# DECISION DOCUMENT

1559 Boone Avenue Apartments
Brownfield Cleanup Program
Bronx, Bronx County
Site No. C203141
August 2021


Prepared by
Division of Environmental Remediation
New York State Department of Environmental Conservation

# DECLARATION STATEMENT - DECISION DOCUMENT

1559 Boone Avenue Apartments
Brownfield Cleanup Program
Bronx, Bronx County
Site No. C203141
August 2021

**Statement of Purpose and Basis**

This document presents the remedy for the 1559 Boone Avenue Apartments site, a brownfield cleanup site. The remedial program was chosen in accordance with the New York State Environmental Conservation Law and Title 6 of the Official Compilation of Codes, Rules and Regulations of the State of New York (6 NYCRR) Part 375.

This decision is based on the Administrative Record of the New York State Department of Environmental Conservation (the Department) for the 1559 Boone Avenue Apartments site and the public's input to the proposed remedy presented by the Department.

**Description of Selected Remedy**

The elements of the selected remedy are as follows:

1. Remedial Design
A remedial design program will be implemented to provide the details necessary for the construction, operation, optimization, maintenance, and monitoring of the remedial program. Green remediation principles and techniques will be implemented to the extent feasible in the design, implementation, and site management of the remedy as per DER-31. The major green remediation components are as follows;

- Considering the environmental impacts of treatment technologies and remedy stewardship over the long term;
- Reducing direct and indirect greenhouse gases and other emissions;
- Increasing energy efficiency and minimizing use of non-renewable energy;
- Conserving and efficiently managing resources and materials;
- Reducing waste, increasing recycling and increasing reuse of materials which would otherwise be considered a waste;
- Maximizing habitat value and creating habitat when possible;
- Fostering green and healthy communities and working landscapes which balance ecological, economic and social goals;
- Integrating the remedy with the end use where possible and encouraging green and sustainable re-development; and
- Additionally, to incorporate green remediation principles and techniques to the extent feasible in the future development at this site, any future on-site buildings will include, at

a minimum, a 20-mil vapor barrier/waterproofing membrane on the foundation to improve energy efficiency as an element of construction.

2. Excavation

The existing on-site building(s) will be demolished and materials which can't be beneficially reused on site will be taken off-site for proper disposal in order to implement the remedy.

Excavation and off-site disposal of contaminant source areas, including:

- grossly contaminated soil, as defined in 6 NYCRR Part 375-1.2(u);
- soils which exceed the protection of groundwater soil cleanup objectives (PGW SCOs), as defined by 6 NYCRR Part 375-6.8 for those contaminants found in site groundwater above standards; and
- any underground storage tanks (USTs), fuel dispensers, underground piping or other structures associated with a source of contamination.

In addition, all soils and historic fill which exceed PFAS soil guideline values and restricted-residential SCOs, as defined by 6 NYCRR Part 375-6.8, in the upper 15 feet will be excavated. Excavation is likely required to approximately 7 feet below ground surface across the site; however, additional excavation may be required based on the results of end point sampling. A minimum of approximately 2,600 cubic yards of contaminated soil/fill will be removed from the site. If a Track 2 restricted residential cleanup is achieved, a Cover System will not be a required.

3. Backfill

On-site soil which does not exceed the above excavation criteria may be used to backfill the excavation and establish the design grades at the site. Clean fill meeting the requirements of 6 NYCRR Part 375-6.7(d) will be brought in to replace the excavated soil or complete the backfilling of the excavation and establish the designed grades at the site.

4. Soil Vapor Extraction (SVE)

Soil vapor extraction (SVE) will be implemented along the southern and western portions of the site to remove volatile organic compounds (VOCs) from the subsurface and to prevent off-site migration. VOCs will be physically removed from the soil by applying a vacuum to wells that have been installed into the vadose zone (the area below the ground but above the water table). The vacuum draws air through the soil matrix which carries the VOCs from the soil to the SVE well. The air extracted from the SVE wells is then treated as necessary prior to being discharged to the atmosphere.

5. Vapor Mitigation

Any on-site buildings will be required to have a sub-slab depressurization system (SSDS) or other acceptable measures, to mitigate the migration of vapors into the building from groundwater.

6. Enhanced Bioremediation

In-situ enhanced biodegradation will be employed to treat VOCs in groundwater within the base of excavation. The biological breakdown of contaminants through aerobic bioremediation will be enhanced by the placement of an oxygen release compound (ORC), or similar material into the

subsurface.

7. Institutional Controls
Imposition of an institutional control in the form of an environmental easement for the controlled property which will:

- require the remedial party or site owner to complete and submit to the Department a periodic certification of institutional and engineering controls in accordance with Part 375-1.8 (h)(3);
- allow the use and development of the controlled property for restricted residential use as defined by Part 375-1.8(g), although land use is subject to local zoning laws;
- restrict the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by the NYSDOH or NYCDOHMH; and
- require compliance with the Department approved Site Management Plan.

8. Site Management Plan
A Site Management Plan is required, which includes the following:

a. An Institutional and Engineering Control Plan that identifies all use restrictions and engineering controls for the site and details the steps and media-specific requirements necessary to ensure the following institutional and/or engineering controls remain in place and effective:

- Institutional Controls: The Environmental Easement discussed in Paragraph 7 above.

- Engineering Controls: The SVE system discussed in Paragraph 4, the vapor mitigation discussed in Paragraph 5, and the cover system (if needed) discussed in the contingent remedy.

