DECISION DOCUMENT

Courtlandt Crescent Associates, L.P.
Brownfield Cleanup Program
Bronx, Bronx County
Site No. C203058
June 2011

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

DECLARATION STATEMENT - DECISION DOCUMENT

Courtlandt Crescent Associates, L.P.
Brownfield Cleanup Program
Bronx, Bronx County
Site No. C203058
June 2011

Statement of Purpose and Basis

This document presents the remedy for the Courtlandt Crescent Associates, L.P. 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 Courtlandt Crescent Associates, L.P. 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. Excavation. On-site soils which exceed site-specific SCOs will be excavated and transported off-site for disposal. Since groundwater is contaminated with VOCs, the residual soil must also meet the protection of groundwater SCOs for these contaminants regardless of depth. Approximately 26,000 tons of soil will be removed. Clean fill will then be brought in to replace the excavated soil and establish the designed grades at the site.

2. Vapor Mitigation. Any future on-site buildings will be required to have a sub-slab depressurization system, or a similar engineered system, to prevent the migration of vapors into the building from groundwater. A vapor barrier will also be added. The proposed underground parking structure would be designed to meet ventilation requirements of NYC Building Codes.

3. In-Situ Chemical Oxidation. In-situ chemical oxidation is a technology used to treat chlorinated ethane and petroleum-related compounds (a type of volatile organic compound) in the soil and groundwater. The process injects a chemical oxidant into the subsurface via injection wells or an infiltration gallery. The method of injection and depth of injection is determined by location of the contamination. As the chemical oxidant comes into contact with the contaminant, an oxidation reaction occurs that breaks down the contaminant into relatively benign compounds such as carbon dioxide and water. Several chemical oxidants are commercially available. For the purpose of this discussion, sodium percarbonate and magnesium peroxide will be the chemical oxidant evaluated. At this site, the chemical oxidant will be applied through Geoprobe tools from 20 to 10 feet to target benzene, MTBE, and trichloroethane.

4. Cover System. A site cover will be required to allow for restricted residential use of the site. The cover will consist either of the structures such as buildings, pavement, sidewalks comprising the site development or a soil cover in areas where the upper two feet of exposed surface soil will exceed the applicable soil cleanup objectives (SCOs). Where the soil cover is required it will be a minimum of two feet of soil, meeting the SCOs for cover material as set forth in 6 NYCRR Part 375-6.7(d) for restricted residential use. The soil cover will be placed over a demarcation layer, with the upper six inches of the soil of sufficient quality to maintain a vegetation layer. Any fill material brought to the site will meet the requirements for the identified site use as set forth in 6 NYCRR Part 375-6.7(d).

5. Institutional Control. Imposition of an institutional control in the form of an environmental easement:

a. requires 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).

b. allows the use and development of the controlled property for restricted residential, commercial and industrial uses as defined by Part 375-1.8(g), though land use is subject to local zoning laws;

c. restricts the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by the Department, NYSDOH or County DOH;

d. prohibits agriculture or vegetable gardens on the controlled property;

e. requires compliance with the Department approved Site Management Plan;

6. 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 5 above.

Engineering Controls: The vapor mitigation discussed in Paragraph 2, in-situ chemical oxidation discussed in Paragraph 3, and cover system discussed in Paragraph 4 above.

This plan includes, but may not be limited to:

i. an Excavation Plan which details the provisions for management of future excavations in areas of remaining contamination;

ii. descriptions of the provisions of the environmental easement including any land use and groundwater use restrictions;

iii. a provision for evaluation of the potential for soil vapor intrusion should the on-site building become occupied and for any buildings developed on the site, including provision for implementing actions recommended to address exposures related to soil vapor intrusion.

iv. provisions for the management and inspection of the identified engineering controls;

v. maintaining site access controls and Department notification; and

vi. 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:

i. monitoring of groundwater to assess the performance and effectiveness of the remedy;

ii. a schedule of monitoring and frequency of submittals to the Department;

iii. monitoring for vapor intrusion for any buildings occupied or developed on the site, as may be required pursuant to item a.iii above.

