

J.R. Holzmacher P.E., LLC

3555 Veterans Memorial Highway, Suite A, Ronkonkoma, New York 11779-7636
Tel: (631) 234-2220 Fax: (631) 234-2221 e-mail: info@holzmacher.com

September 13, 2016

New York City Office of Environmental Remediation
City Voluntary Cleanup Program
c/o Shaminder Chawla
100 Gold Street, 2nd Floor
New York, NY 10038

Re: VCP: 16CVCP086M
E-Designation: 16EHAZ244M
Address: 284 West 127th Street
Remedial Action Work Plan (RAWP) Stipulation List

Dear Mr. Chawla:

J.R. Holzmacher P.E. LLC hereby submits a Remedial Action Plan (RAWP) Stipulation List for the Site to the New York City Office of Environmental Remediation (OER) on behalf of Bahary Architecture, P.C. This letter serves as an addendum to the RAWP to stipulate additional content, requirements, and procedures that will be followed during the site remediation. The contents of this list are added to the RAWP and will supersede the content in the RAWP where there is a conflict in purpose or intent. The additional requirements/procedures include the following Stipulation List below:

1. The criterion attached in **Appendix 1** will be utilized if additional petroleum containing tank or vessel is identified during the remedial action or subsequent redevelopment excavation activities. All petroleum spills will be reported to the NYSDEC hotline as required by applicable laws and regulations. This contingency plan is designed for heating oil tanks and other small or moderately sized storage vessels. If larger tanks, such as gasoline storage tanks are identified, OER will be notified before this criterion is utilized.
2. A pre-construction meeting is required prior to start of remedial excavation work at the site. A pre-construction meeting will be held at the site and will be attended by OER, the developer or developer representative, the consultant, excavation/general contractor, and if applicable, the soil broker.
3. A Historic Fill Transfer and Disposal Notification Form to each disposal facility and a pre-approval letter from all disposal facilities will be provided to OER prior to any soil/fill material removal from the site. The Historic Fill Transfer and Disposal Notification Form template is attached in **Appendix 2**. Documentation specified in the RAWP - Appendix 3 - Section 1.6 "Materials Disposal Off-Site" will be provided to

OER. If a different disposal facility for the soil/fill material is selected, OER will be notified immediately.

4. Signage for the project will include a sturdy placard mounted in a publically accessible right of way to building and other permits signage will consist of the NYC VCP Information Sheet (attached **Appendix 3**) announcing the remedial action. The Information sheet will be laminated and permanently affixed to the placard.
5. If the site contains hazardous waste that will be excavated and disposed of offsite, OER will work with the development team to seek an exemption for the property from the state Hazardous Waste Program Fee (\$130/ton) and Special Assessment on Hazardous Waste (up to \$27/ton). To qualify for an exemption, the site must be enrolled in the city Voluntary Cleanup Program; hazardous waste must result from remedial action set forth in a cleanup plan approved by OER; and OER must oversee the cleanup. It is the applicant's responsibility to notify the OER Project Manager, copying the supervising Project Manager and OER Deputy Director Shaminder Chawla, before hazardous waste is shipped from the site. Unless the Department of Environmental Conservation is notified before waste is shipped from the site, the project may not receive an exemption from the fee. This exemption does not cover, and the project remains responsible for, a Hazardous Waste Annual Report to be filed with DEC and Quarterly Returns for Special Assessments on Hazardous Waste to be filed with the state Department of Taxation and Finance. **Appendix 4** includes additional information about the exemption from the Hazardous Waste Program Fee and the Special Assessment on Hazardous Waste.
6. Collection and analysis of two (2) end-point samples from the bottom of the excavation and one (1) hotspot sample to evaluate the performance of the remedy with respect to attainment of Track 1 SCOs. A map indicating end-point sampling locations is attached in **Appendix 5**. Samples will be analyzed for contaminants of concern VOCs, SVOCs, Metals, PCBs, and Pesticides.
7. OER requires parties seeking City Brownfield Incentive Grants to carry insurance. For a cleanup grant, both the excavator and the trucking firm(s) that handle removal of soil must carry or be covered under a commercial general liability (CGL) policy that provides \$1 million per claim in coverage. OER recommends that excavators and truckers also carry contractors pollution liability (CPL) coverage, also providing \$1 million per claim in coverage. The CGL policy, and the CPL policy if obtained, must name the City of New York, the NYC Economic Development Corporation, and Brownfield Redevelopment Solutions as additional insured. For an investigation grant, an environmental consultant must be a qualified vendor in the BIG program and carry \$1 million of professional liability (PL) coverage. A fact sheet regarding insurance is attached as **Appendix 6**.
8. Monthly reports are required on the project's status and schedule to the OER project manager after RAWP/RAP is approved/NTP issued until Remedial Action Report/Remedial Closure Report is received. This is your (Environmental Consultant's) responsibility to provide this report. If you (environmental consultant) are no longer

retained for continuation of project, you are required to notify OER about this. After excavation work is completed, monthly reports are still required and will be provided by the consultant or owner/developer for the duration of the construction period. Monthly report template is attached in **Appendix 8**.

9. Daily reports will be provided during active excavation work. If no work is performed for extended time period, daily report frequency will be reduced to weekly basis. Daily report template is attached in **Appendix 7**.

10. Trucking log sheets will be utilized as trucks are transported from sites, and completed logs should be attached to the Remedial Action Report (RAR) as an appendix. The goal of this log is to clearly document the destination of material leaving the site, the parties responsible for its transfer, and other pertinent details. The trucking log template is provided in **Appendix 9**.

11. A 20-mil vapor barrier will be installed beneath the structure's slab and along foundation sidewalls. The barrier chosen for this project is manufactured by Raven Industries', Vaporblock Plus VBP. **Appendix 10** provides manufactures specifications and PE/RA certified building plans with the extent of the vapor barrier installation details (penetrations, joints, etc.) with respect to the proposed foundation, footings, etc.