This plan includes, but may not be limited to:

- an Excavation Plan which details the provisions for management of future excavations in areas of remaining contamination;
- descriptions of the provisions of the environmental easement including any land use, and groundwater use restrictions;
- a provision that should a building foundation or building slab be removed in the future and a cover system is needed, a cover system consistent with that described in the contingent remedy will be placed in any areas where the upper two feet of exposed surface soil exceed the applicable soil cleanup objectives (SCOs)
- provisions for the management and inspection of the identified engineering controls;
- maintaining site access controls and Department notification; and
- the steps necessary for the periodic reviews and certification of the institutional and/or engineering controls.

b. A Monitoring Plan to assess the performance and effectiveness of the remedy. The plan includes, but may not be limited to:

- monitoring of groundwater to assess the performance and effectiveness of the remedy;
- a schedule of monitoring and frequency of submittals to the Department;
- monitoring for vapor intrusion for any buildings on the site, as may be required by the Institutional and Engineering control plan discussed above.

c. An Operation and Maintenance (O&M) Plan to ensure continued operation, maintenance, inspection, and reporting of any mechanical or physical components of the active vapor mitigation system(s), Soil Vapor Extraction (SVE) system(s), and contingent cover system, if needed. The plan includes, but is not limited to:

- procedures for operating and maintaining the systems; and
- compliance inspection of the system to ensure proper O&M as well as providing the data for any necessary reporting.

Contingent Remedy Element

The intent of the remedy is to achieve Track 2 restricted residential use; therefore, no cover system is anticipated.

In the event that a Track 2 restricted residential cleanup is not achieved on all or a portion of the site, the remedy will achieve a Track 4 site-specific cleanup in the areas where Track 2 is not achieved and exposure to the residual contaminated soil/fill will be prevented by a cover system.

A site cover will be required to allow for restricted residential use of the site in areas where the upper two feet of exposed surface soil will exceed the applicable soil cleanup objectives (SCOs). Where a soil cover is to be used it will be a minimum of two feet of soil meeting restricted residential SCOs placed over a demarcation layer, with the upper six inches of soil of sufficient quality to maintain a vegetative layer. Soil cover material, including any fill material brought to the site, will meet the SCOs for cover material for the use of the site as set forth in 6 NYCRR Part 375-6.7(d). Substitution of other materials and components may be allowed where such components already exist or are a component of the tangible property to be placed as part of site redevelopment. Such components may include, but are not necessarily limited to: pavement, concrete, paved surface parking areas, sidewalks, building foundations and building slabs. If a Track 2 restricted residential cleanup is achieved, a Cover System will not be a required element of the remedy.

## Declaration

The remedy conforms with promulgated standards and criteria that are directly applicable, or that are relevant and appropriate and takes into consideration Department guidance, as appropriate. The remedy is protective of public health and the environment.

August 17, 2021

Date

Gerard Burke, Director
Remedial Bureau B

# DECISION DOCUMENT

1559 Boone Avenue Apartments
Bronx, Bronx County
Site No. C203141
August 2021

## SECTION 1: SUMMARY AND PURPOSE

The New York State Department of Environmental Conservation (the Department), in consultation with the New York State Department of Health (NYSDOH), has selected a remedy for the above referenced site. The disposal of contaminants at the site has resulted in threats to public health and the environment that would be addressed by the remedy. The disposal or release of contaminants at this site, as more fully described in this document, has contaminated various environmental media. Contaminants include hazardous waste and/or petroleum.

The New York State Brownfield Cleanup Program (BCP) is a voluntary program. The goal of the BCP is to enhance private-sector cleanups of brownfields and to reduce development pressure on "greenfields." A brownfield site is real property, where a contaminant is present at levels exceeding the soil cleanup objectives or other health-based or environmental standards, criteria or guidance, based on the reasonably anticipated use of the property.

The Department has issued this document in accordance with the requirements of New York State Environmental Conservation Law and 6 NYCRR Part 375. This document is a summary of the information that can be found in the site-related reports and documents.

## SECTION 2: CITIZEN PARTICIPATION

The Department seeks input from the community on all remedies. A public comment period was held, during which the public was encouraged to submit comment on the proposed remedy. All comments on the remedy received during the comment period were considered by the Department in selecting a remedy for the site. Site-related reports and documents were made available for review by the public at the following document repositories:

DECInfo Locator - Web Application
https://gisservices.dec.ny.gov/gis/dil/index.html?rs=C203141

West Farms Library
2085 Honeywell Avenue
Bronx, NY 10460
Phone: (718) 367-5376

Bronx Community Board 3

1426 Boston Road
Bronx, NY 10456
Phone: (718) 378-8054

**Receive Site Citizen Participation Information By Email**

Please note that the Department's Division of Environmental Remediation (DER) is "going paperless" relative to citizen participation information. The ultimate goal is to distribute citizen participation information about contaminated sites electronically by way of county email listservs. Information will be distributed for all sites that are being investigated and cleaned up in a particular county under the State Superfund Program, Environmental Restoration Program, Brownfield Cleanup Program and Resource Conservation and Recovery Act Program. We encourage the public to sign up for one or more county listservs at http://www.dec.ny.gov/chemical/61092.html

## SECTION 3: SITE DESCRIPTION AND HISTORY

Location:
The site is located at 1559 Boone Avenue, in the Crotona Park East/West Farms section of the Bronx, NY.

Site Features:
The site consists of one vacant building, which occupies the entirety of the approximately 0.23-acre parcel. The building is one-story (slab-on-grade), with a small partial basement in its northeastern corner.