Green remediation principals and techniques will be implemented to the extent feasible in the 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 gas 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.

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.

06/23/2011

Date

Robert Cozzy, Director
Remedial Bureau B

DECISION DOCUMENT

Courtlandt Crescent Associates, L.P.
Bronx, Bronx County
Site No. C203058
June 2011

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, the redevelopment or reuse of which may be complicated by the presence or potential presence of a contaminant.

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: SITE DESCRIPTION AND HISTORY

Location:
The Courtlandt Crescent site is located at 383 East 162nd Street, Bronx in an urban area. The site is comprised of 10 contiguous lots totaling 0.91 acres located along East 163rd Street, East 162nd Street, Melrose Avenue, and Courtlandt Avenue.

Site Features:
The site currently contains a vacant two-story industrial building, vacant one-story commercial building, vacant three-story residential building, and seven undeveloped lots with either an asphalt paved surface or a concrete, brick and grass mixed surface. The three structures were deemed unsafe and the Applicant is proceeding with the asbestos abatement and demolition.

Current Zoning/Use(s):
A zoning change under NYC's Uniform Land Use Review Procedure (ULURP) process commenced on November 3, 2010 and was approved in April 2011.The zoning change rezoned the Site from an R7-2 District to R7A and R8 Districts, and established a C1-4 overlay within the R8 District, which will allow a mixed use residential/commercial development.

Historical Uses(s):
The site was developed with a filling station from 1951 through 1969, an auto repair shop from 1965 through 1984, and from 1991 through 1993, a machine shop in 1951, an auto junkyard from 1984 through 1988, an iron works from 1993 through 2007, boiler repair shop from 2000 to 2005, brass fabricator shop in 2000, universal machinery manufacturing, waste paper company and cosmetics company in 1927, and a saw works in 1993.

Site Geology and Hydrogeology:
According to the Surficial Geologic Map of New York, the subsurface soil is composed of poorly sorted glacial till with a variable thickness of up to approximately 1 to 50 meters. According to the Geologic Map of New York Lower Hudson Street, the underlying bedrock is composed of Inwood Marble from the Cambrian era.

The Site elevation ranges from 18 to 25 feet above mean sea level based on the Borough of the Bronx Datum. The Site is relatively level with a gradual slope to the northeast along Courtlandt Avenue, and has no natural or artificial surface water bodies or impoundments. Water from rain events runs off into street storm drains. The uppermost groundwater surface occurs at a depth ranging from 13 to 14 feet below sidewalk grade within the unconsolidated materials. The regional direction of groundwater flow is believed to be southerly towards the confluence of the Harlem and East Rivers. Based on Site-specific groundwater elevation data, groundwater flows in a northeasterly direction under the Site, most likely due to influences from a gradual elevation change. Groundwater in this area of the Bronx is not used for potable supply purposes, and no potable resources are threatened by local groundwater contamination.

The Department executed the Brownfield Cleanup Agreement for this site on May 11, 2011.

A site location map is attached as Figure 1.

SECTION 3: 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 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 4: ENFORCEMENT STATUS

The Applicant(s) under the Brownfield Cleanup Agreement is a/are Volunteer(s). The Applicant(s) does/do not have an obligation to address off-site contamination. However, the Department has determined that this site does not pose a significant threat to public health or the

environment; accordingly, no enforcement actions are necessary.

SECTION 5: SITE CONTAMINATION

5.1: 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 5.4.

5.1.1: 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

5.1.2: RI Information

The analytical data collected on this site includes data for:

- air
- groundwater
- soil
- soil vapor
- indoor air

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:

benzo(b)fluoranthene	methyl-tert-butyl ether (mtbe)
barium	benzene
benzo(a)pyrene	1,1,1-trichloroethane
lead	tetrachloroethylene (pce)
chromium	trichloroethene (tce)
dieldrin	mercury

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

- groundwater
- soil
- soil vapor

5.2: 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.

