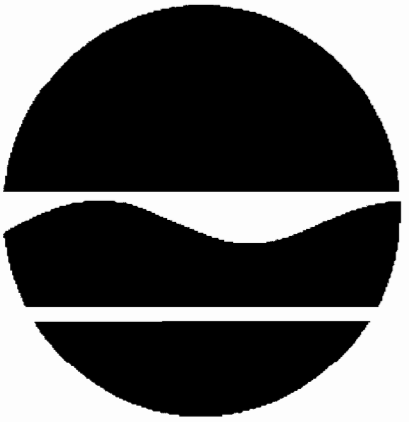
DECISION DOCUMENT

Former Tidewater Terminal
Brownfield Cleanup Program
Nyack, Rockland County
Site No. C344067
April 2012



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

DECLARATION STATEMENT - DECISION DOCUMENT

Former Tidewater Terminal
Brownfield Cleanup Program
Nyack, Rockland County
Site No. C344067
April 2012

Statement of Purpose and Basis

This document presents the remedy for the Former Tidewater Terminal 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 Former Tidewater Terminal 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. A remedial design program would be implemented to provide the details necessary for the construction, operation, 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 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;
- 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. Soils exceeding either the restricted residential or groundwater protection Soil Cleanup Objectives (SCOs) will be excavated to achieve the SCOs and disposed off-site with some

limitation. It is not practical to remove soil in certain areas due to depth and location (e.g., proximity to the property boundaries, sidewalks, and roadways). Specifically, two small areas on the western and southern edge of the site will remain with soils which likely will exceed the groundwater protection SCOs for Volatile Organic Compounds (VOCs), at depths greater than 10 feet below grade; and soil along the eastern edge of the site will remain, which will likely exceed the restricted residential SCOs for Semi-Volatile Organic Compounds (SVOCs) at depths greater than 10 feet below grade.

Should light non aqueous phase liquid (LNAPL) source material be found in areas where it cannot be removed, due to the noted limitations of the excavation, a passive collection system will be installed to remove the remainder of this source material.

3. A site cover will be required to allow for the 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).

4. Imposition of an institutional control in the form of an environmental easement for the controlled property that:

- 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);
- allows the use and development of the controlled property for restricted residential, commercial and industrial uses as defined by Part 375-1.8(g), although land use is subject to local zoning laws;
- restricts 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
- requires compliance with the Department approved Site Management Plan.

5. 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 above.

Engineering Controls: The soil cover and passive LNAPL collection system discussed 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 any 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 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 occupied or 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.

4/10/12
Date

Michael Ryan, Director
Remedial Bureau C

DECISION DOCUMENT

Former Tidewater Terminal
Nyack, Rockland County
Site No. C344067
April 2012

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 repositories:

The Nyack Public Library
59 South Broadway
Nyack, NY 10960
Phone: (845) 358-3370

NYSDEC
Attn: Region 3 Office
21 S. Putt Corners Rd
New Paltz, NY 12561
Phone: (845) 256-3154

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 site occupies approximately 0.8 acres at the corner of Gedney and Main Streets, a primarily residential area in Nyack, Rockland County.

Site Features: The site is adjacent to the banks of the Hudson River and is divided into two flat areas, or tiers, separated by a steep embankment.

Current Zoning/Uses: The site is zoned as a Waterfront Development C-3 zone. This means that the land use must be approved by the Village Board. The uppermost, western tier is currently vacant. The lower tier is currently in use as a parking area. The planned future use is for a multi-unit residential building to be constructed over most of the site.

Historic Uses: This site is the location of the Former Tidewater Oil Company, which stored and distributed petroleum products. Soils and groundwater at the site are contaminated by gasoline and petroleum products. The principal contaminants are BTEX compounds (benzene, toluene, ethylbenzene and xylenes).

The former Nyack manufactured gas plant (MGP) was located immediately to the north and was the source of coal tar contamination adjacent to the site. This contamination was already addressed under a separate remedial program.

Site Geology and Hydrogeology: The site is underlain by variable thicknesses of fill and glacial till. The bedrock beneath varies in depth from as little as 5 feet below the ground surface, in the western tier, and slopes down to roughly 20 feet below grade in the eastern portion of the site.