12. An engineered composite site cover will be placed over the entire footprint of the Site. The composite cover system will be comprised of concrete foundation/slabs. Drawings of the composite site cover are provided as **Appendix 11**.

13. Truck route is included in **Appendix 12**.

Sincerely,

A handwritten signature in cursive script, appearing to read "Heather V. Sorrentino".

Cc: William Wong, NYCOER

Appendix 1

Generic Procedures for Management of Underground Storage Tanks Identified under the NYC VCP

Prior to Tank removal, the following procedures should be followed:

- Remove all fluid to its lowest draw-off point.
- Drain and flush piping into the tank.
- Vacuum out the “tank bottom” consisting of water product and sludge.
- Dig down to the top of the tank and expose the upper half.
- Remove the fill tube and disconnect the fill, gauge, product, vent lines and pumps. Cap and plug open ends of lines.
- Temporarily plug all tank openings, complete the excavation, remove the tank and place it in a secure location.
- Render the tank safe and check the tank atmosphere to ensure that petroleum vapors have been satisfactorily purged from the tank.
- Clean tank or remove to storage yard for cleaning.
- If the tank is to be moved, it must be transported by licensed waste transporter. Plug and cap all holes prior to transport leaving a 1/8 inch vent hole located at the top of the tank during transport.
- After cleaning, the tank must be made acceptable for disposal at a scrap yard, cleaning the tanks interior with a high pressure rinse and cutting the tank in several pieces.

During the tank and pipe line removal, the following field observations should be made and recorded:

- A description and photographic documentation of the tank and pipe line condition (pitting, holes, staining, leak points, evidence of repairs, etc.).
- Examination of the excavation floor and sidewalls for physical evidence of contamination (odor, staining, sheen, etc.).
- Periodic field screening (through bucket return) of the floor and sidewalls of the excavation, with a calibrated photoionization detector (PID).

Impacted Soil Excavation Methods

The excavation of the impacted soil will be performed following the removal of the existing tanks. Soil excavation will be performed in accordance with the procedures described under Section 5.5 of Draft DER-10 as follows:

- A description and photographic documentation of the excavation.
- Examination of the excavation floor and sidewalls for physical evidence of contamination (odor, staining, sheen, etc.).
- Periodic field screening (through bucket return) of the floor and sidewalls of the excavation, with calibrated photoionization detector (PID).

Final excavation depth, length, and width will be determined in the field, and will depend on the horizontal and vertical extent of contaminated soils as indentified through physical examination (PID response, odor, staining, etc.). Collection of verification samples will be performed to evaluate the success of the removal action as specified in this document.

The following procedure will be used for the excavation of impacted soil (as necessary and appropriate):

- Wear appropriate health and safety equipment as outlined in the Health and Safety Plan.

- Prior to excavation, ensure that the area is clear of utility lines or other obstructions. Lay plastic sheeting on the ground next to the area to be excavated.
- Using a rubber-tired backhoe or track mounted excavator, remove overburden soils and stockpile, or dispose of, separate from the impacted soil.
- If additional UST's are discovered, the NYSDEC will be notified and the best course of action to remove the structure should be determined in the field. This may involve the continued trenching around the perimeter to minimize its disturbance.
- If physically contaminated soil is present (e.g., staining, odors, sheen, PID response, etc.) an attempt will be made to remove it, to the extent not limited by the site boundaries or the bedrock surface. If possible, physically impacted soil will be removed using the backhoe or excavator, segregated from clean soils and overburden, and staged on separated dedicated plastic sheeting or live loaded into trucks from the disposal facility. Removal of the impacted soils will continue until visibly clean material is encountered and monitoring instruments indicate that no contaminants are present.
- Excavated soils which are temporarily stockpiled on-site will be covered with tarp material while disposal options are determined. Tarp will be checked on a daily basis and replaced, repaired or adjusted as needed to provide full coverage. The sheeting will be shaped and secured in such a manner as to drain runoff and direct it toward the interior of the property.

Once the site representative and regulatory personnel are satisfied with the removal effort, verification of confirmatory samples will be collected from the excavation in accordance with DER-10.

Appendix 2
Historic Fill Transfer and Disposal Notification Form

**Historic Fill & Soil Disposal Notification Form
New York City Office of Environmental Remediation**

**Historic Fill & Soil Disposal Notification Form
New York City Office of Environmental Remediation**

Date: August 10, 2016

To operators and representatives of disposal facilities and government regulators:

The New York City Office of Environmental Remediation (OER) operates several environmental remediation regulatory programs in New York City that manage light to moderately contaminated properties that are planned for redevelopment. These projects commonly involve the removal of historical fill and soil from properties for development and other purposes. As with any environmental regulatory program, lawful transport and disposal of historic fill and soil is mandatory. It is also our highest priority.

Disposal facilities, recycling facilities and clean fill facilities (collectively, “receiving facilities”) for historic fill and soil may be located in New York or neighboring states. Our research has indicated that a wide range of facility types and a complex set of regulatory requirements and obligations for a receiving facility operation exist within each jurisdiction. Receiving facilities are required to comply with applicable laws and regulations and may operate under state and local authority via permits, licenses, registrations, agreements and other legal instruments that dictate requirements for the material they can receive. Operating requirements may include adherence to applicable chemical standards, guidance levels, criteria, policy or other bases to determine the suitability for receipt of historical fill or soil at a receiving facility. Such requirements may also specify sample frequency, location, sampling method, chemical analytes, or analytical methods. Receiving facility soil/fill sampling requirements often differ from standard remedial investigation protocol performed in the original environmental study of the property.