5.3: 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 most of the site is fenced and covered by concrete or building foundations, people will not come into contact with site-related soil and groundwater contamination unless they disturb the few soil areas at the site or dig below the surface. Contaminated groundwater at the site is not used for drinking or other purposes and the sites is served by a public water supply that obtains water from a different source not affected by this contamination. Volatile organic compounds in groundwater may move into the soil vapor (air spaces within the soil), which in turn may move into overlying buildings and affect 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 site is vacant, the inhalation of site-related contaminants due to soil vapor intrusion does not represent a current concern. Furthermore, environmental sampling indicates soil vapor intrusion is not a concern for off-site buildings as a result of site contamination.

5.4: 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.

Nature and Extent of Contamination:
Based on the investigations conducted to date, known contaminants including chlorinated solvents, semi-volatile organic compounds (SVOCs), metals, pesticides and other volatile organic compounds (VOCs) are present in the subsurface. These contaminants are impacting soil, groundwater, and soil vapor. Previous investigations included a Phase I Environmental Site Assessment and a Remedial Investigation.

Soil:
No volatile organic compounds (VOCs) were detected in soil exceeding their respective SCGs. The SVOCs detected in soil samples include chrysene, benzo(a)anthracene, and benzo(b)fluoranthene. The concentrations ranged from 1.17 to 7.31 ppm for chrysene (1 ppm unrestricted); from 1.48 to 7.52 ppm for benzo(a)anthracene (1 ppm unrestricted); from 1.29 to 5.82 ppm for benzo(a)fluoranthene (1 ppm unrestricted). The concentration of lead detected ranged from 135 to 43,800 ppm (400 ppm unrestricted). The concentration of dieldrin ranged from 0.0786 to 0.122 ppm (0.039 ppm unrestricted).

Groundwater:
VOCs detected in groundwater include MTBE, benzene, and 1,1,1-trichloroethane (TCA). MTBE ranged from 11.3 to 17.5 ppb and was found in 2 out of 16 samples. Benzene ranged from 2.1 to 13.3 ppb and was found in 2 out of 16 samples. TCA was found in 1 sample at 9.1 ppb.

Soil Vapor:
VOCs detected in soil vapor samples include TCA, tetrachloroethylene (PCE), trichloroethylene (TCE) and BTEX compounds. TCA was detected in one sample at a concentration of 5.1 ug/m3. PCE ranged from 3.1 to 52 ug/m3 in 2 samples. TCE was found in one sample at 1 ug/m3. Combined BTEX compounds ranged from 35.5 to 101.6 ug/ m3 in three samples.

NYSDEC and NYSDOH determined this site does not pose a significant threat to the environment or public health.

SECTION 6: ELEMENTS OF THE SELECTED REMEDY

The alternatives developed for the site and evaluation of the remedial criteria are present 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 remedy.

The elements of the selected remedy, as shown in Figure 2, are as follows:

1. Excavation. On-site soils which exceed site-specific SCOs will be excavated and transported off-site for disposal. Since groundwater is contaminated with VOCs, the residual soil must also meet the protection of groundwater SCOs for these contaminants regardless of depth. Approximately 26,000 tons of soil will be removed. Clean fill will then be brought in to replace the excavated soil and establish the designed grades at the site.

