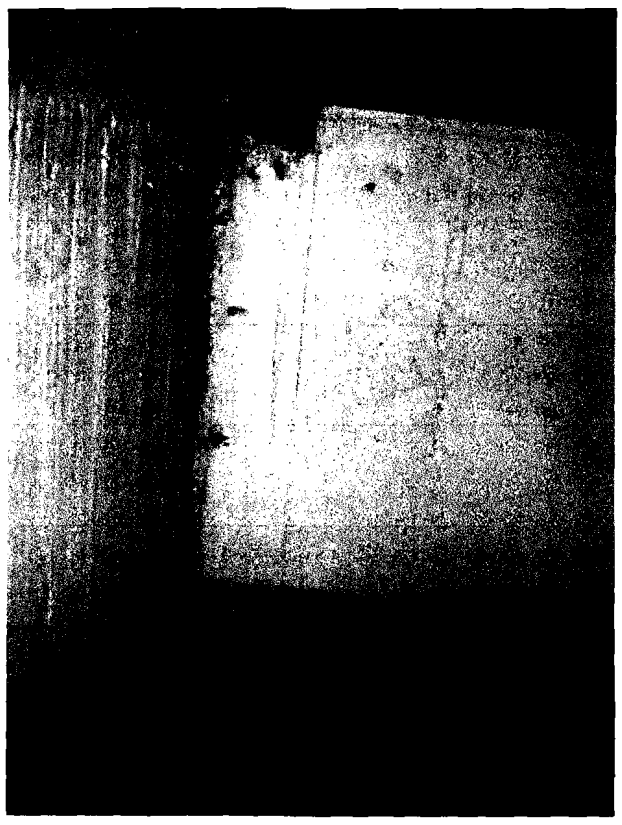


Photo 32

2012 Repair #7 near
(X=50, Y=170)

Photo 33

2012 Repair #8 near
(X=40, Y=200)

Photo 34

2012 Repair #9 near
(X=200, Y=190)

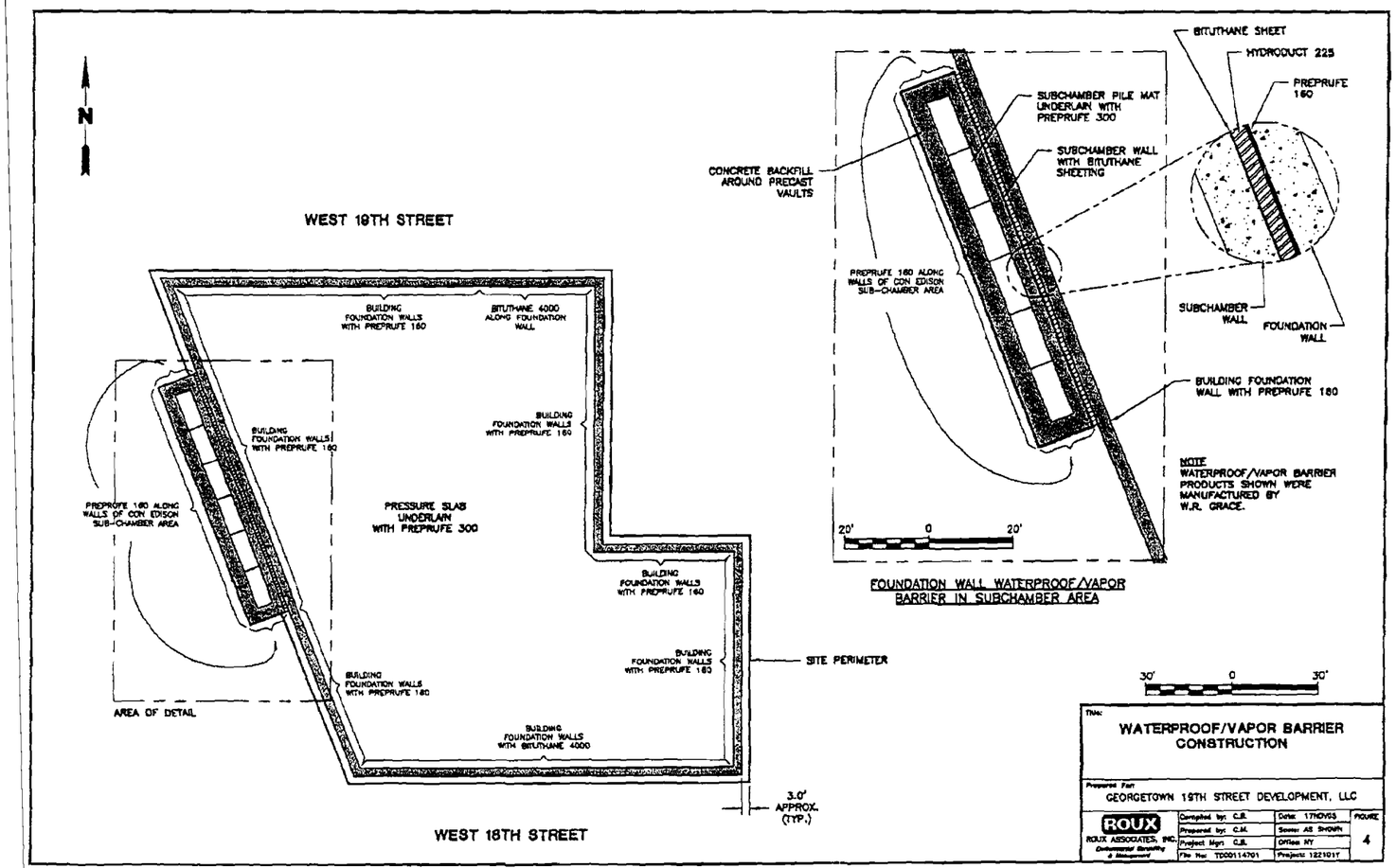
West 19th Street Development Site
Borough of Manhattan, Block 690, Lots 12 and 54
Brownfield Cleanup Agreement Index No. W2-1012-04-07
Site No. C231017