Current Zoning and Land Use:
The site was rezoned in August 2011 from M1-1 (manufacturing) to R6A (residential). As noted above, the site is entirely occupied by a one-story vacant building with a small partial basement. The surrounding area is mixed-use, including residential, commercial, auto-related (parking garage and auto repair shop), and warehouse uses.

Past Use of the Site:
The site was undeveloped as of 1915. By 1927, it was developed with the current building. Historical uses of the site included: a garage in 1927; an ice cream business in 1940; a garage with a 550-gallon gasoline UST in 1950; a warehouse (nature of storage/usage unknown) in 1977-2019. The building became vacant in approximately May 2019. According to the 2016 Phase I ESA, a site representative believed that the site may have historically been used as an auto repair shop. Prior uses that appear to have led to site contamination include potential auto repair, warehouse, and a garage with a gasoline UST.

Site Geology and Hydrology:
The site is approximately 36 feet above mean sea level. The topography in the area of the site generally slopes downward to the east. The Bronx River is located approximately 500 feet east of the site. The general direction of groundwater flow below the site is southeasterly, toward the Bronx River. Groundwater was encountered at the site approximately 5 to 7 feet below grade during the subsurface investigations.

The stratigraphy beneath the site generally consists of fill comprising sand, brick, concrete, and/or asphalt up to 5 feet below grade, underlain by apparent native sand and silt with varying amounts of gravel, silt, clay, and organic matter. Bedrock was encountered at depths ranging from 5 to 13 feet below grade.

A site location map is attached as Figure 1, and a site map is attached as Figure 2.

## SECTION 4: LAND USE AND PHYSICAL SETTING

The Department may consider the current, intended, and reasonably anticipated future land use of the site and its surroundings when evaluating a remedy for soil remediation. For this site, alternatives (or an alternative) that restrict(s) the use of the site to restricted-residential use (which allows for commercial use and industrial use) as described in Part 375-1.8(g) were/was evaluated in addition to an alternative which would allow for unrestricted use of the site.

A comparison of the results of the Remedial Investigation (RI) to the appropriate standards, criteria and guidance values (SCGs) for the identified land use and the unrestricted use SCGs for the site contaminants is available in the RI Report.

## SECTION 5: ENFORCEMENT STATUS

The Applicants under the Brownfield Cleanup Agreement are Volunteers. The Volunteers do not have an obligation to address off-site contamination. The Department and the NYSDOH have determined that this site poses a significant threat to human health and the environment.

The Department has sought to identify any parties (other than the Volunteers) known or suspected to be responsible for contamination at or emanating from the site, referred to as Potentially Responsible Parties (PRPs). The Department has attempted to bring an enforcement action against the PRPs. If an enforcement action cannot be brought or does not result in the initiation of a remedial program by any PRPs, the Department will evaluate the off-site contamination for action under the State Superfund. The PRPs are subject to legal actions by the State for recovery of all response costs the State incurs or has incurred.

## SECTION 6: SITE CONTAMINATION

### 6.1: Summary of the Remedial Investigation

A remedial investigation (RI) serves as the mechanism for collecting data to:

- characterize site conditions;
- determine the nature of the contamination; and
- assess risk to human health and the environment.

The RI is intended to identify the nature (or type) of contamination which may be present at a site and the extent of that contamination in the environment on the site, or leaving the site. The RI reports on data gathered to determine if the soil, groundwater, soil vapor, indoor air, surface water or sediments may have been contaminated. Monitoring wells are installed to assess groundwater

and soil borings or test pits are installed to sample soil and/or waste(s) identified. If other natural resources are present, such as surface water bodies or wetlands, the water and sediment may be sampled as well. Based on the presence of contaminants in soil and groundwater, soil vapor will also be sampled for the presence of contamination. Data collected in the RI influence the development of remedial alternatives. The RI report is available for review in the site document repository and the results are summarized in section 6.3.

The analytical data collected on this site includes data for:

- groundwater
- soil
- soil vapor

### 6.1.1: Standards, Criteria, and Guidance (SCGs)

The remedy must conform to promulgated standards and criteria that are directly applicable or that are relevant and appropriate. The selection of a remedy must also take into consideration guidance, as appropriate. Standards, Criteria and Guidance are hereafter called SCGs.

To determine whether the contaminants identified in various media are present at levels of concern, the data from the RI were compared to media-specific SCGs. The Department has developed SCGs for groundwater, surface water, sediments, and soil. The NYSDOH has developed SCGs for drinking water and soil vapor intrusion. For a full listing of all SCGs see: http://www.dec.ny.gov/regulations/61794.html

### 6.1.2: RI Results

The data have identified contaminants of concern. A "contaminant of concern" is a contaminant that is sufficiently present in frequency and concentration in the environment to require evaluation for remedial action. Not all contaminants identified on the property are contaminants of concern. The nature and extent of contamination and environmental media requiring action are summarized below. Additionally, the RI Report contains a full discussion of the data. The contaminant(s) of concern identified at this site is/are:

| | |
|---|---|
| manganese | magnesium |
| arsenic | mercury |
| cadmium | trichloroethene (TCE) |
| lead | tetrachloroethene (PCE) |
| chromium | cis-1,2-dichloroethene |

The contaminant(s) of concern exceed the applicable SCGs for:

- groundwater
- soil

## 6.2: Interim Remedial Measures

An interim remedial measure (IRM) is conducted at a site when a source of contamination or exposure pathway can be effectively addressed before issuance of the Decision Document.

There were no IRMs performed at this site during the RI.