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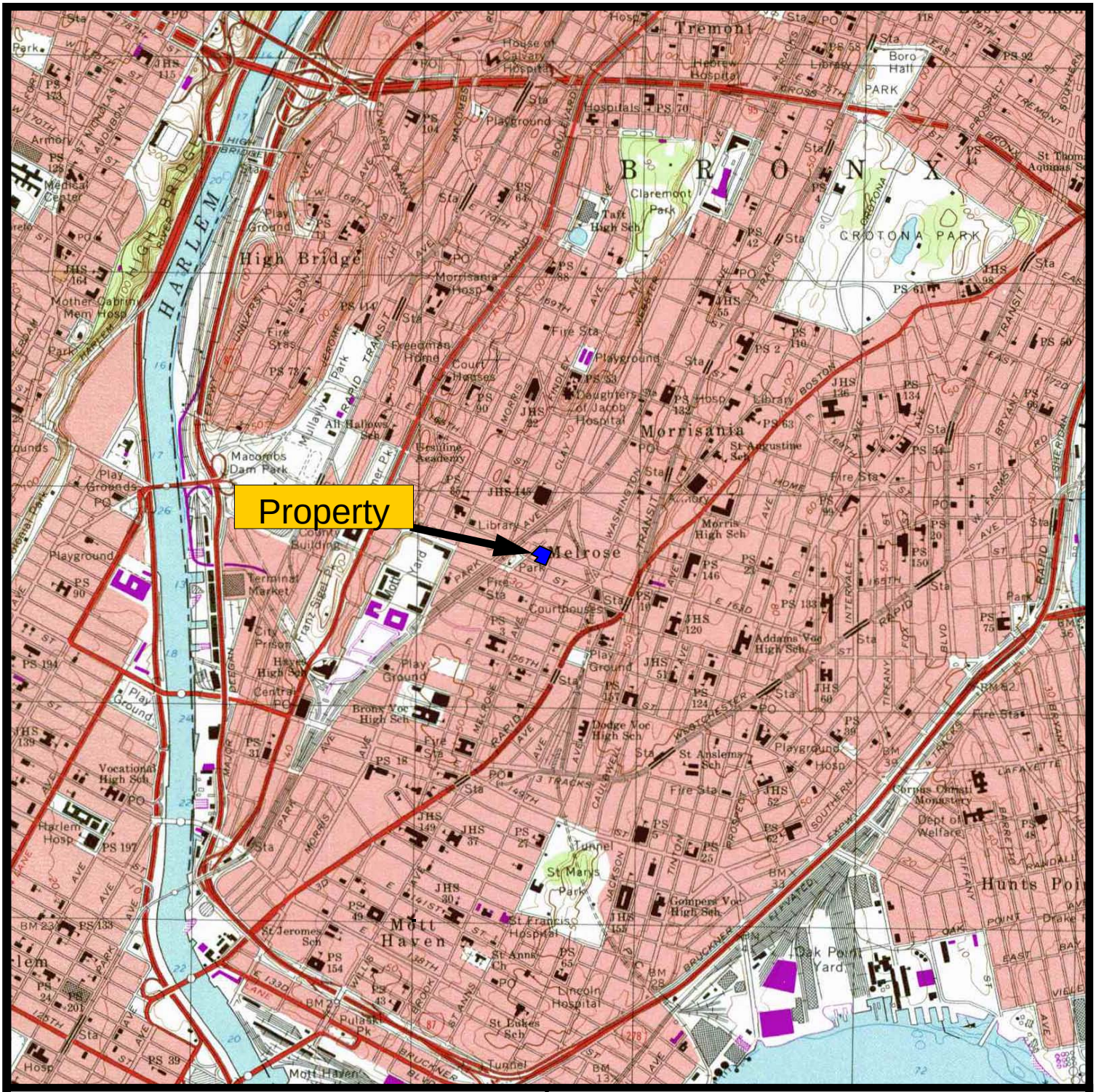
Table 1
Track 4 Site Specific Soil Cleanup Objectives (SSSCOs)
Courtlandt Crescent
383 East 162nd Street
Bronx, New York

Compound/Constituent	Track 4 SSSCOs	Units
VOCs with the exception of the following	Restricted Residential SCOs	
Benzene	0.06	mg/kg
Chloroform	0.37	mg/kg
1,1,1-Trichloroethane	0.68	mg/kg
MTBE	0.93	mg/kg
Total SVOCs	500	mg/kg
Metals	Commercial SCOs	

Notes:
mg/kg = milligrams per kilogram
VOC = volatile organic compound
SVOC = semi-volatile organic compound



APPROX. SCALE (ft.)