July 2006

Site Management Plan

Attachment C

Figure 4, Waterproof / Vapor Barrier Construction, reprinted from Roux Final Engineering Report, July 2006


N
WEST 19TH STREET
BUILDING FOUNDATION WALLS WITH PREPRUFE 160
BITUTHANE 4000 ALONG FOUNDATION WALL
BUILDING FOUNDATION WALLS WITH PREPRUFE 160
PREPRUFE 160 ALONG WALLS OF CON EDISON SUB-CHAMBER AREA
PRESSURE SLAB UNDERLAIN WITH PREPRUFE 300
BUILDING FOUNDATION WALLS WITH PREPRUFE 160
BUILDING FOUNDATION WALLS WITH PREPRUFE 160
BUILDING FOUNDATION WALLS WITH PREPRUFE 160
SITE PERIMETER
AREA OF DETAIL
BUILDING FOUNDATION WALLS WITH BITUTHANE 4000
3.0' APPROX. (TYP.)
WEST 18TH STREET
BITUTHANE SHEET
HYDRODUCT 225
PREPRUFE 160
SUBCHAMBER PILE MAT UNDERLAIN WITH PREPRUFE 300
SUBCHAMBER WALL WITH BITUTHANE SHEETING
CONCRETE BACKFILL AROUND PRECAST VAULTS
PREPRUFE 160 ALONG WALLS OF CON EDISON SUB-CHAMBER AREA
SUBCHAMBER WALL
FOUNDATION WALL
BUILDING FOUNDATION WALL WITH PREPRUFE 160
NOTE
WATERPROOF/VAPOR BARRIER PRODUCTS SHOWN WERE MANUFACTURED BY W.R. GRACE.
20' 0 20'
FOUNDATION WALL WATERPROOF/VAPOR BARRIER IN SUBCHAMBER AREA
30' 0 30'
TITLE:
WATERPROOF/VAPOR BARRIER CONSTRUCTION
Prepared For:
GEORGETOWN 19TH STREET DEVELOPMENT, LLC
ROUX
ROUX ASSOCIATES, INC.
Compiled by: C.B.
Date: 17NOV05
Prepared by: C.M.
Scale: AS SHOWN
Project Mgr: C.B.
Office: NY
File No: TD000114701
Project: 1221017
FIGURE
4

industrial use only (not residential), restricts the use of groundwater at the site, grants NYS DEC/NYS DOH uncontrolled access to the site to inspect the engineering controls, requires that any breach of the barrier layer occur with NYS DEC notification and/or approval and in accordance with the Soil Management Plan. (Attachment G of the Site Management Plan), and requires annual certification of engineering controls.

On an annual basis, the Certification provided to the NYSDEC will state whether any modifications to the Environmental Easement have been filed with City of New York Register's Office for the Borough of Manhattan, Land Division.

3.2 Engineering Controls

Barrier Layer Monitoring

The interior face of the perimeter foundation walls and the foundation slab shall be inspected once a year or in the event of a severe weather event (e.g., flooding) or other event that might compromise the foundation integrity.

The inspection shall investigate the entire surface of each element for conditions that could lead to vapor infiltration or indicate actual infiltration at the time of inspection, as described below. The inspection shall be performed by a qualified structural engineer(s) familiar with the barrier layer system. The initial stage will be a visual inspection to determine the presence and density of cracks and/or any evidence of water infiltration.

The aperture of individual cracks and/or degree of crack density in a particular area of the basement floor slab or wall requiring additional investigation and/or repair will be determined by the qualified structural engineer(s).

If a crack is observed and the aperture and/or density of more numerous yet smaller aperture cracks are determined to require immediate repair by the qualified structural engineer(s), the crack shall be repaired per the guidance provided in Section 4 of the Operations and Maintenance Plan (OMP). If the qualified structural engineer(s) determines that the crack(s) does not require immediate repair, the crack(s) will be monitored both with a photoionization detector (PID) and with telltales, as described below, prior to their repair in accordance with the guidance provided in Section 4 of the OMP.

Should it be determined that the crack(s) does not require immediate repair, two (2) monitoring activities will be undertaken:

- PID and/or other monitoring equipment recommended by a qualified professional will be used to detect if any vapors associated with the

contamination surrounding the site is entering the building. The monitoring will be performed using methods provided by a qualified professional and using appropriately qualified technicians to avoid interference of ambient air from the basement parking garage operations. Readings will be recorded and attached to the inspection report. The reporting protocol will include a contingency plan for actions to be taken should the readings be interpreted by the qualified professional as indicating a breach of the barrier layer. The contingency plan will incorporate any community notification(s), as necessary.

