DECISION DOCUMENT

Orangetown Commerce Center
Brownfield Cleanup Program
Orangeburg, Rockland County
Site No. C344078
July 2017

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

DECLARATION STATEMENT - DECISION DOCUMENT

Orangetown Commerce Center
Brownfield Cleanup Program
Orangeburg, Rockland County
Site No. C344078
July 2017

Statement of Purpose and Basis

This document presents the remedy for the Orangetown Commerce Center 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 Orangetown Commerce Center 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:

The proposed remedy for this site includes:

1. 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; and
    - Integrating the remedy with the end use where possible and encouraging green and sustainable re-development.

2. Excavation and off-site disposal of petroleum contaminated soils in the vicinity of the former underground storage tank (UST) to a depth of approximately 15 feet below ground surface. The areal extent of the excavation area will be determined based on visual impacts. Any non-aqueous phase liquid encountered during excavation will be removed and transported off-site for disposal. In-situ chemical treatment will be employed in the area of excavation before backfilling if determined necessary based on analytical sampling results. Groundwater encountered during excavation will be characterized and treated as necessary for disposal. Clean fill meeting the requirements of 6 NYCRR Part 375-6.7(d) will be brought in to replace the excavated soil and establish the designed grades at the site.

3. A site cover will be required to allow for commercial use of the site in areas where the upper one foot of exposed surface soil will exceed the applicable soil cleanup objectives (SCOs). The site cover may consist of paved surface parking areas, sidewalks, or a soil cover. Where a soil cover is to be used it will be a minimum of one foot of soil 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 as set forth in 6 NYCRR Part 375-6.7(d). In areas where building foundations or building slabs preclude contact with the soil, the requirements for a site cover will be deferred until such time that they are removed.

4. Institutional Control

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 commercial uses as described in Part 375-1.8(g)(2)(iii) and industrial uses as described in Part 375-1.8(g)(2)(iv), 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 County DOH; and
- require compliance with the Department approved Site Management Plan.

5. 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 4 above.

Engineering Controls: The site cover discussed in Paragraph 3 above.

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 for evaluation of the potential for soil vapor intrusion for future buildings developed on the site, including provision for implementing actions recommended to address exposures related to soil vapor intrusion;
- 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 any change in the current conditions;
- schedule of monitoring and frequency of submittals to the Department; and
- monitoring for vapor intrusion for any new buildings developed on the site, as may be required by the Institutional and Engineering Control Plan discussed above.

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.

July 7, 2017

Date

George Heitzman, Director
Remedial Bureau C

DECISION DOCUMENT

Orangetown Commerce Center
Orangeburg, Rockland County
Site No. C344078
July 2017

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: 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 repository:

Orangeburg Library
Attn: Cheryl McNeil
20 South Greenbush Road
Orangeburg, NY 10962
Phone:

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, Voluntary 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 subject property is about 5.84 acres in size and is located at 5 Greenbush Road, Orangetown, New York. The site is bounded to the east by Greenbush Road, to the west by Western Highway and to the north by Highview Avenue.

Site Features: The property is currently undeveloped and no buildings remain. Concrete pads from the former buildings, as well as an underground storage tank (UST), have been removed. Small trees, brush and natural growth cover the property. A small portion of the site is currently being used as a storage yard for construction equipment.

Current Zoning and Land Use: The property is currently zoned as Light Industrial (LI), which allows for manufacturing, wholesale, warehouse and storage uses, offices, commercial, recreation and theaters. A portion of the property is used as a contractor's storage yard. The nearest residential area is about 175 feet west of the Site. The surrounding parcels are currently used for a combination of commercial, light industrial and residential use, and utility and railroad rights-of-way.

Past Use of the subject property: The subject property was part of a larger facility used for the manufacturing of Orangeburg Pipe beginning in about the 1890s. Prior to 1946, the Orangeburg Pipe was manufactured by impregnating paper fiber cylinders with coal tar pitch. From 1946 to 1970, a paper and asbestos mixture was used to make the pipe cylinders. After 1970, wollastonite (a fibrous, magnesium oxide mineral) was used in place of asbestos. Most of the manufacturing operations were located on the adjacent current Lowe's property. The subject property was reportedly used mainly for storage during this time. In 1953, manufacturing operations were acquired by Flintkote. Pipe manufacturing was reported to have discontinued in 1973. After ceasing operations, most of the facility was destroyed by fire. The remaining structures were reportedly demolished and deposited on the subject property.