### 6.3: Summary of Environmental Assessment

This section summarizes the assessment of existing and potential future environmental impacts presented by the site. Environmental impacts may include existing and potential future exposure pathways to fish and wildlife receptors, wetlands, groundwater resources, and surface water. The RI report presents a detailed discussion of any existing and potential impacts from the site to fish and wildlife receptors.

Soil was analyzed for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), polychlorinated biphenyls (PCBs), pesticides, emerging contaminants, and metals. Groundwater was analyzed for VOCs, SVOCs, pesticides, emerging contaminants, and metals. Soil vapor was analyzed for VOCs. Based upon investigations conducted to date, the primary contaminants of concern for the site include VOCs, Polycyclic Aromatic Hydrocarbons (PAHs - a class of SVOCs), and metals.

Soil: Several SVOCs were detected at concentrations exceeding the restricted residential use soil cleanup objectives (RRSCO) including benzo(a)pyrene at a maximum concentration of 1.5 parts per million, or ppm (RRSCO is 1 ppm), benzo(b)fluoranthene at a maximum concentration of 1.9 ppm (RRSCO 1 ppm), and indeno(1,2,3-cd)pyrene at a maximum concentration of 0.96 ppm (RRSCO 0.5 ppm). For metals, manganese was found at a maximum concentration of 44,500 ppm (RRSCO 2,000 ppm), arsenic was found at a maximum concentration of 61.3 ppm (RRSCO 16 ppm), cadmium was found at a maximum concentration of 10.5 ppm (RRSCO 4.3 ppm), lead was found at a maximum concentration of 718 ppm (RRSCO 400 ppm), and copper was found at a maximum concentration of 905 ppm (RRSCO 270 ppm). Perfluorooctanoic Acid (PFOA) was found at a maximum concentration of 1.67 ppb, and Perfluorooctanesulfonic Acid (PFOS) was found at a maximum concentration of 16.6 ppb. No VOCs, pesticides or PCBs were found at concentration exceeding the RRSCOs. Data does not indicate any off-site impacts in soil related to this site.

Groundwater: VOCs detected at concentrations exceeding the Ambient Water Quality Standards (AWQS) include TCE at a maximum concentration of 5.5 parts per billion, or ppb (AWQS is 5 ppb), tetrachloroethylene (PCE) at a maximum concentration of 26 ppb (AWQS 5 ppb), and cis-1,2-dichloroethylene at a maximum concentration of 16 ppb (AWQS 5 ppb). Metals that were found at concentrations exceeding the AWQS in groundwater samples include magnesium at a maximum concentration of 38,500 ppb (AWQS 35,000 ppb), and manganese at a maximum concentration of 1,320 ppb (AWQS 300 ppb). Perfluorooctanoic Acid (PFOA) was found exceeding its groundwater guidance value of 10 part per trillion (ppt) at a maximum concentration of 42.5 ppt. Perfluorooctanesulfonic Acid (PFOS) was found exceeding its groundwater guidance value of 10 ppt at a maximum concentration of 161 ppt. Data does not indicate any off-site impacts in groundwater related to this site.

Soil Vapor: TCE was detected at a maximum concentration of 5,800 micrograms per cubic meter (ug/m3), and PCE was detected at a maximum concentration of 570 ug/m3 in the soil vapor. Data indicates that there is the potential for off-site impacts in soil vapor related to this site.

### 6.4: Summary of Human Exposure Pathways

This human exposure assessment identifies ways in which people may be exposed to site-related contaminants. Chemicals can enter the body through three major pathways (breathing, touching or swallowing). This is referred to as *exposure.*

Since the site is covered by a vacant building and pavement, it is unlikely that people will come into direct contact with site-related soil and groundwater contamination. The area is served by a public water supply that is not affected by the groundwater contamination. Volatile organic compounds in soil vapor (air spaces within the soil) may move into buildings and affect the indoor air quality. This process, which is similar to the movement of radon gas from the subsurface into the indoor air of buildings, is referred to as soil vapor intrusion. Because the building is vacant, soil vapor intrusion does not represent a current concern. The potential exists for the inhalation of site contaminants due to soil vapor intrusion for any future on-site redevelopment. There is a potential for soil vapor intrusion to impact indoor air in adjacent structures.

### 6.5: Summary of the Remediation Objectives

The objectives for the remedial program have been established through the remedy selection process stated in 6 NYCRR Part 375. The goal for the remedial program is to restore the site to pre-disposal conditions to the extent feasible. At a minimum, the remedy shall eliminate or mitigate all significant threats to public health and the environment presented by the contamination identified at the site through the proper application of scientific and engineering principles.

The remedial action objectives for this site are:

**Groundwater**

**RAOs for Public Health Protection**

- Prevent ingestion of groundwater with contaminant levels exceeding drinking water standards.
- Prevent contact with, or inhalation of volatiles, from contaminated groundwater.

**RAOs for Environmental Protection**

- Restore ground water aquifer to pre-disposal/pre-release conditions, to the extent practicable.
- Remove the source of ground or surface water contamination.

**Soil**

**RAOs for Public Health Protection**

- Prevent ingestion/direct contact with contaminated soil.
- Prevent inhalation of or exposure from contaminants volatilizing from contaminants in soil.

**RAOs for Environmental Protection**

- Prevent migration of contaminants that would result in groundwater or surface

water contamination.

**Soil Vapor**

**RAOs for Public Health Protection**

- Mitigate impacts to public health resulting from existing, or the potential for, soil vapor intrusion into buildings at a site.