- Monitoring telltales shall be installed in said observed cracks. Attachment C is an article from the National Park Service's Technical Preservation Services for Historic Buildings on Monitoring programs. It includes descriptions and a photo of a typical telltale. These telltales shall be checked for a period of time, as determined by the qualified structural engineer(s), to investigate if the crack is continuing to widen. If the crack is stable, the monitoring shall stop. If the crack continues to widen, then a more thorough investigation as to the cause of the movement shall be performed by the qualified structural engineer(s), and appropriate corrective action will be taken.

The visual inspection shall also note any evidence of water infiltration; which could indicate that the vapor membrane adhered to the exterior side of the wall may have been breached. If it is determined by the qualified structural engineer(s) that water is discharging through the crack(s) or in the area of the crack(s), then: (1) the source of the water infiltration will be determined and addressed, and (2) the most practicable means of repair to the vapor membrane and/or other barrier layer system components should be determined and implemented per the guidance provided in Section 4 of the OMP. In the event such condition is observed, alternate potential sources of water infiltration must also be considered in order to avoid unnecessary and impracticable response actions.

The barrier layer inspection will be documented in a report prepared for NYSDEC. The report will document the conditions of the observed crack(s) and the presence of moisture, the procedures that were followed for the monitoring of the crack(s), the actions taken to address sources of any observed water infiltration, and any repair of the vapor membrane and cracks. The report will also include any additional information as to the cause of the crack(s) and/or vapor membrane breach and how further such breaches will be avoided in the future.

If the aforementioned monitoring procedure is noted to have changed in any way during the annual inspection, an addendum will be issued to the Monitoring Plan,

which will provide an updated protocol for the annual inspection and Certification and will detail any material changes from the previous protocol. Any such procedural changes will be noted in the annual Certification that is provided to NYS DEC and the Addendum to the Monitoring Plan will be included as an attachment to the Certification.

Ventilation System Monitoring

The fans that exhaust the utility rooms and those that supply fresh air to the garage shall be inspected once a year. This inspection shall be performed by qualified HVAC professionals and/or mechanical engineers. The objective of the inspection will be to verify that the fans are in good operating condition and that the volume of air being either exhausted or supplied by the fans is in compliance with the design volumes and air changes specified.

- If the testing uncovers that the volumes are not as specified, then corrections would be performed in accordance with the guidance provided in Section 4 of the OMP:

If the aforementioned monitoring procedure is noted to have changed in any way during the annual inspection, an addendum will be issued to the Monitoring Plan, which will provide an updated protocol for the annual inspection and Certification and will detail any material changes from the previous protocol. Any such procedural changes will be noted in the annual Certification that is provided to NYS DEC and the Addendum to the Monitoring Plan will be included as an attachment to the Certification.

3.3 Future Modifications

Any actions that have the potential to involve disturbance of the barrier layer and/or soil beneath the barrier layer would require NYSDEC notification and approval and would be performed in accordance with the Soil Management Plan (SoMP), which is attached to the SMP.

4.0 Site Monitoring Report

The inspections outlined above shall be performed under the direction of a professional either licensed or certified in the State of New York. The Barrier Layer and Ventilation System inspections shall be incorporated into a report that documents the inspections. These reports shall be submitted to the NYSDEC for review. Additionally, on an annual basis, these reports will be accompanied by a certification that the respective system is functioning as originally designed.

West 19th Street Development Site
Borough of Manhattan, Block 690, Lots 12 and 54
Brownfield Cleanup Agreement Index No. W2-1012-04-07
Site No. C231017

July 2006

Monitoring Plan

Attachment A

Engineering Control Checklist-Cracking

Engineering Control Checklist-Cracking

Data Date: ______________

Crack Identification	Location	Size		Structural Investigation		Vapor Investigation		Notes
		Width	Length	Movement Monitored	Repair Performed	Moisture Infiltration	PID Readings	

The active venting system will be constructed as a part of the future commercial office building.

2.0 Site Description

The approximately 0.7-acre site is located on Block 690, Lots 12 and 54, between West 18th and West 19th Streets and Tenth and Eleventh Avenues in the Borough of Manhattan, New York City. The development site is one parcel of numerous parcels that comprised the former West 18th Street Gas Works Site, which is currently under a Voluntary Cleanup Agreement (VCA) between the NYSDEC and Con Edison, effective August 25, 2002. Remediation of this site was conducted pursuant to a Brownfield Cleanup Agreement with the NYSDEC, effective July 14, 2004 (Index No. W2-1012-04-07, Site No. C231017, the "BCA").

This BCA was entered into via an application for transition into the Brownfields Cleanup Program from the Voluntary Cleanup Program under which one of the volunteers, Georgetown 19th Street Development, LLC, had entered with the NYSDEC, effective March 13, 2003 (Index No. W2-0948-03-02, Site No. V-00624-2).

For more information on site remediation, please refer to Section 3.0 of the Site Management Plan, to which the MP and this plan are attached.

3.0 Operation and Maintenance Activities

This OMP includes a description of activities necessary to operate, maintain and repair (as required) the engineering controls (barrier layer and venting system) based upon the conditions observed during implementation of the Monitoring Plan.

Barrier Layer

The barrier layer, which is comprised of a mud slab, waterproofing/vapor barrier membrane, and a structural concrete slab or foundation walls, must be maintained to ensure its continued effectiveness as a barrier to the intrusion of vapors into the building foundation. As such, any activities that would compromise the integrity of the barrier layer must be managed to effectively maintain the barrier layer over the long term.