0 1,200 2,400

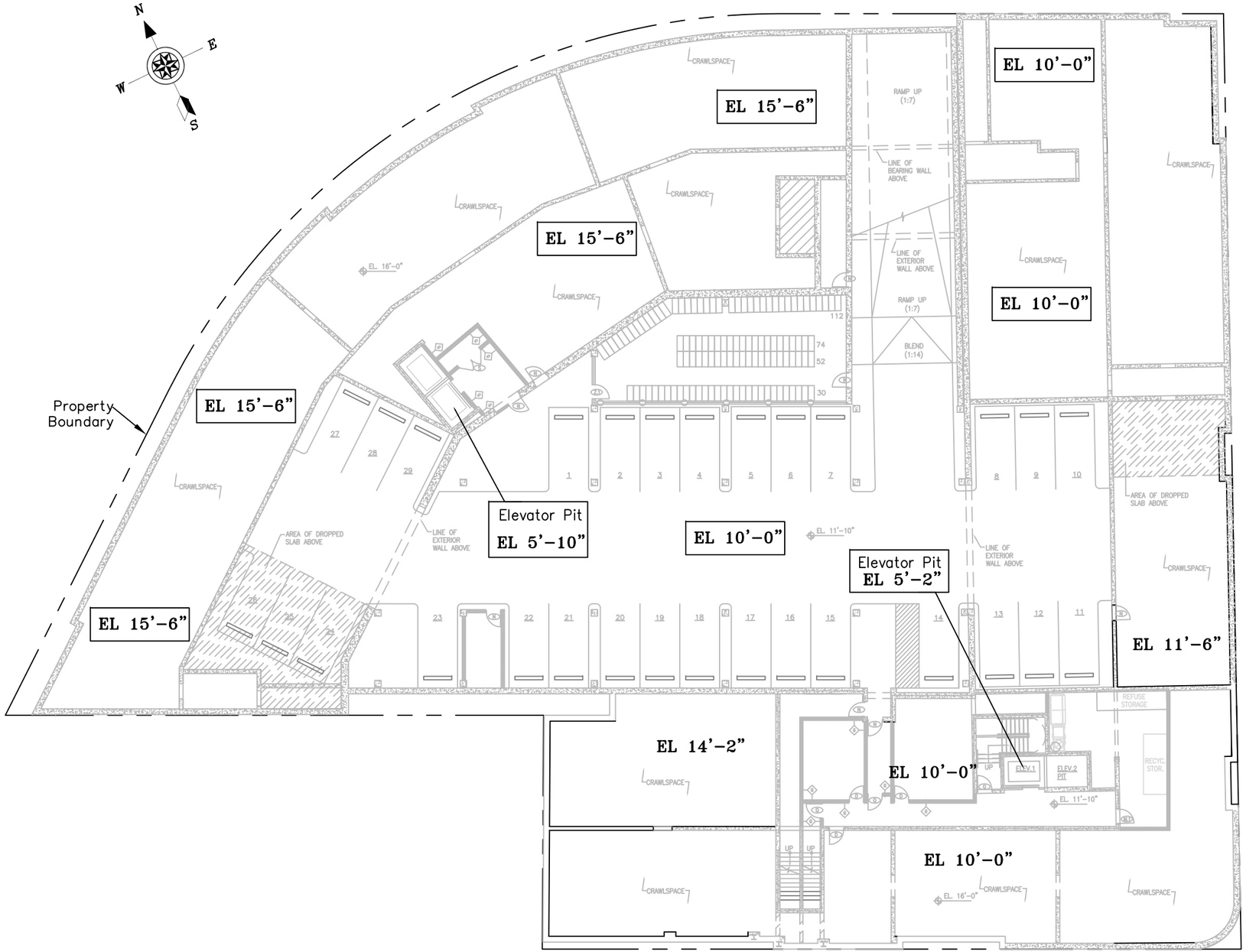
N

Adapted from USGS 1995 Central Park Quadrangle Map.

CA RICH CONSULTANTS, INC.
17 Dupont Street,
Plainview, NY 11803

TITLE: **SITE LOCATION MAP**	DATE: **10/30/09**
	SCALE: **AS SHOWN**
FIGURE: **1**	**Courtlandt Crescent** **383 East 162nd Street** **Bronx, New York**
DRAWING:	DRAWN BY: **J.T.C.**
	APPR. BY: **D.S.**

Decision Document Figure 2 - Extent of excavation



LEGEND

EL 15'–6" Elevation of Proposed Foundation Excavation

Average Grade is Elevation (EL) 20'–0"

Typical Depth of Excavation is 10 Feet Below Grade

Maximum Depth of Excavation below Elevator Pits is Approximately 15–Feet Below Grade

CA RICH CONSULTANTS, INC.