Site Geology and Hydrogeology: The top 2 to 12 feet consists of a mixture of fill containing topsoil, sand, and gravel. The underlying soils are reported to consist of glacial till containing a low permeability mixture of reddish grey sand, gravel, silt and clay. The deeper native overburden above the bedrock was reported to contain some stratified drift deposits. The depth to the bedrock surface ranges from 35 to 45 feet below grade. Previous groundwater studies show that groundwater exists beneath the Orangeburg Pipe complex in three distinct units. The shallow water table exists at depths ranging from approximately 9 to 15 feet below grade and flows southeast. The second distinct unit exists in the deep till and the third unit consists of a bedrock aquifer. Groundwater flow in the deep till and bedrock aquifers to the east.

A site location map is attached as Figure 1.

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 commercial use (which allows for 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 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 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:

benzo(a)anthracene	manganese
benzo(a)pyrene	sodium
benzo[k]fluoranthene	benzo(b)fluoranthene
chrysene	dibenz[a,h]anthracene
indeno(1,2,3-CD)pyrene	lead
iron	phenanthrene

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.

Nature and Extent of Contamination: Remedial Investigation activities over the past three decades have analyzed groundwater, soil, and soil vapor samples at the site. The primary contaminants of concern at the Site include semi-volatile organic compounds (SVOCs), metals, and petroleum constituents. Non-aqueous phase liquid (NAPL) has been observed during multiple investigations. Volatile organic compounds (VOCs) were detected in groundwater during past investigations; however, recent sampling does not indicate the presence of VOCs at the site currently.

Soil - Investigations beginning in 1986 and conducted through 2016 have analyzed soil samples at the site at varying intervals for VOCs, SVOCs, pesticides, PCBs, and metals. Chromium, lead, and manganese were detected above commercial use SCOs. Chromium was detected at maximum concentrations of 38.4 parts per million (ppm). The commercial use soil cleanup objective (CUSCO) for chromium is 36 ppm. Lead was detected at a maximum concentration of 2,250 ppm (CUSCOs for lead is 1,000 ppm) and manganese was detected at a maximum concentration of 2,640 ppm (CUSCOs for manganese is 2,000 ppm.) SVOCs, primarily polyaromatic hydrocarbons (PAHs), including benzo[a]anthracene, benzo[a]pyrene, benzo[b]fluoranthene and chrysene etc., were detected at maximum concentrations of 110,000, 97,000, 120,000 and 110,000 ppm respectively. The CUSCO for each of these compounds is 1,000 ppm. Separate phase coal tar was observed at two locations on the site near and within the former tank area. The bulk of contaminated soil was encountered between 5 and 9 feet below ground surface (bgs), with contamination found in one location at 1 to 5 feet bgs. Pesticides and PCBs were not detected in soil samples.

Based on the investigations completed, the potential for soil contamination to extend off-site beneath the existing road cannot be ruled out. However, DEC will work with Rockland County Highway Department and NYSDOH to ensure that appropriate actions are taken to evaluate the potential for contamination and to minimize associated human exposures if this off-site area becomes accessible or is to be accessed.

Groundwater - Past investigations analyzed groundwater for VOCs, SVOCs, pesticides, PCBs, and metals. Analyses detected VOCs (mainly chlorinated solvents and petroleum constituents), SVOCs (primarily PAHs), and metals above ambient water quality standards. Volatile organic compounds were previously detected in groundwater during sampling events in the late 1980's and early 1990's; however, recent sampling (2009-2016) has indicated that VOCs are no longer impacting groundwater. SVOCs detected in groundwater include benzo[a]pyrene, benzo[b]fluoranthene and chrysene, which were detected at maximum concentrations of 1.8 ppb (standard of non-detect), 2.4 ppb (guidance of 0.002 ppb), and 2.4 ppb (guidance of 0.002 ppb), respectively. One pesticide (trans-Chlordane) was detected in two groundwater samples at concentrations of 0.013 ug/L and 0.01 ug/L. PCBs were not detected in groundwater.

Soil Vapor - Analysis of soil vapor was conducted during a sampling event in 1990. Three locations were sampled for VOCs, located in the northern half of the site: one point in the

northeastern corner of the site, and two points each about 100' from the site boundaries in the northwestern portion of the site. Perchloroethylene (PCE) was detected at one of the three soil vapor samples collected at maximum of concentration of 2,442 mcg/m3 (micrograms per cubic meter). Benzene was detected at 32 mcg/m3 and xylenes at 651 mcg/m3. No buildings currently exist on the site, eliminating the potential for soil vapor intrusion into indoor air on the site at this time.