The building management will instruct its management team to perform preventative maintenance of the barrier layer. The team should be instructed to be aware of actions observed during their daily activities, which have the

potential to compromise the integrity of the barrier layer. Examples of such activities would include, but are not limited to:

- Movement or storage of heavy objects with the potential to affect the integrity of the barrier layer.
- Installation of floor drains, elevator pits or other building features that may compromise the barrier layer.
- Spilled liquid or chemicals in direct contact with the barrier layer.
- Activities (e.g., foundation construction) at adjacent properties.

The management team shall be instructed to look for and report to the Building Manager or designee any actions or conditions that have the potential to compromise the intended remedial function of the barrier layer. The Building Manager or designee will immediately contact a dedicated qualified professional to determine if these activities have impacted the integrity of the barrier layer and if the barrier layer requires repair. Any repair activities will be performed in accordance with Section 4 of this OMP.

Ventilation System

The ventilation system is comprised of fans that exhaust the utility rooms and those that supply and exhaust air to the garage. The ventilation system shall be maintained to operate in accordance with its manufacturer's specifications. The building management will instruct their management team to be aware of the operating standards of the ventilation system and to make observations that may indicate that the system is not in compliance with its operation standards, including, but not limited to,

- persistent odors or exhaust in the cellar of the building
- fans are not operational

The management team shall be instructed to look for and report any actions or conditions that have the potential to compromise the intended function of the ventilation system to the Building Manager or designee. The Building Manager will immediately contact the dedicated qualified professional to determine if these activities have impacted the function of the ventilation system and if the ventilation system requires repair. Any repair activities will be performed in accordance with Section 4 of this OMP.

As necessary, preventative maintenance (e.g., replacing filters, cleaning lines, etc.) repairs and/or adjustments will be made to ensure the system's continued effectiveness.

4.0 Contingency Plan

Resulting from the observations of either the annual inspections identified in the MP or from the daily maintenance operations outlined in Section 3.0 above, repairs may be required of either the barrier layer or the venting systems. The NYSDEC must be notified of the requirement of such necessary repairs and/or must approve the work prior to its completion.

All personnel involved with the repairs must follow the safety guidance offered by the attached Health and Safety Plan (HASP), the rules and regulations of the NYSDEC and NYSDOH, the rules and regulations of the Federal Occupation and Safety Health Administration (OSHA) and any other governing body.

The following offices can provide further assistance as required:

Consultant	Company	Telephone	Contact
Structural Consultant	DeSimone Consulting Engineers PLLC	212-532-2211	Stephen DeSimone
Mechanical Consultant	Cosentini Associates Consulting Engineers	212-615-3600	Douglas Mass
Environmental Consultant	Environmental Liability Management of NY, LLC	212-581-8023	Peter Zimmerman
NYSDEC		518-402-9564	
NYSDOH			

Repair guidelines for the barrier system are contained in Attachment A. They have been developed by WR Grace, the supplier of the vapor barrier component. These guidelines should be strictly followed and WR Grace must be contacted to provide technical assistance during the repair. This will ensure continued warranty coverage of the WR Grace product.

Repairs to the ventilation system could be as simple as belt replacement or as complicated as electrical component repair. A qualified repair professional must be retained and utilized to diagnose the problem and provide prompt repair. Replacement parts should be kept in stock (where feasible) so that prolonged outages are kept to a minimum. If prolonged outages are anticipated such as during a power failure, a qualified professional should be retained to set up an air-monitoring program. This program will validate that the first line of defense, the barrier layer, is functioning as designed.

West 19th Street Development Site
Borough of Manhattan, Block 690, Lots 12 and 54
Brownfield Cleanup Agreement Index No. W2-1012-04-07
Site No. C231017

July 2006

Operation and Maintenance Plan

Attachment A

Barrier layer repair detail and procedure

STANDARD APPLICATION PROCEDURES FOR SEALING LEAKING CRACKS OR JOINTS WITH HYDRO ACTIVE GROUTS

de neef® Construction Chemicals Inc.
P.O. Box 1219 • Waller, TX 77484-1219 • Website: - www.deneef.com
Phone: (936) 372-9185 • Fax: (936) 372-9897 • e-mail - info@deneef.com

1. Cleaning/Sealing Crack Surface

When crack is contaminated at outside, it will be necessary to clean the crack surface, so the crack can be exactly located. If it is a wide crack or high waterflows are encountered, it will be necessary to seal the surface of the crack with a surface sealing material; (example: hydraulic cement; epoxy gel; or oakum saturated with polyurethane grout). The surface sealing can be done before or after drilling the injection holes, (depending on the particular situation).

2. Drilling the Injection Holes

There are different diameter, depths, and angles of injection holes. The standard is a 1/2" or 5/8" diameter hole, the angle of drilling is 45° to the surface; and the depth of the hole will be 1/2 the thickness of the concrete. Spacing of the injection ports depends on the width of the crack, but normally varies from 6" to 36".

NOTE: $\frac{\text{Wall Thickness}}{2}$ = Drilling distance from crack

3. Install Injection Ports or Packers

Place the packer in the drilled 1/2" or 5/8" hole so that the top of the sleeve is just below the concrete surface. Tighten by a ratchet, socket or open-end wrench by turning clockwise until firm and secure. Packers or injection ports are supplied with a one-way ball valve or check valve.

4. Prepare Injection Equipment

Two pumps, one for water and one for chemical grout is always highly suggested, must be flushed with Hydro-Active Washing Agent prior to injection. By flushing you eliminate the moisture in the pump and lubricate the system.