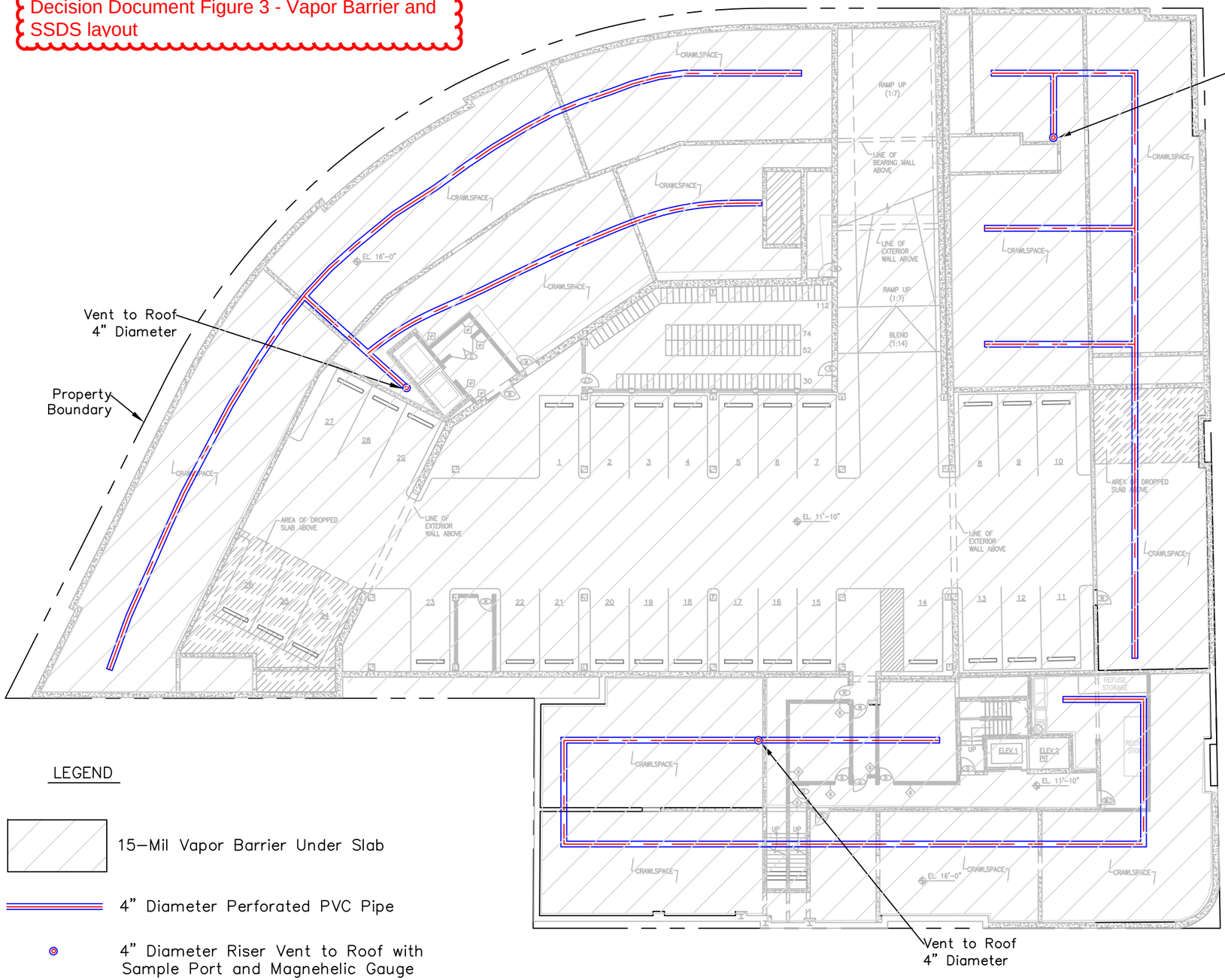
Environmental Specialists Since 1982
17 Dupont Street, Plainview, New York 11803

Stephen J. Osmundsen, P.E.