Given the variability of data requirements for receiving facilities, the wide range of receiving facility types, and the complexity of regulatory requirements and obligations, OER is seeking to assist government regulators and facility operators and their technical representatives to achieve compliance with regulatory requirements for disposal of historic fill and soil at receiving facilities for projects we administer. Further, we seek to ensure that all of the data and information that is developed in OER’s regulatory programs (for instance, site environmental history and soil chemistry) is available to government regulators and to facility managers when making decisions on suitability for disposal to a receiving facility.

This document provides formal notification from OER of the availability of environmental information regarding the physical and chemical content of historical fill and soil that is proposed for transfer to a disposal, recycling or clean fill facility from a property located at:

284 West 127th Street, New York, NY 10027
16CVCP086M

The above referenced property has undergone regulated environmental investigation and is the subject of remedial action work plan under the authority of OER. All environmental data and information generated during this regulatory process is available online in OER’s Document Repository listed below. Be advised that many properties are also regulated under state environmental law, and additional data may be available from state agencies. OER reserves the right to share this information with applicable state regulators.

<http://www.nyc.gov/html/oer/html/document-repository/document-repository.shtml>

Note: when logged on to above URL, select the borough for the site (listed in the address above) and scroll through the list and select the address for the site (listed above). All documents are available in PDF format.

According to New York State DER-10 Technical Guidance for Site Investigation and Remediation, historical fill is non-indigenous fill material deposited on a property to raise its topographic elevation. The origin of historical fill is unknown

but it is commonly known to contain ash from wood and coal combustion, slag, clinker, construction debris, dredge spoils, incinerator residue, and demolition debris. Historic fill is a regulated solid waste in the State of New York. Prior to making a determination regarding the suitability of historic fill and/or soil from this property for disposal at this receiving facility, **we strongly recommend that you review all of the data and information available for this property in our Document Repository** listed above. The repository includes:

- A Phase 1 history of use of the property;
- A Remedial Investigation Report for the property which includes:
 - Boring logs that describe physical observations of the historical fill material made by a trained environmental professional;
 - Chemical data for grab samples of historical fill collected during the remedial investigation;
- A Remedial Action Work Plan for the property.

If you have any questions, please contact William Wong (212) 341-0659 or Wiwong@dep.nyc.gov for more information.

Appendix 3
NYC VCP Signage



NYC Voluntary Cleanup Program

284 West 127th Street, Manhattan

Site #: 16CVCP086M

This property is enrolled in the New York City Voluntary Cleanup Program for environmental remediation. This is a voluntary program administered by the NYC Office of Environmental Remediation.

For more information,
Log on to: www.nyc.gov/oer

Or scan with smart phone:



If you have questions or would like more information,
Please contact:

Shaminder Chawla at (212) 442-3007
or email us at brownfields@cityhall.nyc.gov

Appendix 4
Hazardous Waste Exemptions Fact Sheet



**Exemptions from the state
Hazardous Waste Program
Fee & Special Assessment**

If your site is enrolled in the city Voluntary Cleanup Program (VCP) and contains hazardous waste that will be excavated and disposed of offsite, OER can work with your development team to exempt your property from the \$130/ton state Hazardous Waste Program Fee and the Special Assessment on Hazardous Waste.

Exemption from the Hazardous Waste Program Fee

To qualify for an exemption from the Hazardous Waste Program Fee:

1. A site must be enrolled in the city Voluntary Cleanup Program;
2. Hazardous waste must result from remedial action set forth in a cleanup plan approved by OER; and
3. OER must oversee the cleanup.

Process for obtaining a Hazardous Waste Program Fee exemption:

For each VCP site, OER will submit three certifications to the New York State Department of Environmental Conservation (DEC):

1. OER will prepare a Notice of Potential Generation of Hazardous Waste after a soil test shows a site contains hazardous waste. To prepare this Notice, you must provide your OER project manager with:

- the site's EPA generator ID number;
- the date of the soil test confirming hazardous waste;
- the quantity of hazardous waste, in tons, anticipated to be shipped; and
- the anticipated dates for the start and completion of remediation.

DEC must receive this form **before** hazardous waste is shipped from your site. Otherwise, your claim for an exemption may be denied.

2. After hazardous waste has been removed from the site, you must notify your OER project manager that removal is complete. OER will then distribute a Certification of Hazardous Waste Generation to your project team which, when filled out, documents how the hazardous waste was managed. Once completed, it must be signed by the generator (or site owner) and the site's Qualified Environmental Professional and returned to your OER project manager with a copy to Amanda Duchesne aduchesne@dep.nyc.gov and Michelle Sarro msarro@dep.nyc.gov.

**For further information,
please contact:**

Amanda Duchesne
Program Manager
(212) 341-2077

ADuchesne@dep.nyc.gov

or

Michelle Sarro
Attorney
(212) 341-2015

MSarro@dep.nyc.gov

Upon receipt of the Certification of Hazardous Waste Generation, OER will issue a **\$10/ton fee** for services to obtain the exemption from the state Hazardous Waste Program Fee.

3. OER will then issue a Certification of Remedial Action that Generated Hazardous Waste to DEC representing OER's approval of how a site managed its hazardous waste.

DEC will make its determination after receiving the last two certifications. OER will then notify the project of the exemption.

Exemption from the Special Assessment on Hazardous Waste

VCP sites are also eligible for an exemption from the Special Assessment on Hazardous Waste, which can cost projects up to \$27/ton.

It is advised that you assert your interest in obtaining the Special Assessment exemption when you file a TP-550 Quarterly Return for Special Assessments on Hazardous Waste Generated in New York State form with the state Department of Taxation and Finance within 20 days of the end of the calendar quarter in which the waste was generated. In line item 3 on the form, indicate the number of tons of hazardous waste that were generated in New York State under an order of, or agreement or contract with, DEC. For access to the TP-550 form and further instructions see <http://www.tax.ny.gov/bus/haz/hzrdwste.htm>.