5. Flush Crack

It is always necessary to flush the crack with water to remove debris and drill dust out of the cracks. Flushing will tell you how the crack will behave during grout injection and the water will prime the crack for the chemical reaction to occur.

6. Injection of Hydro Active Grouts®

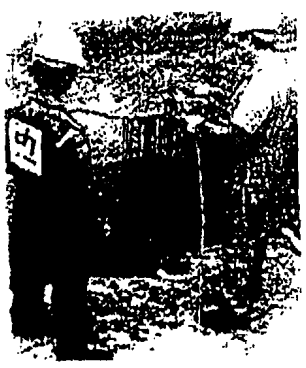
Depending on nature of the crack, different polyurethane grouts can be injected. Please review the technical data and MSDS.

- **H.A. CUT** for non-moving cracks and gushing water.
- **H.A. FLEX** or **H.A. FLEX LV** for moving cracks or expansion joints above or below grade.
- **H.A. SEALFOAM** or **SEALFOAM NF** for moving cracks in continuously moist/wet environments.

Remember, Always flush pump with Washing Agent before starting the grouting. Mix the predetermined accelerator dosage with the **HYDRO ACTIVE GROUT.®** Remember, no reaction will occur until grout with accelerator comes into contact with water.

Begin the injection at the lowest packer on a vertical crack, or at the first packer flushed for a horizontal crack. During injection, you will notice that water is displaced from the crack by the **HYDRO ACTIVE GROUT.®** Continue injecting until **HYDRO ACTIVE GROUT®** appears at the adjacent packer. Disconnect and start injection at adjacent packer. After injecting a few packers, come back to the first packer and inject all the ports for the second time. Some of the ports may take some grout, which will fill up and further densify the crack. Injection pressure will vary from 200 psi to 2,500 psi depending on the width of the crack, thickness of concrete and condition of concrete.

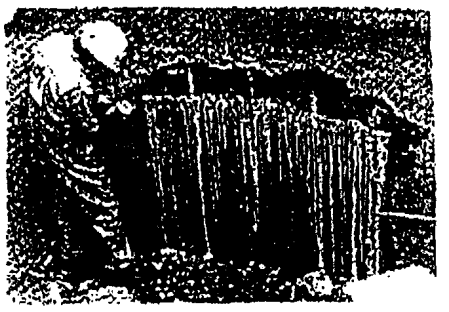
7. Re-Inject Water



When you re-inject water into the injector, you cure the resin left behind in the drill hole. After injection, the packers or injection ports can be cut flush with the concrete surface, or can be removed from the injection holes. Remember to let the **HYDRO ACTIVE GROUT®** totally cure before removing the packers.

8. Surface Removal of Resin

Surface removal can be performed with a wire brush, scrappers or hand held grinders. Material will aggressively bond to concrete surfaces.



9. Equipment Cleaning

When the injection is finished, wash off all parts that have been in contact with the Grout. This should be done within 30 minutes after the injection. The washing can be easily performed by circulating DeNeef's Washing Agent through the injection pump for 10 to 20 minutes by connecting the inlet and outlet to a tank containing the Washing Agent. After recirculating the Washing Agent through the pump it is important to run the pump dry and to fill the pump and lines one more time with the fresh Washing Agent. Washing Agent is preferable since it is not flammable under normal conditions.

Equipment Required

HYDRO ACTIVE GROUT®and Accelerator
(Review Material Safety Data Sheet for Safety and Handling precautions).
Drill and Bits
Injection Ports and tools for installation
Water Pump - Hand Pump or Electric/pneumatic
Pump Resin
Plastic pail for mixing
Rubber gloves/Goggles/Safety Equipment
Rags/Oakum for surface sealing of large leaks
Washing Agent - to clean pump
Hand Tools

NOTE:

Our recommendations for use of the product are based upon tests believed to be reliable. Since field conditions vary widely, the user must determine the suitability of the product for the particular use and specific method(s) of application.

The following is made in lieu of all warranties, express or implied, including implied warranties of merchantability and fitness for a particular purpose. Seller's and manufacturer's only obligation shall be to replace such quantity of the product proved to be defective. Neither seller nor manufacturer shall be liable for loss or damage, direct, incidental or consequential, regardless of the legal theory asserted, including negligence and/or strict liability.

de neef ®Construction Chemicals Inc.
P.O. Box 1219 Waller, TX 77484 • Ph: 936-372-9185 • Fax: 936-372-9897 • www.deneef.com

HYDRO ACTIVE® SEALFOAM

Description

Hydro Active® Sealfoam is a low viscosity polyurethane injection resin designed to control water and seal moving non-structural cracks in concrete. **Sealfoam** is a hydrophilic resin which, when coming into contact with water, expands quickly to cure into a flexible closed-cell foam. After curing, it becomes an extremely tough and adhesive foam capable of withstanding extreme thermal cycles and crack movement. Other applications include using saturated oil-free Oakum or open-cell foams for expansion joints or annulus seals.