Consulting Engineer
514 Pantigo Road # 16, East Hampton New York 11937

TITLE: Extent of Proposed Foundation Excavation		DATE: 6/8/2011
		SCALE: AS SHOWN
FIGURE: 18	Courtlandt Crescent 383 East 162nd Street Bronx, New York	DRAWN BY: S.T.M.
DRAWING NO: 2011–26A		APPR. BY: D.S.

Decision Document Figure 3 - Vapor Barrier and SSDS layout

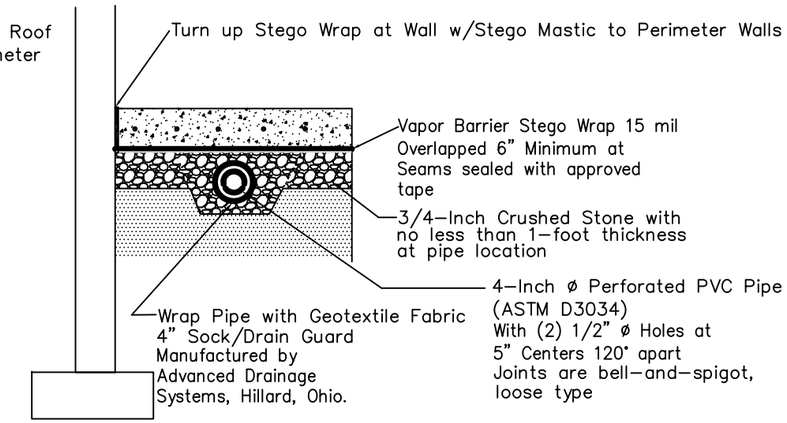


LEGEND

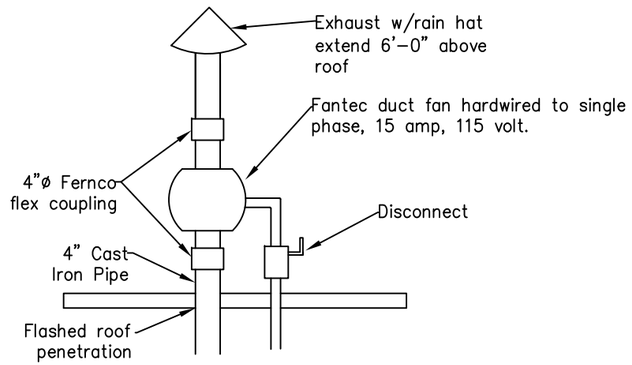
- 15–Mil Vapor Barrier Under Slab
- 4" Diameter Perforated PVC Pipe
- 4" Diameter Riser Vent to Roof with Sample Port and Magnehelic Gauge