## SECTION 7: ELEMENTS OF THE SELECTED REMEDY

The alternatives developed for the site and the evaluation of the remedial criteria are presented in the Alternative Analysis. The remedy is selected pursuant to the remedy selection criteria set forth in DER-10, Technical Guidance for Site Investigation and Remediation and 6 NYCRR Part 375.

The selected remedy is a Track 2: Restricted use with generic soil cleanup objectives remedy.

The selected remedy is referred to as the Excavation, SVE and Bioremediation remedy.

The elements of the selected remedy, as shown in Figures 3-6, are as follows:

1. Remedial Design

A remedial design program will be implemented to provide the details necessary for the construction, operation, optimization, maintenance, and monitoring of the remedial program. Green remediation principles and techniques will be implemented to the extent feasible in the design, implementation, and site management of the remedy as per DER-31. The major green remediation components are as follows;

- Considering the environmental impacts of treatment technologies and remedy stewardship over the long term;
- Reducing direct and indirect greenhouse gases and other emissions;
- Increasing energy efficiency and minimizing use of non-renewable energy;
- Conserving and efficiently managing resources and materials;
- Reducing waste, increasing recycling and increasing reuse of materials which would otherwise be considered a waste;
- Maximizing habitat value and creating habitat when possible;
- Fostering green and healthy communities and working landscapes which balance ecological, economic and social goals;
- Integrating the remedy with the end use where possible and encouraging green and sustainable re-development; and
- Additionally, to incorporate green remediation principles and techniques to the extent feasible in the future development at this site, any future on-site buildings will include, at a minimum, a 20-mil vapor barrier/waterproofing membrane on the foundation to improve energy efficiency as an element of construction.

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The existing on-site building(s) will be demolished and materials which can't be beneficially

reused on site will be taken off-site for proper disposal in order to implement the remedy.

Excavation and off-site disposal of contaminant source areas, including:

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- any underground storage tanks (USTs), fuel dispensers, underground piping or other structures associated with a source of contamination.

In addition, all soils and historic fill which exceed PFAS soil guideline values and restricted-residential SCOs, as defined by 6 NYCRR Part 375-6.8, in the upper 15 feet will be excavated. Excavation is likely required to approximately 7 feet below ground surface across the Site; however, additional excavation may be required based on the results of end point sampling. A minimum of approximately 2,600 cubic yards of contaminated soil/fill will be removed from the site. If a Track 2 restricted residential cleanup is achieved, a Cover System will not be a required.

3. Backfill
On-site soil which does not exceed the above excavation criteria may be used to backfill the excavation and establish the design grades at the site. Clean fill meeting the requirements of 6 NYCRR Part 375-6.7(d) will be brought in to replace the excavated soil or complete the backfilling of the excavation and establish the designed grades at the site.

4. Soil Vapor Extraction (SVE)
Soil vapor extraction (SVE) will be implemented along the southern and western portions of the site to remove volatile organic compounds (VOCs) from the subsurface and to prevent off-site migration. VOCs will be physically removed from the soil by applying a vacuum to wells that have been installed into the vadose zone (the area below the ground but above the water table). The vacuum draws air through the soil matrix which carries the VOCs from the soil to the SVE well. The air extracted from the SVE wells is then treated as necessary prior to being discharged to the atmosphere.

5. Vapor Mitigation
Any on-site buildings will be required to have a sub-slab depressurization system (SSDS) or other acceptable measures, to mitigate the migration of vapors into the building from groundwater.

6. Enhanced Bioremediation
In-situ enhanced biodegradation will be employed to treat VOCs in groundwater within the base of excavation. The biological breakdown of contaminants through aerobic bioremediation will be enhanced by the placement of an oxygen release compound (ORC), or similar material into the subsurface.

7. Institutional Controls
Imposition of an institutional control in the form of an environmental easement for the controlled property which will:

- require the remedial party or site owner to complete and submit to the Department a periodic certification of institutional and engineering controls in accordance with Part 375-1.8 (h)(3);
- allow the use and development of the controlled property for restricted residential use as defined by Part 375-1.8(g), although land use is subject to local zoning laws;
- restrict the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by the NYSDOH or NYCDOHMH; and
- require compliance with the Department approved Site Management Plan.

8. Site Management Plan
A Site Management Plan is required, which includes the following:

a. An Institutional and Engineering Control Plan that identifies all use restrictions and engineering controls for the site and details the steps and media-specific requirements necessary to ensure the following institutional and/or engineering controls remain in place and effective:

- Institutional Controls: The Environmental Easement discussed in Paragraph 8 above.

- Engineering Controls: The SVE system discussed in Paragraph 4, the vapor mitigation discussed in Paragraph 5, and the cover system (if needed) discussed in the contingent remedy.

This plan includes, but may not be limited to:
- an Excavation Plan which details the provisions for management of future excavations in areas of remaining contamination;
- descriptions of the provisions of the environmental easement including any land use, and groundwater use restrictions;
- a provision that should a building foundation or building slab be removed in the future and a cover system is needed, a cover system consistent with that described in the contingent remedy will be placed in any areas where the upper two feet of exposed surface soil exceed the applicable soil cleanup objectives (SCOs)
- provisions for the management and inspection of the identified engineering controls;
- maintaining site access controls and Department notification; and
- the steps necessary for the periodic reviews and certification of the institutional and/or engineering controls.

b. A Monitoring Plan to assess the performance and effectiveness of the remedy. The plan includes, but may not be limited to:
- monitoring of groundwater to assess the performance and effectiveness of the remedy;
- a schedule of monitoring and frequency of submittals to the Department;
- monitoring for vapor intrusion for any buildings on the site, as may be required by the Institutional and Engineering control plan discussed above.