Ongoing Obligations

Regardless of the exemptions from the Hazardous Waste Program Fee and Special Assessment on Hazardous Waste, parties must:

- File a Hazardous Waste Annual Report with DEC by March 1 of each year if your site generated 15 tons or more of hazardous waste in the prior calendar year. For details, see <http://www.dec.ny.gov/chemical/8770.html>. To set forth the basis for an exemption from the Hazardous Waste Program Fee, put an X in the Exempt Remedial box in Box H of Section 1 of the Waste Generation and Management (GM) form and in the Comments Box (at the bottom of the form) include “New York City Voluntary Cleanup Program, VCP Site Number _____); and
- File a TP-550 Quarterly Return for Special Assessments on Hazardous Waste Generated in New York State form with the state Department of Taxation and Finance within 20 days of the end of the calendar quarter in which the waste was generated. For access to the TP-550 form and further instructions see <http://www.tax.ny.gov/bus/haz/hzrdwste.htm>.

Appendix 5
End-Point Sampling Map



284 W 127th STREET

SIDEWALK

ADJACENT
PROPERTY



EP-2



EP-1

LEGEND

 -Proposed end-point sample

PREPARED BY:



J.R. HOLZMACHER P.E., LLC
*The Third Generation of Excellence
In Water Supply, Water Resources,
Civil and Environmental Engineering*

3555 VETERANS MEMORIAL HWY PHONES # (631) 254-2220
SUITE A FAX # (631) 234-2221
ROCKY HILL, NEW YORK 11779 E-MAIL: jrh@jrh-holzmacher.com

TITLE:

**Proposed End-Point Sample
Map**

284 W 127th STREET
NEW YORK, NEW YORK 10027

DWN: PH	SCALE: 1" = 10'	DATE: 09-12-2016	PROJECT NO.: BahaR 16-01
CHKD: PH	APPD: PH	REV.: -	NOTES: -

APPENDIX NO.: 5

Appendix 6
BIG Program Insurance Fact Sheet



FACT SHEET – BIG PROGRAM INSURANCE REQUIREMENTS

Investigation Grants – for a developer or site owner to be eligible for a BIG investigation grant, its environmental consultant(s) must be:

- a Qualified Vendor in the BIG Program; and
- maintain Professional Liability (PL) insurance of \$1M per claim and annual aggregate.

Cleanup Grants – for a developer or site owner to be eligible for a BIG cleanup grant:

- Its general contractor or excavation/foundation contractor hired to perform remedial work must maintain Commercial General Liability (CGL) insurance of at least \$1M per occurrence and \$2M in the general aggregate. It is recommended that the general contractor or excavation/foundation contractor also maintain a Contractors Pollution Liability policy (CPL) of at least \$1M per occurrence.
- Its subcontractors who are hired by the general contractor etc. to perform remedial work at a site, including soil brokers and truckers, must also maintain a CGL policy in the amount and with the terms set forth above. It is recommended that subcontractors also maintain a CPL policy in the amount and with the terms set forth above.

The CGL policy, and the CPL policy if in force, must list the city, EDC and BRS as additional insureds, include completed operations coverage and be primary and non-contributory to any other insurance the additional insureds may have.

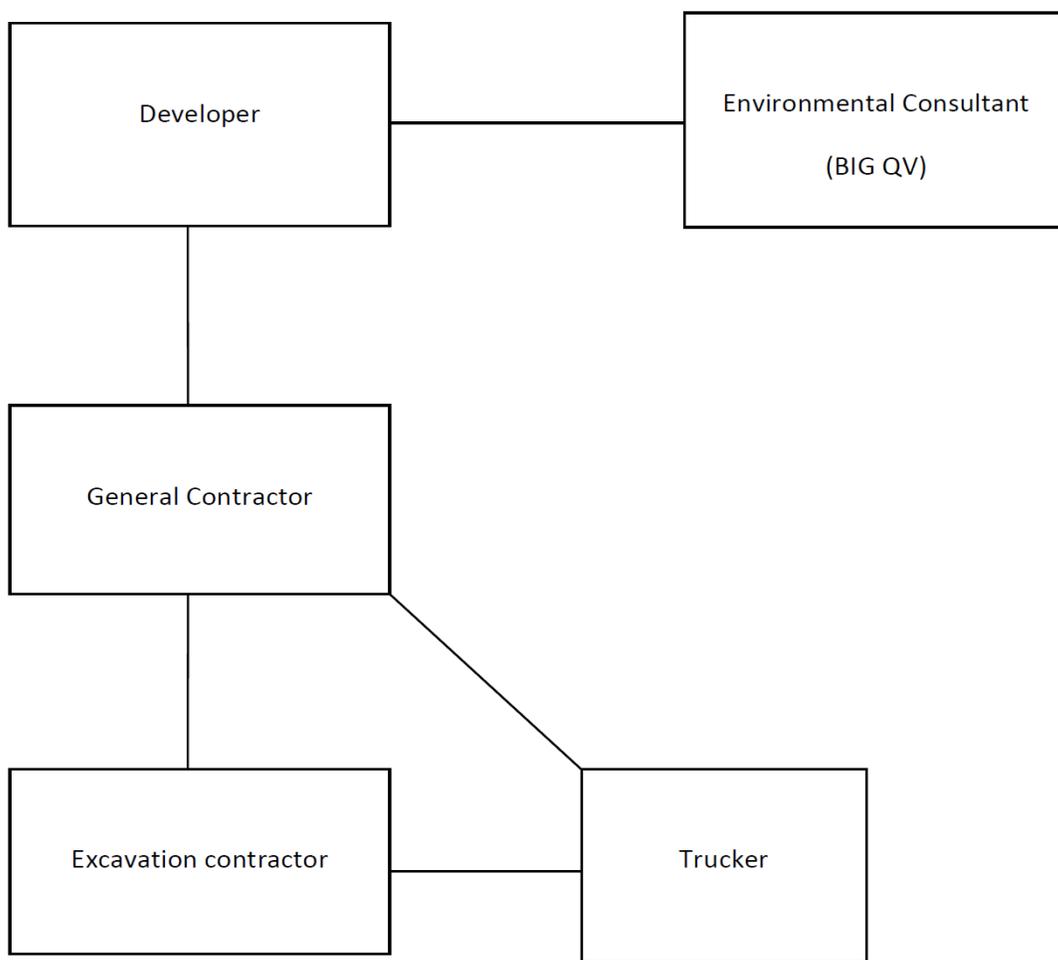
- Its environmental consultant(s) hired to oversee the cleanup must be:
 - a. a BIG Qualified Vendor; and
 - b. maintain Professional Liability (PL) insurance of \$1M per claim and annual aggregate.