Elevations Shown Refer to Top of Slab

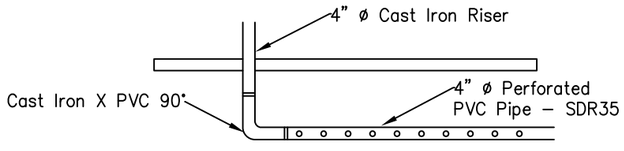
Typical Vent Pipe Cross–Section



Above Roof Detail



Typical Cast Iron Connection Details



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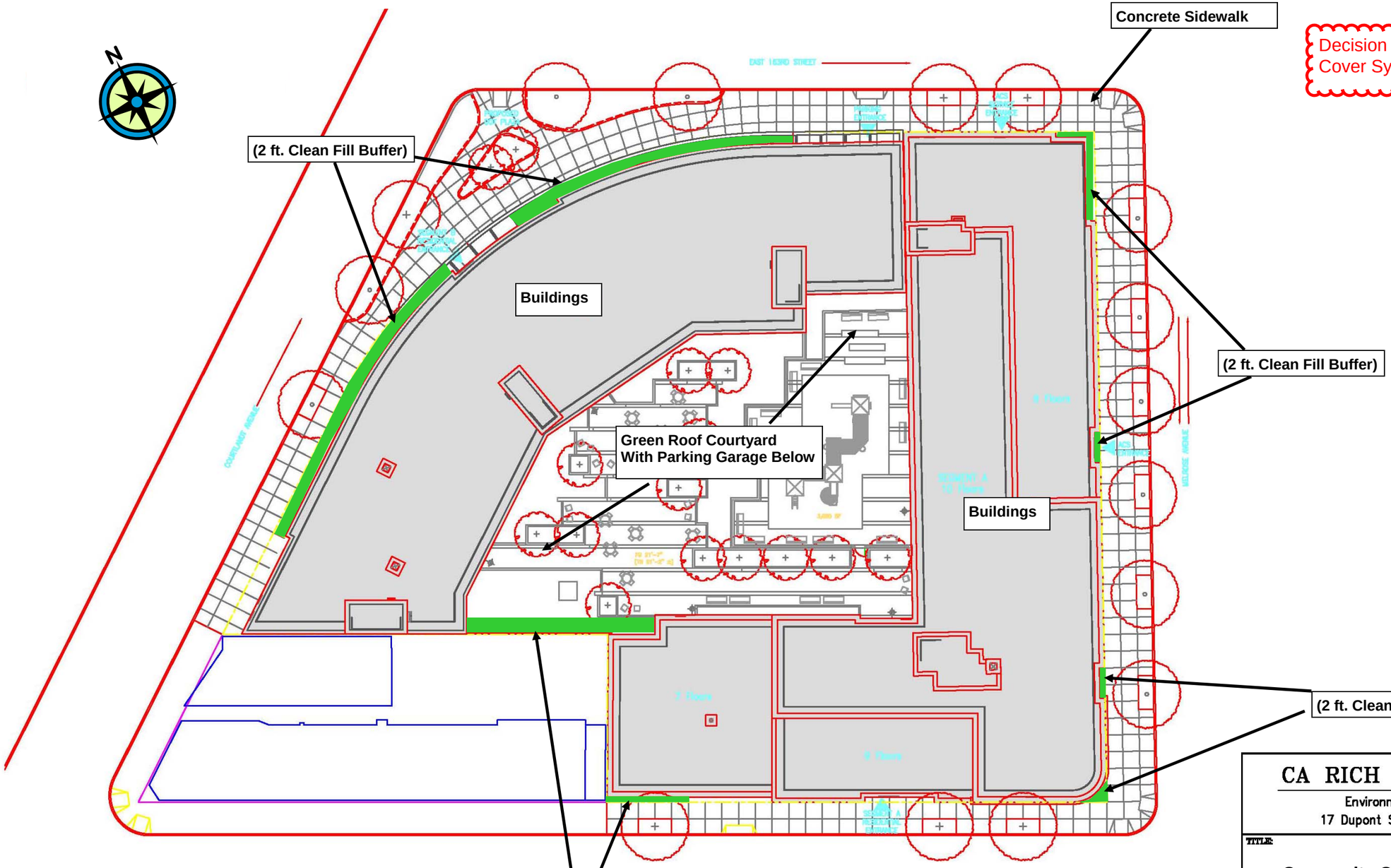
TITLE: Proposed Vapor Barrier/SSDS Layout	DATE: 6/8/2011
	SCALE: AS SHOWN
FIGURE: 12	DRAWN BY: S.T.M.
DRAWING NO: 2011–26	APPR. BY: D.S.

Courtlandt Crescent
383 East 162nd Street
Bronx, New York

Decision Document Figure 4 - Composite Cover System



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TITLE: Composite Cover System	DATE: 2/14/2011
	SCALE: AS SHOWN
FIGURE: 10	DRAWN BY: R.J.I.
DRAWING NO: 2011-10	APPR. BY: D.S.

Courtlandt Crescent
383 East 162nd Street
Bronx, NY