c. An Operation and Maintenance (O&M) Plan to ensure continued operation, maintenance, inspection, and reporting of any mechanical or physical components of the active vapor mitigation system(s), Soil Vapor Extraction (SVE) system(s), and contingent cover system, if needed. The plan includes, but is not limited to:
- procedures for operating and maintaining the systems; and

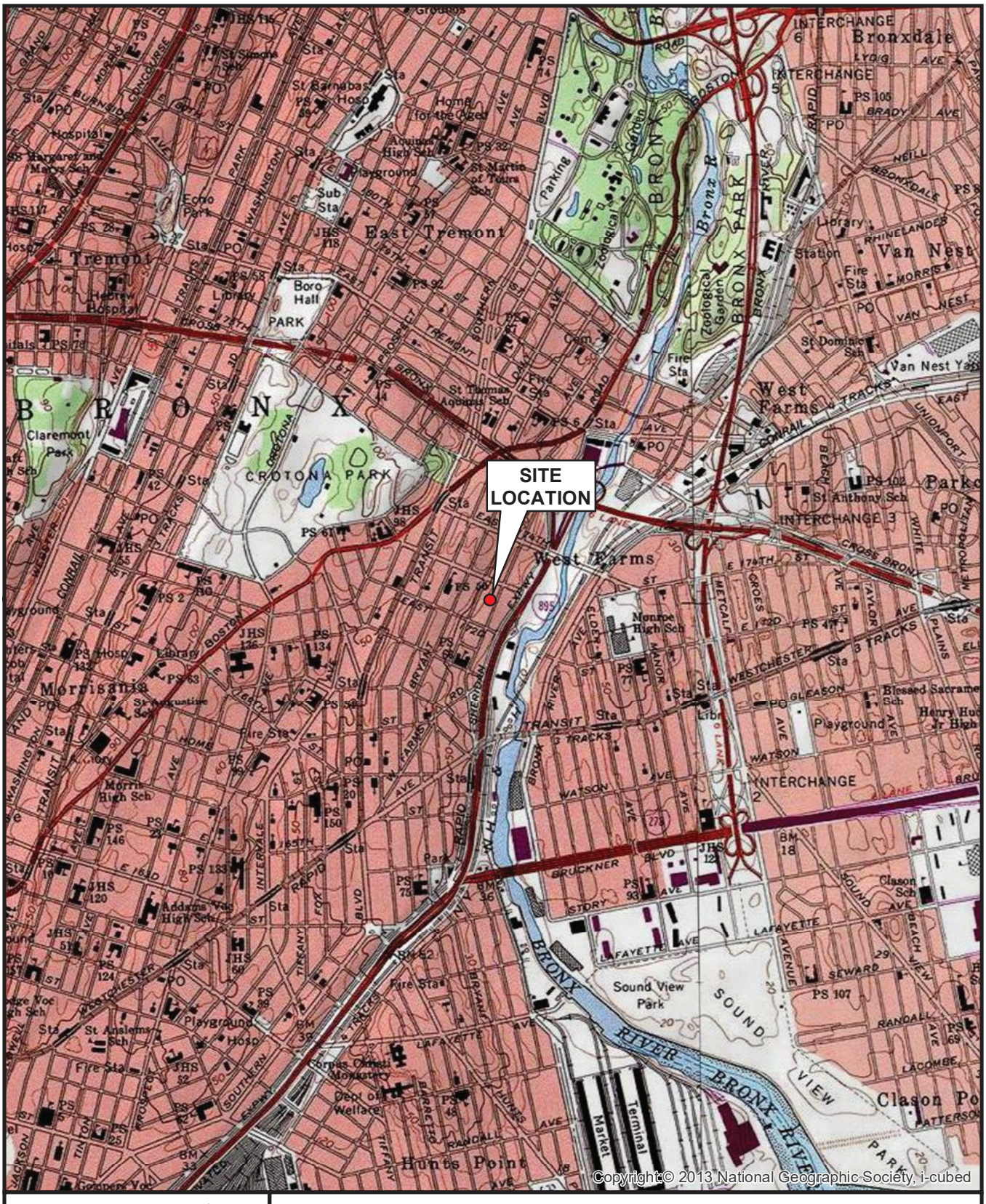
- compliance inspection of the system to ensure proper O&M as well as providing the data for any necessary reporting.

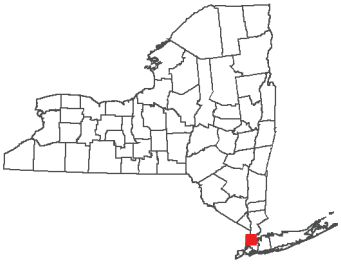
Contingent Remedy Element

The intent of the remedy is to achieve Track 2 restricted residential use; therefore, no cover system is anticipated.

In the event that a Track 2 restricted residential cleanup is not achieved on all or a portion of the site, the remedy will achieve a Track 4 site-specific cleanup in the areas where Track 2 is not achieved and exposure to the residual contaminated soil/fill will be prevented by a cover system.

A site cover will be required to allow for restricted residential use of the site in areas where the upper two feet of exposed surface soil will exceed the applicable soil cleanup objectives (SCOs). Where a soil cover is to be used it will be a minimum of two feet of soil meeting restricted residential SCOs placed over a demarcation layer, with the upper six inches of soil of sufficient quality to maintain a vegetative layer. Soil cover material, including any fill material brought to the site, will meet the SCOs for cover material for the use of the site as set forth in 6 NYCRR Part 375-6.7(d). Substitution of other materials and components may be allowed where such components already exist or are a component of the tangible property to be placed as part of site redevelopment. Such components may include, but are not necessarily limited to: pavement, concrete, paved surface parking areas, sidewalks, building foundations and building slabs. If a Track 2 restricted residential cleanup is achieved, a Cover System will not be a required element of the remedy.