If, in the alternative, the developer hires its environmental consultant to perform the cleanup, the environmental consultant must maintain CGL insurance in the amount and with the terms set forth above. It is recommended that the environmental consultant also maintain CPL coverage in the amount and with the terms set forth in the first two bulleted items listed above.

A schematic presenting the contractual relationships described above appears on page 2. Parties who must be named as Additional Insureds on Cleanup Grant insurance policies (CGL and CPL) are presented on page 3.

Example of Contractual Relationships for Cleanup Work

The Office of Environmental Remediation’s Voluntary Cleanup Plan program requires applicants to identify the parties who are engaged in active remediation of their sites including: the General Contractor hired to remediate and/or the excavation contractor hired to excavate soil from the site and the trucking firm(s) that remove soil from the site for disposal at approved facilit(ies).



The chart above shows contractual relationships that typically exist for projects that are enrolled in the Voluntary Cleanup Program.

BIG Program Additional Insureds

The full names and addresses of the additional insureds required under the Required CGL Policy and recommended CPL Policy are as follows:

“City and its officials and employees”

New York City Mayor’s Office of Environmental Remediation
253 Broadway, 14th Floor
New York, NY 10007

“NYC EDC and its officials and employees”

New York City Economic Development Corporation
110 William Street
New York, NY 10038

“BIG Grant Administrator and its officials and employees”

Brownfield Redevelopment Solutions, Inc.
739 Stokes Road, Units A & B
Medford, NJ 08055

Appendix 7
Daily Report Template

DAILY STATUS REPORT

Prepared By: _____

WEATHER	Snow		Rain		Overcast		Partly Cloudy		Bright Sun	
TEMP.	< 32		32-50		50-70		70-85		>85	

VCP Project No.:	16CVCP086M	E-Number Project No.:	16EHAZ244M	Date:	
Project Name:	284 West 127 th Street New York, New York				

Consultant: Heather Sonnenberg, J.R. Holzmacher P.E. LLC	Safety Officer: Heather Sonnenberg, J.R. Holzmacher P.E. LLC
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General Contractor: BDB Construction Enterprise Inc. 571 Carlton Blvd., Staten Island, NY 10312 718-928-9910	Site Manager/ Supervisor: BDB Construction Enterprise Inc. 571 Carlton Blvd., Staten Island, NY 10312 718-928-9910
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Work Activities Performed (Since Last Report):
No activities have been performed.

Working In Grid #:

Samples Collected (Since Last Report):
No samples collected.

Air Monitoring (Since Last Report):

Prestart Conditions – PID = 0.0 ppm, Dust = 0.000
High Conditions – PID = 0.0 ppm, Dust = 0.000

Problems Encountered:
No problems have been encountered.

Planned Activities for the Next Day/ Week:

No activities have been planned.

Facility # Name/ Location Type of Waste Solid <u>Or</u> Liquid	Facility # Bayshore Soil Management, LLC 75 Crows Mill Road, Keasbey, NJ Fill, Solid		Facility # Bayshore Soil Management, LLC 75 Crows Mill Road, Keasbey, NJ Fill, Solid		Facility # Bayshore Soil Management, LLC 75 Crows Mill Road, Keasbey, NJ Fill, Solid		Facility # Bayshore Soil Management, LLC 75 Crows Mill Road, Keasbey, NJ Fill, Solid	
	Trucks	Cu. Yds. <u>Or</u> Gallons						
Today								
Total								

NYC Clean Soil Bank		Receiving Facility: 75 Crows Mill Road, Keasbey, NJ			
Tracking No.:					
Today	Trucks	Cu. Yds.	Total	Trucks	Cu. Yds.