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.*

The site is not fenced and persons who enter the site could contact contaminants in the soil by walking on the soil, digging or otherwise disturbing the soil. Contaminated groundwater at the site is not used for drinking or other purposes and the site is served by a public water supply that obtains water from a different source not affected by this contamination. Volatile organic compounds in the groundwater may move into the soil vapor (air spaces within the soil), which in turn may move into nearby 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 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.

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 4: Restricted use with site-specific soil cleanup objectives remedy.

The selected remedy is referred to as the Soil Removal, Site Cover and Monitoring with Institutional Controls remedy.

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

The proposed remedy for this site includes:

1. 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; and

- Integrating the remedy with the end use where possible and encouraging green and sustainable re-development.

2. Excavation and off-site disposal of petroleum contaminated soils in the vicinity of the former underground storage tank (UST) to a depth of approximately 15 feet below ground surface. The areal extent of the excavation area will be determined based on visual impacts. Any non-aqueous phase liquid encountered during excavation will be removed and transported off-site for disposal. In-situ chemical treatment will be employed in the area of excavation before backfilling if determined necessary based on analytical sampling results. Groundwater encountered during excavation will be characterized and treated as necessary for disposal. Clean fill meeting the requirements of 6 NYCRR Part 375-6.7(d) will be brought in to replace the excavated soil and establish the designed grades at the site.

3. A site cover will be required to allow for commercial use of the site in areas where the upper one foot of exposed surface soil will exceed the applicable soil cleanup objectives (SCOs). The site cover may consist of paved surface parking areas, sidewalks, or a soil cover. Where a soil cover is to be used it will be a minimum of one foot of soil 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 as set forth in 6 NYCRR Part 375-6.7(d). In areas where building foundations or building slabs preclude contact with the soil, the requirements for a site cover will be deferred until such time that they are removed.

4. Institutional Control

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 commercial uses as described in Part 375-1.8(g)(2)(iii) and industrial uses as described in Part 375-1.8(g)(2)(iv), 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 County DOH; and
- require compliance with the Department approved Site Management Plan.

5. 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 4 above.

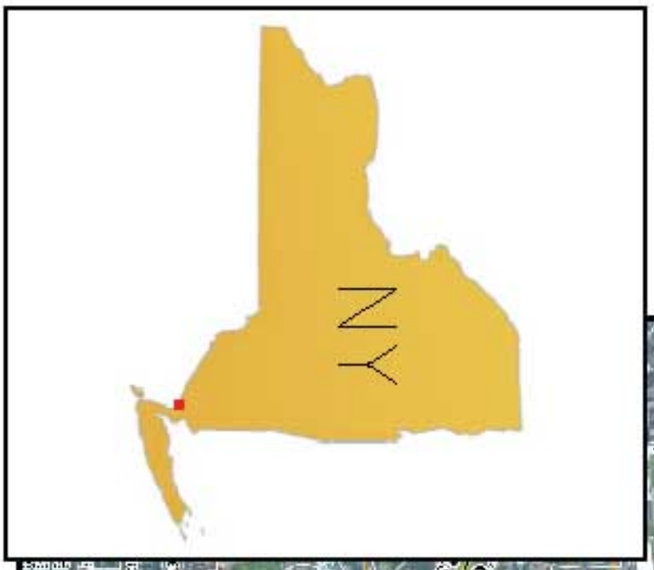
Engineering Controls: The site cover discussed in Paragraph 3 above.

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 for evaluation of the potential for soil vapor intrusion for future buildings developed on the site, including provision for implementing actions recommended to address exposures related to soil vapor intrusion;
- 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 any change in the current conditions;
- schedule of monitoring and frequency of submittals to the Department; and
- monitoring for vapor intrusion for any new buildings developed on the site, as may be required by the Institutional and Engineering Control Plan discussed above.