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# Figure 1

## Site Location Map

1559 Boone Avenue Apartments
New York City, Bronx County
Site No. C203141

NEW YORK
STATE OF
OPPORTUNITY

Department of
Environmental
Conservation


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0 145 290
Feet

# Figure 2: Site Map

## 1559 Boone Avenue Apartments

1559 Boone Avenue
New York City, Bronx County
Site No. C203141

NEW YORK STATE OF OPPORTUNITY
Department of Environmental Conservation


**LEGEND**

- PROJECT SITE BOUNDARY
- 33 LOT BOUNDARY AND TAX LOT NUMBER
- 3009 BLOCK NUMBER
- EXISTING BUILDING
- PROPOSED REMEDIAL EXCAVATION TO MAXIMUM 15 FEET BELOW GRADE OR BEDROCK TO ACHIEVE RAOS
- PROPOSED REMEDIAL EXCAVATION TO BEDROCK
- PROPOSED EXCAVATION ENDPOINT SAMPLE
- ALPHANUMERIC GRID

0 20 40
SCALE IN FEET

Map Source:
NYCDCP (NYC Dept. of City Planning) GIS database.

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440 Park Avenue South, New York, NY 10016

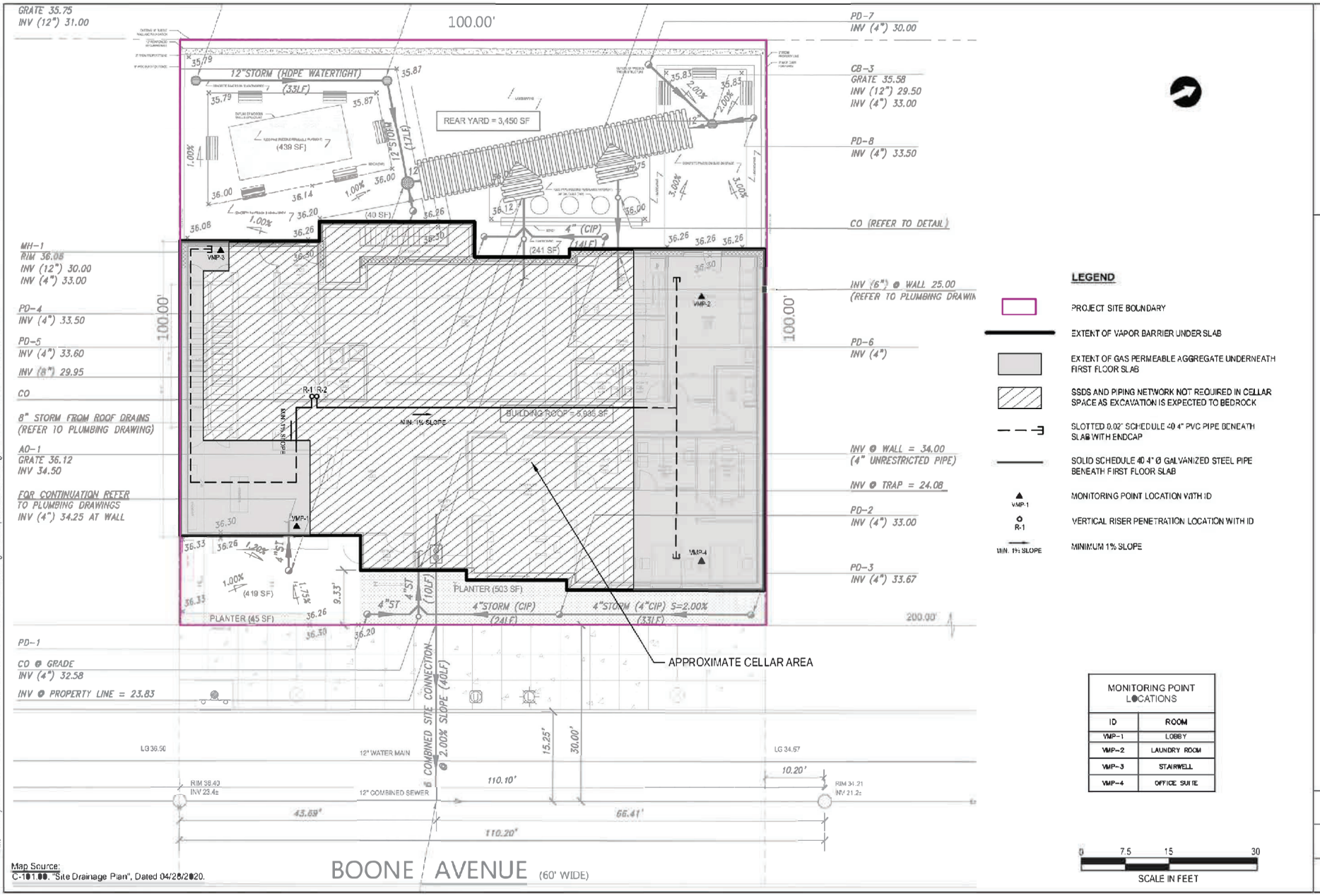
**1559 Boone Avenue**
Bronx, New York

# PROPOSED REMEDIAL EXCAVATION PLAN

DATE
8/31/2020

PROJECT NO.
190081

FIGURE
3




Map Source:
C-101.00, "Site Drainage Plan", Dated 04/28/2020.