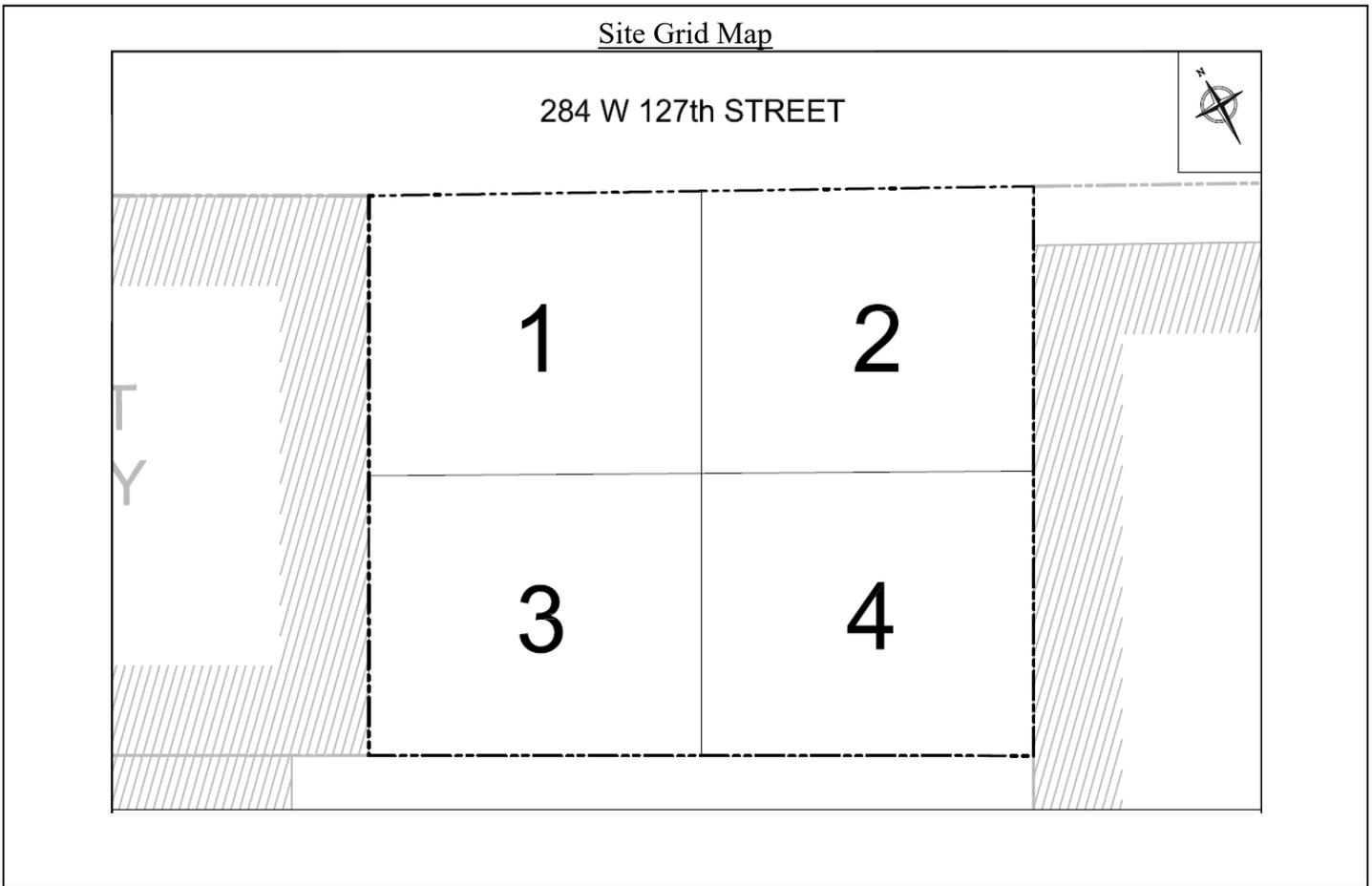


Photo Log

Photo 1 –

Photo 2 –

Photo 3 –

Appendix 8
Weekly / Monthly Report Template

Photo Log

Photo 1 –

Photo 2 –

Photo 3 –

Appendix 9
Soil Disposal and Trucking Log Sheet

Appendix 10
Raven Industries Specifications for Vapor Barrier

VAPORBLOCK® PLUS™ VBP20

UNDER-SLAB VAPOR / GAS BARRIER

PRODUCT DESCRIPTION

VaporBlock® Plus™ 20 is a seven-layer co-extruded barrier made from state-of-the-art polyethylene and EVOH resins to provide unmatched impact strength as well as superior resistance to gas and moisture transmission. VaporBlock® Plus™ 20 is a highly resilient underslab / vertical wall barrier designed to restrict naturally occurring gases such as radon and/or methane from migrating through the ground and concrete slab. VaporBlock® Plus™ 20 is more than 100 times less permeable than typical high-performance polyethylene vapor retarders against Methane, Radon and other harmful VOCs.

VaporBlock® Plus™ 20 is one of the most effective underslab gas barriers in the building industry today far exceeding ASTM E-1745 (Plastic Water Vapor Retarders Used in Contact with Soil or Granular Fill Under Concrete Slabs) Class A, B and C requirements. Available in a 20 (Class A) mil thicknesses designed to meet the most stringent requirements. VaporBlock® Plus™ 20 is produced within the strict guidelines of our ISO 9001:2008 Certified Management System.

PRODUCT USE

VaporBlock® Plus™ 20 resists gas and moisture migration into the building envelop when properly installed to provide protection from toxic/harmful chemicals. It can be installed as part of a passive or active control system extending across the entire building including floors, walls and crawl spaces. When installed as a passive system it is recommended to also include a ventilated system with sump(s) that could be converted to an active control system with properly designed ventilation fans.

VaporBlock® Plus™ 20 works to protect your flooring and other moisture-sensitive furnishings in the building's interior from moisture and water vapor migration, greatly reducing condensation, mold and degradation.

SIZE & PACKAGING

VaporBlock® Plus™ 20 is available in 10' x 150' rolls to maximize coverage. All rolls are folded on heavy-duty cores for ease in handling and installation. Other custom sizes with factory welded seams are available based on minimum volume requirements. Installation instructions and ASTM E-1745 classifications accompany each roll.