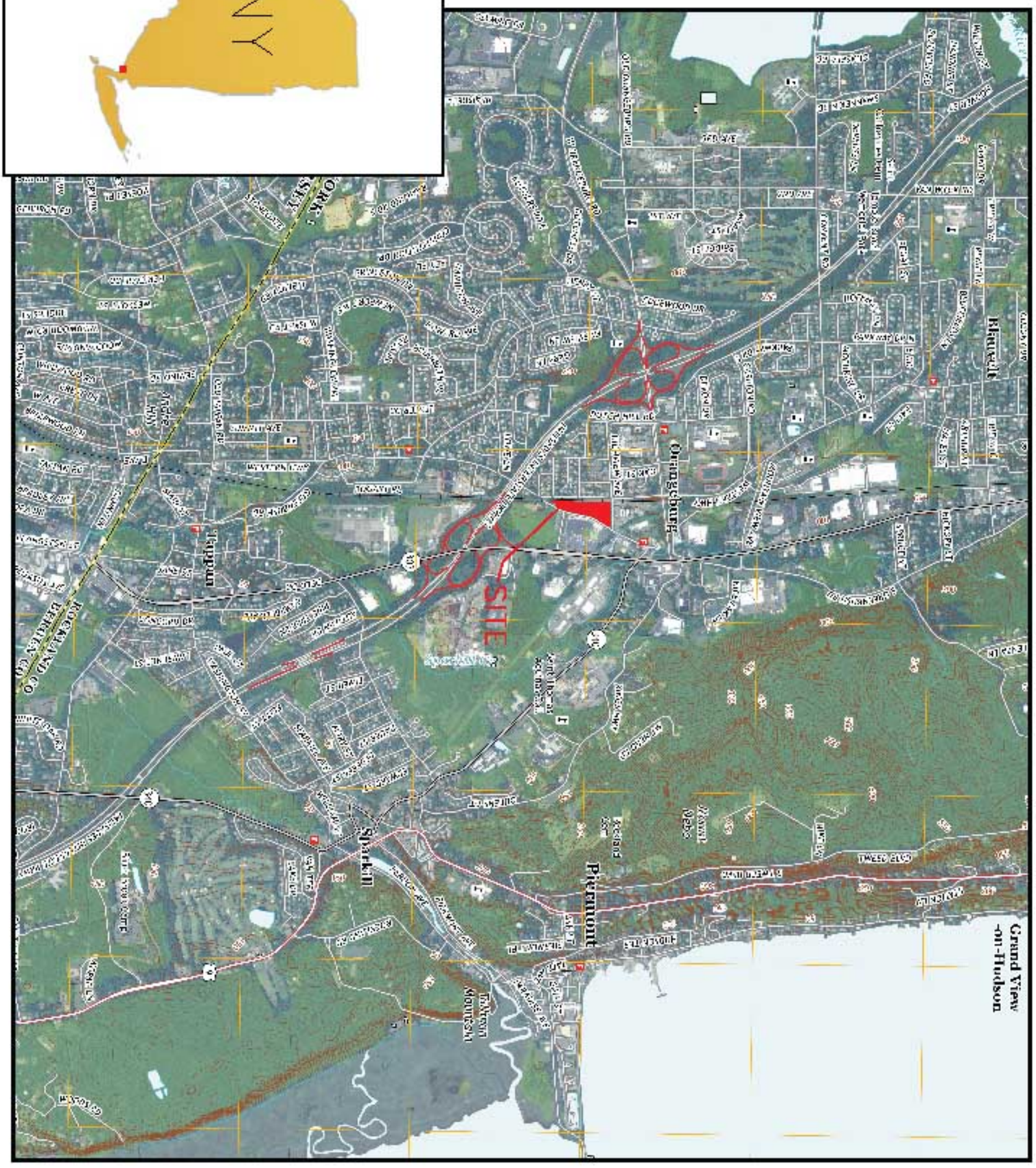


DETAIL LOCATION

RE: USGS NYACK–NY QUADRANGLE, 2013

0 2,000

SCALE: 1" = 2,000'



DRAWING TITLE: SITE LOCATION MAP	DRAWN BY: MC	CONSULTANT: TENEN ENVIRONMENTAL	LOCATION: 5 GREENBUSH ROAD ORANGEBURG, NY
	CHECKED BY: MM	TENEN ENVIRONMENTAL, LLC 121 West 27th Street Suite 303 New York, NY 10001 O: 646-606-2332 F: 646-606-2379	
DRAWING NO. FIGURE 1	DATE: 02/10/16		
	SCALE: AS NOTED		

DRAWING TITLE. ELEMENTS OF THE SITE REMEDY	DRAWN BY LM	CONSULTANT TENEN ENVIRONMENTAL TENEN ENVIRONMENTAL, LLC 121 West 27th Street Suite 303 New York, NY 10001 O: 646-606-2332 F: 646-606-2379	SITE ORANGETOWN COMMERCE CENTER 5 GREENBUSH ROAD ORANGEBURG, NY
	CHECKED BY MC		
DRAWING NO. FIGURE 2	DATE MAY 2017		
	SCALE: AS NOTED		