AKRF, Inc. W:\Projects\190081 - 1559 BOONE AVENUE\Technical\Hazmat\RAW\PICAD\190081 Fig 11 Conceptual SSDS Plan.dwg last save: mvelleux 8/31/2020 3:33 PM

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**1559 Boone Avenue**
Bronx, New York

**CONCEPTUAL SSDS PLAN**

DATE
8/31/2020
PROJECT NO
190081
FIGURE
4


**LEGEND**

- PROJECT SITE BOUNDARY
- EXISTING BUILDING
- 33 LOT BOUNDARY AND TAX LOT NUMBER
- 3009 BLOCK NUMBER
- EQUIPMENT ENCLOSURE
- 4-INCH DIAMETER SVE PIPING
- PROPOSED SOIL VAPOR EXTRACTION WELL
- 30-FOOT RADIUS OF influence
- PROPOSED BUILDING FOOTPRINT

0 20 40
SCALE IN FEET

Map Source:
NYCDCP (NYC Dept. of City Planning) GIS database.

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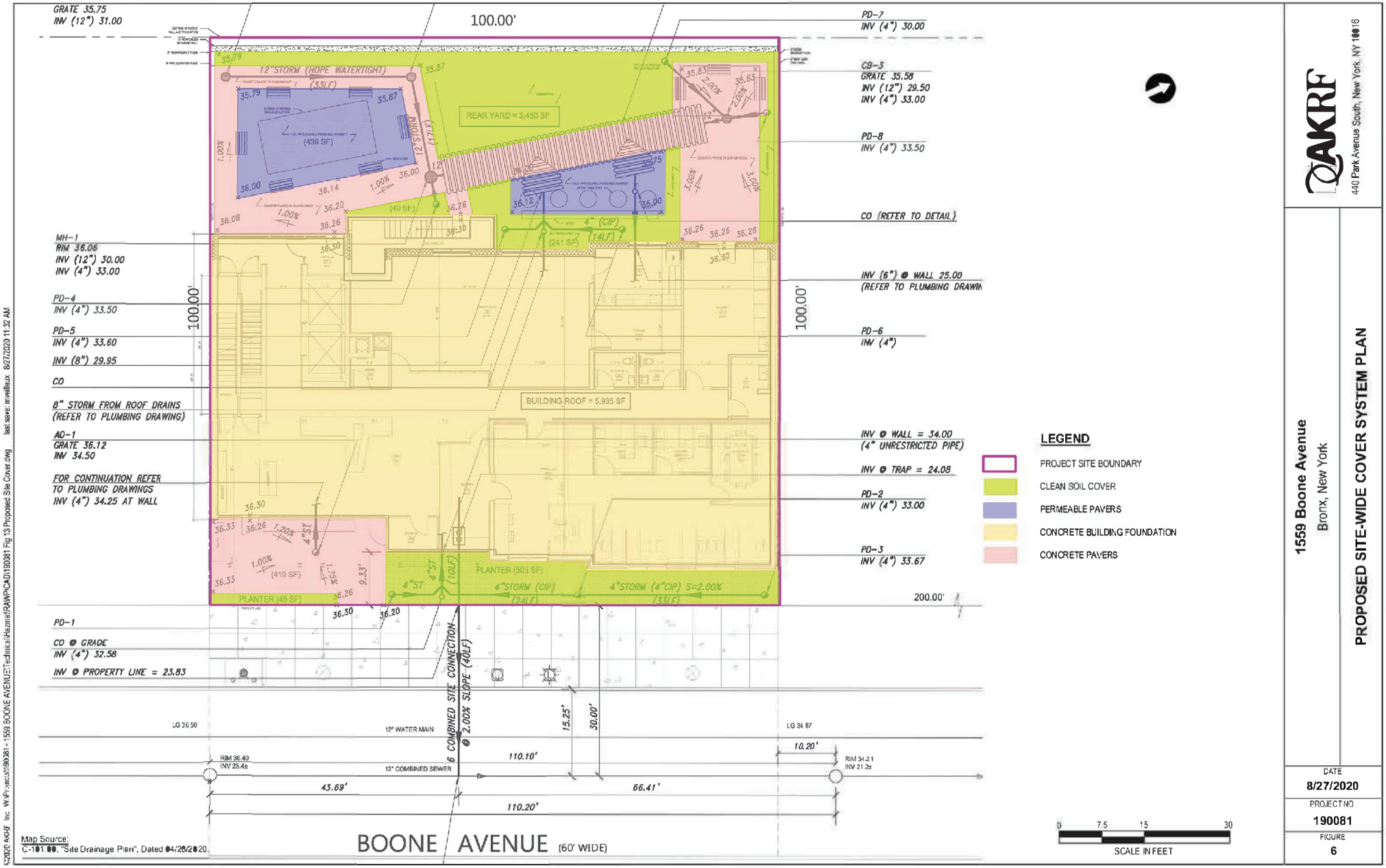
**1559 Boone Avenue**
Bronx, New York

**CONCPETUAL SVES PLAN**

DATE
8/31/2020

PROJECT NO.
190081

FIGURE
5




Map Source:
C-101.00, "Site Drainage Plan", Dated 04/28/2020.

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1559 Boone Avenue
Bronx, New York

PROPOSED SITE-WIDE COVER SYSTEM PLAN

DATE
8/27/2020

PROJECT NO
190081

FIGURE
6