Under-Slab Vapor/Gas Retarder

PRODUCT

PART

VaporBlock® Plus™ 20 VBP20

APPLICATIONS

Radon Barrier	Under-Slab Vapor Retarder
Methane Barrier	Foundation Wall Vapor Retarder
VOC Barrier	



VAPORBLOCK® PLUS™ VBP20

UNDER-SLAB VAPOR / GAS BARRIER

		VAPORBLOCK® PLUS™ 20	
PROPERTIES	TEST METHOD	IMPERIAL	METRIC
APPEARANCE		White/Gold	
THICKNESS, NOMINAL		20 mil	0.51 mm
WEIGHT		102 lbs/MSF	498 g/m ²
CLASSIFICATION	ASTM E 1745	CLASS A, B & C	
TENSILE STRENGTH LBF/IN (N/CM) AVERAGE MD & TD (NEW MATERIAL)	ASTM E 154 Section 9 (D-882)	58 lbf	102 N
IMPACT RESISTANCE	ASTM D 1709	2600 g	
MAXIMUM USE TEMPERATURE		180° F	82° C
MINIMUM USE TEMPERATURE		-70° F	-57° C
PERMEANCE (NEW MATERIAL)	ASTM E 154 Section 7 ASTM E 96 Procedure B	0.0098 Perms grains/(ft ² ·hr·in·Hg)	0.0064 Perms g/(24hr·m ² ·mm Hg)
PERMEANCE (AFTER CONDITIONING) (SAME MEASUREMENT AS ABOVE PERMEANCE)	ASTM E 154 Section 8, E96 Section 11, E96 Section 12, E96 Section 13, E96	0.0079 0.0079 0.0097 0.0113	0.0052 0.0052 0.0064 0.0074
WVTR	ASTM E 96 Procedure B	0.0040 grains/hr·ft ²	0.0028 gm/hr·m ²
RADON DIFFUSION COEFFICIENT	K124/02/95	< 1.1 x 10 ⁻¹³ m ² /s	
METHANE PERMEANCE	ASTM D 1434	< 1.7 x 10 ⁻¹⁰ m ² /d·atm 0.32 GTR (Gas Transmission Rate) ml/m ² ·D·ATM	

VaporBlock® Plus™ Placement

All instructions on architectural or structural drawings should be reviewed and followed.
Detailed installation instructions accompany each roll of VaporBlock® Plus™ and can also be located on our website.
ASTM E-1643 also provides general installation information for vapor retarders.



VaporBlock® Plus™ is a seven-layer co-extruded barrier made using high quality virgin-grade polyethylene and EVOH resins to provide unmatched impact strength as well as superior resistance to gas and moisture transmission.



Scan QR Code to download current technical data sheets via the Raven website.

Note: To the best of our knowledge, unless otherwise stated, these are typical property values and are intended as guides only, not as specification limits. Chemical resistance, odor transmission, longevity as well as other performance criteria is not implied or given and actual testing must be performed for applicability in specific applications and/or conditions. RAVEN INDUSTRIES MAKES NO WARRANTIES AS TO THE FITNESS FOR A SPECIFIC USE OR MERCHANTABILITY OF PRODUCTS REFERRED TO, no guarantee of satisfactory results from reliance upon contained information or recommendations and disclaims all liability for resulting loss or damage. Limited Warranty available at www.RavenEFD.com

RAVEN ENGINEERED FILMS
P.O. Box 5107 Sioux Falls, SD 57117-5107
Ph: +1 (605) 335-0174 • TF: +1 (800) 635-3456

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efdsales@ravenind.com
www.ravenefd.com



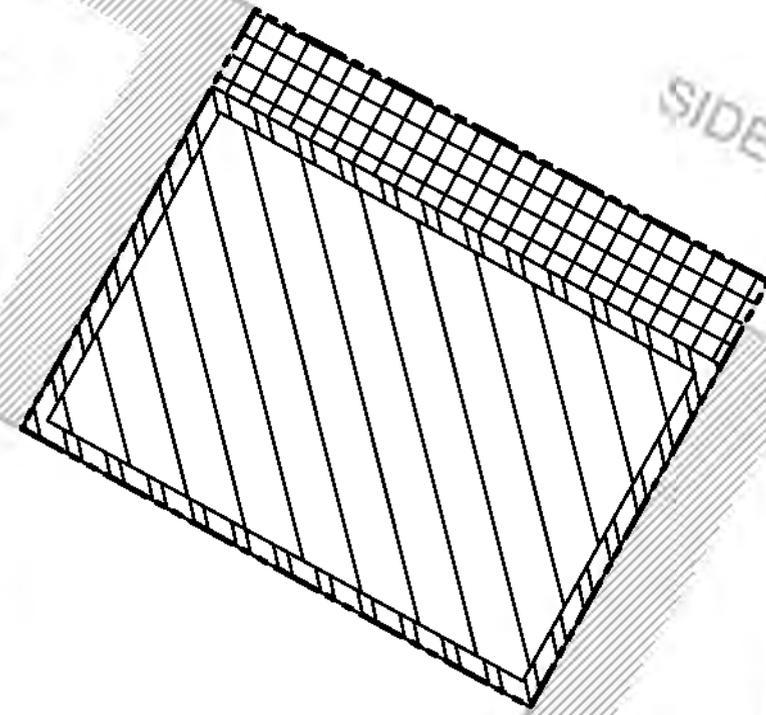
Appendix 11
Composite Cover System



284 W 127th STREET

ADJACENT
PROPERTY

SIDEWALK



LEGEND

-  - CONCRETE SLAB 9' BELOW GRADE
-  - CONCRETE SET BACK
-  - BUILDING FOUNDATION WALLS
-  - PROPERTY LINE

PREPARED BY:



J.R. HOLZMACHER P.E., LLC
*The Third Generation of Excellence
 In Water Supply, Water Resources,
 Civil and Environmental Engineering*

3555 VETERANS MEMORIAL HWY PHONE # (831) 254-3220
 SUITE A FAX # (831) 234-3221
 KONKONKOMA, NEW YORK 11779 E-MAIL: bjh@holzmacher.com

TITLE:

**REMEDIAL COVER
 LOCATION MAP**

284 W 127th STREET
 NEW YORK, NEW YORK 10027

DWN: LJF	SCALE: 1" = 10'	DATE: 09-13-2016	PROJECT NO.: BahaR 16-01
CHKD: PJH	APPD: PJH	REV.: -	NOTES: -

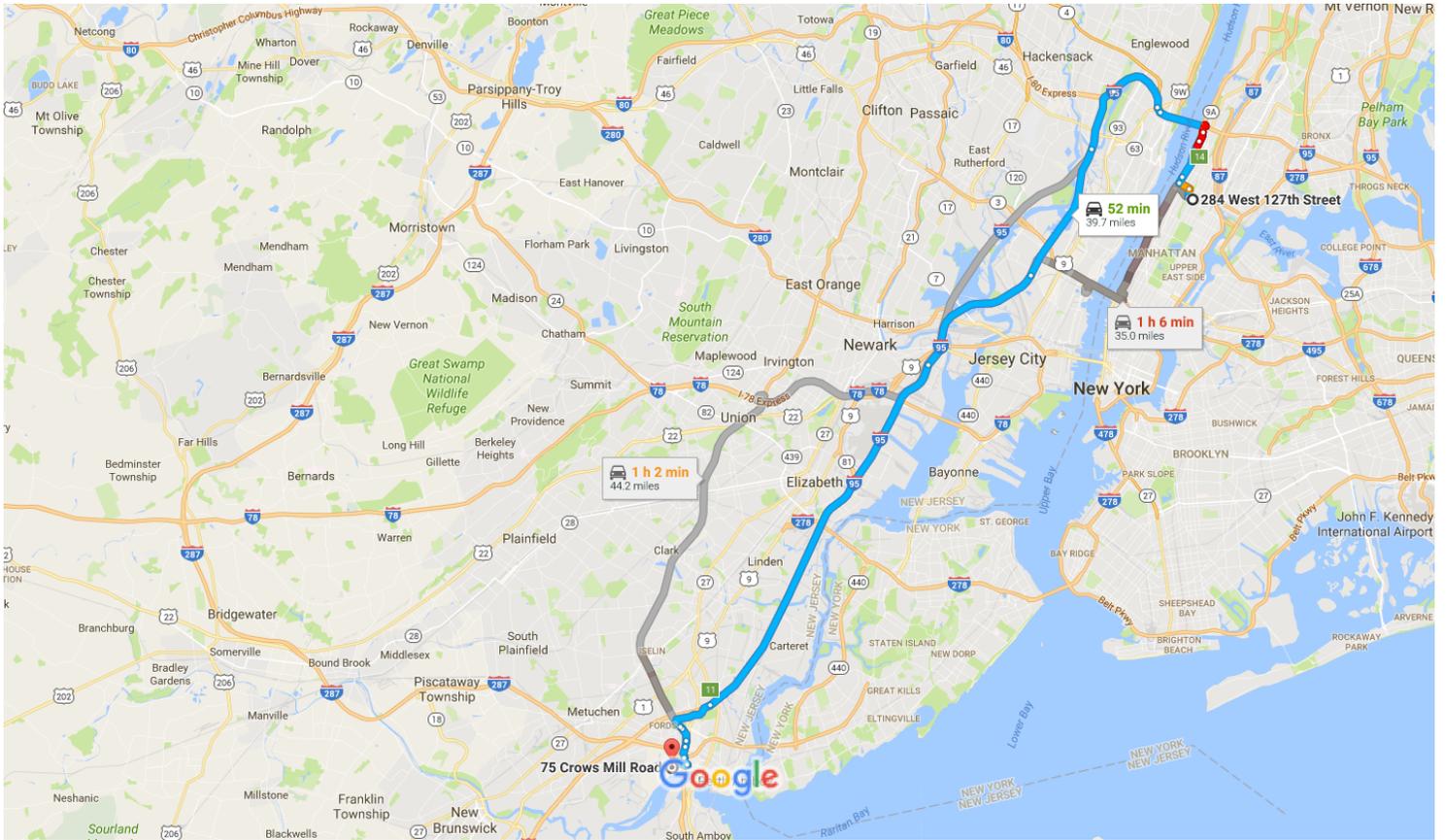
ATTACHMENT NO.: 11

Appendix 12
Truck Route



284 West 127th Street, New York, NY 10027 to 75 Crows Mill Road, NJ

Drive 39.7 miles, 52 min



Map data ©2016 Google 2 mi

284 West 127th Street

New York, NY 10027

Get on NY-9A N from Convent Ave and W 133rd St

- 8 min (1.2 mi)
1. Head northwest on W 127th St/Lloyd E Dickens Pl toward Frederick Douglass Blvd
 Continue to follow W 127th St
 2. Turn right onto Convent Ave
 3. Turn left onto W 133rd St
 4. Turn right onto the H. Hudson Pkwy/Newyork 9A N ramp

Take I-95 to U.S. 9 S in Fords, Woodbridge Township. Take exit 11 from I-95 S

- 38 min (37.0 mi)
5. Merge onto NY-9A N
 6. Use the right lane to take exit 14 for I-95/George Washington Bridge toward Cross Bronx Expy/W 178 St
 7. Keep right at the fork, follow signs for New Jersey/George Washington Bridge/Interstate 95 Lower Level S and merge onto George Washington Bridge/Interstate 95 Lower Level S/U.S. 1 Lower Level S
 Continue to follow Interstate 95 Lower Level S/U.S. 1 Lower Level S
 Entering New Jersey
 8. Continue onto I-95/Interstate 95 Lower Level S
 Partial toll road
 9. Keep right to continue on I-95 S, follow signs for I-80/Hackensack
 10. Keep left at the fork to stay on I-95 S, follow signs for Interstate 95 S/US 46/Newark/New Jersey Turnpike S
 Partial toll road
 11. Keep right at the fork to stay on I-95 S, follow signs for Lincoln Tunnel
 Partial toll road
 12. Keep left to stay on I-95 S
 Partial toll road
 13. Keep left to stay on I-95 S
 Toll road
 14. Use the right 2 lanes to take exit 11 for U.S. 9 toward Woodbridge
 Partial toll road