Physical Properties

Uncured:		
Solids	85%	ASTM D2939
Viscosity	250-350 cps at 70°F	ASTM D1638
Color	Pale Yellow	
Density	8.7 lbs/gal	ASTM D1638
Flashpoint	75°F	ASTM D93
Corrosiveness	Non-corrosive	
Reaction time 1/1 with water	20 sec	
Cured:		
Tensile Strength	380 psi	ASTM D3574-86
Elongation	400%	ASTM D3574-86
Bonding Strength	250-300 psi	
Shrinkage	<10%	ASTM D1042
Toxicity	Non-Toxic	

Storage and Handling

Sealfoam is sensitive to moisture and moderately sensitive to high storage temperatures, therefore, we recommend storage at 41°F - 60°F under dry conditions. Storage temperatures should not exceed 80°F. Once a pail has been opened, the useful life of the material is greatly reduced, and should be used as quickly as possible.

Sealfoam can be pumped using a single or plural component injection pump.

Due to the high risk of moisture contamination, **Sealfoam** should be removed from all application equipment immediately after use with **De Neef Washing Agent.**

Product Safety

Hydro Active® Sealfoam contains acetone and should be used only in well ventilated areas. Care should be taken to avoid conditions which could cause ignition: e. g., cigarettes, sparks, open flame..... Avoid eye and repeated skin contact.

Availability

Hydro Active® Sealfoam: 5 gal metal pail, close head with flexspout, filled and sealed under dry nitrogen.

West 19th Street Development Site
Borough of Manhattan, Block 690, Lots 12 and 54
Brownfield Cleanup Agreement Index No. W2-1012-04-07
Site No. C231017

Monitoring Plan

Engineering Control Checklist-Cracking

Data Date: 1 MAR 2012

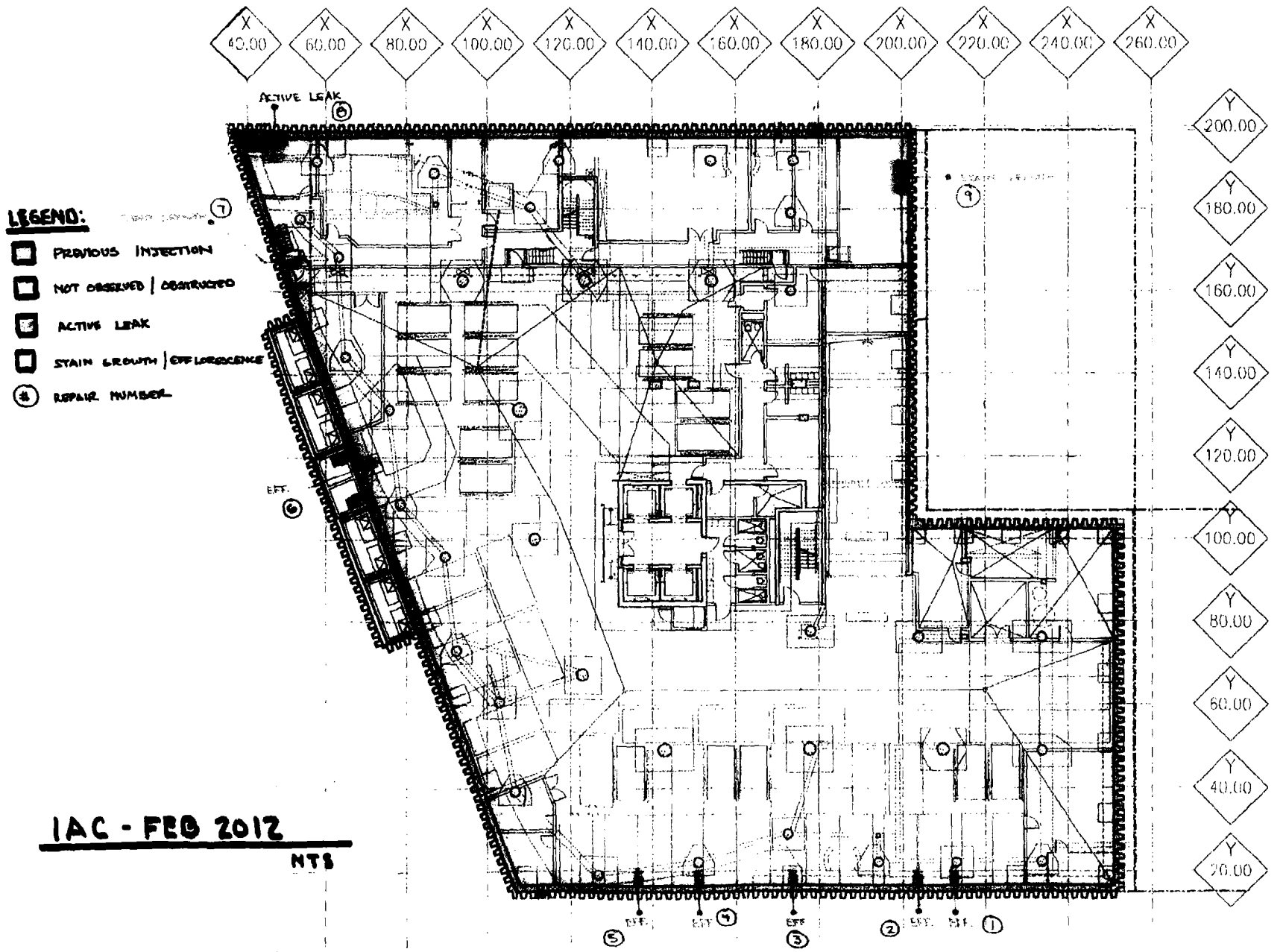
Crack Identification	Location	Size		Structural Investigation		Vapor Investigation		Notes
		Width	Length	Movement Monitored	Repair Performed	Moisture Infiltration	PID Readings	
(NO CRACKS OBSERVED)								

REPAIRS COMPLETED 1 MAR 2012.

Nick M. Thal
Cheryl Saldaña

120115.00
APPENDIX B
K.M.STAUFFER

120115.00 -IAC
APPENDIX C
5 MAR 2012
KMSTAUFFER



IAC - FEB 2012

NTS

INDEPENDENT TESTING AND BALANCING CORP.

254 North Main Street, New City, NY 10956 / Phone: (845) 634-8554 Fax: (845) 634-8541

REPORT

ON

SURVEYING

THE

WEST 19TH STREET DEVELOPMENT SITE

AT

555 WEST 19TH STREET
NEW YORK, NY
GARAGE

PREPARED FOR:

ENVIROMENTAL LIABILITY MANAGEMENT OF NEW YORK, LLC
267 BROADWAY
FIFTH FLOOR
NEW YORK, NY 10007
212.581.8023

IT&B Project 8340 Tuesday, February 21, 2012

Independent Testing and Balancing Corp.
254 North Main Street, New City, NY 10956 / (845) 634-8554 Fax: (845) 634-8541

Fan Test Sheet

Project:	West 19th Street Development Site			**Number:**	8340
System:	GSF-C-1	**Location:**	Garage	**Date:**	02/07/2012
Tech:	Anthony Famularo	**IA No:**	831927	**Certification No:**	OB 11/4/1961

Fan Make:	LOREN COOK
Fan Size:	365CPS

Motor HP:	20.00	Motor RPM:	1,745
Voltage Rated:	200	Voltage Actual:	198
Amperage Rated:	57.00	Amperage Actual:	39.10

Static Pressure:

Suction:	-0.69	IN. W.G.
Discharge:	+1.38	IN. W.G.

Fan RPM:	Reqd	960	Actual	908
System CFM:	Reqd	26,000	Actual	27,383

Independent Testing and Balancing Corp.
254 North Main Street, New City, NY 10956 / Phone: (845) 634-8554 Fax: (845) 634-8541

Duct Traverse Sheet

Project:	West 19th Street Development Site			**Number:**	8340
System:	GSF-C-1	**TP:** 1	**Location:** Garage	**Date:**	02/07/2012
Tech:	Anthony Famularo	**IA No:** 831927		**Certification No:**	OB 11/4/1961

Design Data

Duct Type	Main	**Hgt/Diam (in.)**	24.00	**Serves Outlets**	
Duct Shape	Square	**Width (in.)**	70.00	**Air Flow Temp °F**	
Insulation Type		**Area (sq. ft.)**	11.67		

Test Data

Point	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
A	2,629	2,475	2,592	1,924	2,062	2,540	1,776								
B	1,996	2,698	2,746	2,155	2,422	2,380	2,450								
C	1,200	2,926	2,899	1,821	2,642	2,601	2,342								

Design CFM	Total FPM	Num of Readings	Average FPM	Area (sq. ft.)	Total CFM
26,000.00	49,276.00	21	2,346.48	11.67	27,383.38
% of Design	**Static Pressure, in w.g.**				
105.32	0.08				

Independent Testing and Balancing Corp.
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Fan Test Sheet

Project:	West 19th Street Development Site			**Number:**	8340
System:	GEF-C-1	**Location:**	Cellar	**Date:**	02/07/2012
Tech:	Anthony Famularo	**IA No:**	831927	**Certification No:**	OB 11/4/1961

Fan Make:	LOREN COOK
Fan Size:	402 CPS

Motor HP:	20.00	Motor RPM:	1,765
Voltage Rated:	200	Voltage Actual:	208
Amperage Rated:	54.30	Amperage Actual:	39.10

Static Pressure:

Suction:	-1.98	IN. W.G.
Discharge:	+0.60	IN. W.G.

Fan RPM:	Reqd	785	Actual	800
System CFM:	Reqd	26,000	Actual	25,758

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Duct Traverse Sheet

Project:	West 19th Street Development Site			**Number:**	8340
System:	GEF-C-1	**TP:** 1	**Location:** Cellar	**Date:**	02/07/2012
Tech:	Anthony Famularo	**IA No:** 831927		**Certification No:**	OB 11/4/1961

Design Data

Duct Type	Main	**Hgt/Diam (in.)**	24.00	**Serves Outlets**	
Duct Shape	Square	**Width (in.)**	96.00	**Air Flow Temp °F**	
Insulation Type		**Area (sq. ft.)**	16.00		

Test Data

Point	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
A	1,902	2,389	2,314	2,279	1,991	2,085	1,919	437							
B	1,537	1,264	2,290	2,317	1,925	1,815	1,861	807							
C	550	1,274	1,589	1,304	1,609	782	1,871	526							

Design CFM	Total FPM	Num of Readings	Average FPM	Area (sq. ft.)	Total CFM
26,000.00	38,637.00	24	1,609.88	16.00	25,758.00
% of Design	**Static Pressure, in w.g.**				
99.07	-0.71				

Independent Testing and Balancing Corp.
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Fan Test Sheet

Project:	West 19th Street Development Site			**Number:**	8340
System:	GEF-C-2	**Location:**	Cellar	**Date:**	02/07/2012
Tech:	Anthony Famularo	**IA No:**	831927	**Certification No:**	OB 11/4/1961

Fan Make:	LOREN COOK
Fan Size:	150 SONH

Motor HP:	0.50	Motor RPM:	1,725
Voltage Rated:	200	Voltage Actual:	217
Amperage Rated:	1.80	Amperage Actual:	2.00

Static Pressure:

Suction:	-0.20	IN. W.G.
Discharge:	+0.30	IN. W.G.

Fan RPM:	Reqd	1407	Actual	
System CFM:	Reqd	800	Actual	814

Independent Testing and Balancing Corp.
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Duct Traverse Sheet

Project:	West 19th Street Development Site			**Number:**	8340
System:	GEF-C-2	**TP:** 1	**Location:** Cellar	**Date:**	02/07/2012
Tech:	Anthony Famularo	**IA No:** 831927		**Certification No:**	OB 11/4/1961

Design Data

Duct Type	Main	**Hgt/Diam (in.)**	8.00	**Serves Outlets**	
Duct Shape	Square	**Width (in.)**	20.00	**Air Flow Temp °F**	
Insulation Type		**Area (sq. ft.)**	1.11		

Test Data

Point	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
A	887	1,129	330												
B	903	1,153	0												

Design CFM	Total FPM	Num of Readings	Average FPM	Area (sq. ft.)	Total CFM
800.00	4,402.00	6	733.67	1.11	814.37
% of Design	**Static Pressure, in w.g.**				
101.80	-0.24				

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Fan Test Sheet

Project:	West 19th Street Development Site			**Number:**	8340
System:	GEF-C-4	**Location:**	Cellar	**Date:**	02/07/2012
Tech:	Anthony Famularo	**IA No:**	831927	**Certification No:**	OB 11/4/1961

Fan Make:	LOREN COOK
Fan Size:	135 SONH

Motor HP:	0.50	Motor RPM:	1,725
Voltage Rated:	200	Voltage Actual:	218
Amperage Rated:	2.50	Amperage Actual:	2.60

Static Pressure:

Suction:	-0.75	IN. W.G.
Discharge:	+0.13	IN. W.G.

Fan RPM:	Reqd	1492	Actual	
System CFM:	Reqd	1,000	Actual	1,021

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Duct Traverse Sheet

Project:	West 19th Street Development Site			**Number:**	8340
System:	GEF-C-4	**TP:** 1	**Location:** Cellar	**Date:**	02/07/2012
Tech:	Anthony Famularo	**IA No:** 831927		**Certification No:**	OB 11/4/1961

Design Data

Duct Type	Main	**Hgt/Diam (in.)**	20.00	**Serves Outlets**	
Duct Shape	Square	**Width (in.)**	10.00	**Air Flow Temp °F**	
Insulation Type		**Area (sq. ft.)**	1.39		

Test Data

Point	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
A	673	732	814												
B	707	723	760												

Design CFM	Total FPM	Num of Readings	Average FPM	Area (sq. ft.)	Total CFM
1,000.00	4,409.00	6	734.83	1.39	1,021.42
% of Design	**Static Pressure, in w.g.**				
102.14	-0.75				

Independent Testing and Balancing Corp.
254 North Main Street, New City, NY 10956 / (845) 634-8554 Fax: (845) 634-8541

Fan Test Sheet

Project:	West 19th Street Development Site			**Number:**	8340
System:	GEF-C-5	**Location:**	Cellar	**Date:**	02/07/2012
Tech:	Anthony Famularo	**IA No:**	831927	**Certification No:**	OB 11/4/1961

Fan Make:	LOREN COOK		
Fan Size:	100 SON		
Motor HP:	0.50	Motor RPM:	1,725
Voltage Rated:	200	Voltage Actual:	217
Amperage Rated:	2.50	Amperage Actual:	2.70

Static Pressure:

Suction:	-0.47	IN. W.G.	Fan RPM:	Reqd	2186	Actual
Discharge:	+0.16	IN. W.G.	System CFM:	Reqd	800	Actual 1,030

Independent Testing and Balancing Corp.
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Duct Traverse Sheet

Project:	West 19th Street Development Site			**Number:**	8340
System:	GEF-C-5	**TP:** 1	**Location:** Cellar	**Date:**	02/07/2012
Tech:	Anthony Famularo	**IA No:** 831927		**Certification No:**	OB 11/4/1961

Design Data

Duct Type	Main	**Hgt/Diam (in.)**	8.00	**Serves Outlets**	
Duct Shape	Square	**Width (in.)**	20.00	**Air Flow Temp °F**	
Insulation Type		**Area (sq. ft.)**	1.11		

Test Data

Point	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
A	1,016	927	954												
B	936	877	858												

Design CFM	Total FPM	Num of Readings	Average FPM	Area (sq. ft.)	Total CFM
800.00	5,568.00	6	928.00	1.11	1,030.08
% of Design	**Static Pressure, in w.g.**				
128.76	-0.33				

Independent Testing and Balancing Corp.
254 North Main Street, New City, NY 10956 / (845) 634-8554 Fax: (845) 634-8541

Report Summary Sheet

Date: 02/07/2012

Project: West 19th Street Development Site

Project Number: 8340

Location: 555 WEST 19TH STREET
NEW YORK, NY
GARAGE

Customer Job Number:

Attn: Keith Brodock

System	Design CFM	Final CFM	Total CFM	Remarks
GSF-C-1	26,000		27,383	
GEF-C-1	26,000		25,758	
GEF-C-2	800		814	
GEF-C-4	1,000		1,021	
GEF-C-5	800		1,030	