Groundwater at the site flows to the Hudson River (i.e., it flows from west to east) and is found as deep as 8 feet below the ground surface, in the western portion of the site.

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 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 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.

The property owner entered into a Brownfield Cleanup Agreement with the Department in 2006. The agreement obligates the property owner to perform a remedial investigation and to implement a remedy. In 2010, the Department made a finding that site did not represent a significant threat. With that finding, the property owner, as per 6 NYCRR Part 375, is permitted to select a remedy for addressing the contamination from a Department-approved Alternatives Analysis.

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:

BENZENE
TOLUENE
XYLENE (MIXED)
ETHYLBENZENE
Petroleum Products
BENZO(A)PYRENE
BENZO(B)FLUORANTHENE
BENZO(GHI)PERYLENE
BENZO[K]FLUORANTHENE
Chrysene
1,2,4-TRIMETHYLBENZENE

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: The Remedial Investigation identified that petroleum related contamination is present in the subsurface soil and is acting as a source of groundwater contamination. These contaminants include volatile organic compounds (VOCs), such as ethylbenzene, and xylenes. The highest contaminant concentration of VOCs was for 1,2,4-trimethylbenzene, found at a level of 21 parts per million (ppm). Subsurface soil in several locations has also been shown to contain elevated coencentrations of semi-volatile organic compounds (SVOCs) such as benzo(a)anthracene and chrysene. The highest level of SVOC contamination was benzo(a)anthracene at 4.8 ppm. The soil contamination is limited to areas around the locations of the former pumphouse, underground storage tanks, and at the eastern edge of the site.

Groundwater across the western tier of the site is heavily impacted by VOCs. Concentrations as high as 7,200 parts per billion (ppb) for total xylenes were found in the groundwater in the old pumphouse area of the western tier, sec-butylbenzene was also found in that area with concentrations as high as 23 ppb. Groundwater in the eastern portion of the site is much less contaminated with no xylenes detected and only 6.2 ppb of sec-butylbenzene.

The high levels of VOCs seen in the soil and groundwater samples suggests the possible presence of a light nonaqueous phase liquid (LNAPL). However, no LNAPL has been directly observed on the site.

Special Resources Threatened: The site is adjacent to the Hudson River, however, no impact has been found in the river from the 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.*

People are not drinking contaminated groundwater because the area is serviced by a public water supply that obtains its water from a different source. Access to the site is unrestricted, however, contact with contaminated soil or groundwater is unlikely unless people dig below the ground surface.

Volatile organic compounds in the groundwater or soil 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. The potential exists for the inhalation of site contaminants due to soil vapor intrusion for any future on-site development. 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 Excavation remedy.

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

1. A remedial design program would be implemented to provide the details necessary for the construction, operation, 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 gas and other emissions;
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- 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. Soils exceeding either the restricted residential or groundwater protection Soil Cleanup Objectives (SCOs) will be excavated to achieve the SCOs and disposed off-site with some limitation. It is not practical to remove soil in certain areas due to depth and location (e.g., proximity to the property boundaries, sidewalks, and roadways). Specifically, two small areas on the western and southern edge of the site will remain with soils which likely will exceed the groundwater protection SCOs for Volatile Organic Compounds (VOCs), at depths greater than 10 feet below grade; and soil along the eastern edge of the site will remain, which will likely exceed the restricted residential SCOs for Semi-Volatile Organic Compounds (SVOCs) at depths greater than 10 feet below grade.

Should light non aqueous phase liquid (LNAPL) source material be found in areas where it cannot be removed, due to the noted limitations of the excavation, a passive collection system will be installed to remove the remainder of this source material.

3. A site cover will be required to allow for the 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).

4. Imposition of an institutional control in the form of an environmental easement for the controlled property that:

- 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);
- allows the use and development of the controlled property for restricted residential, commercial and industrial uses as defined by Part 375-1.8(g), although land use is subject to local zoning laws;
- restricts 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
- requires compliance with the Department approved Site Management Plan.

5. 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 above.

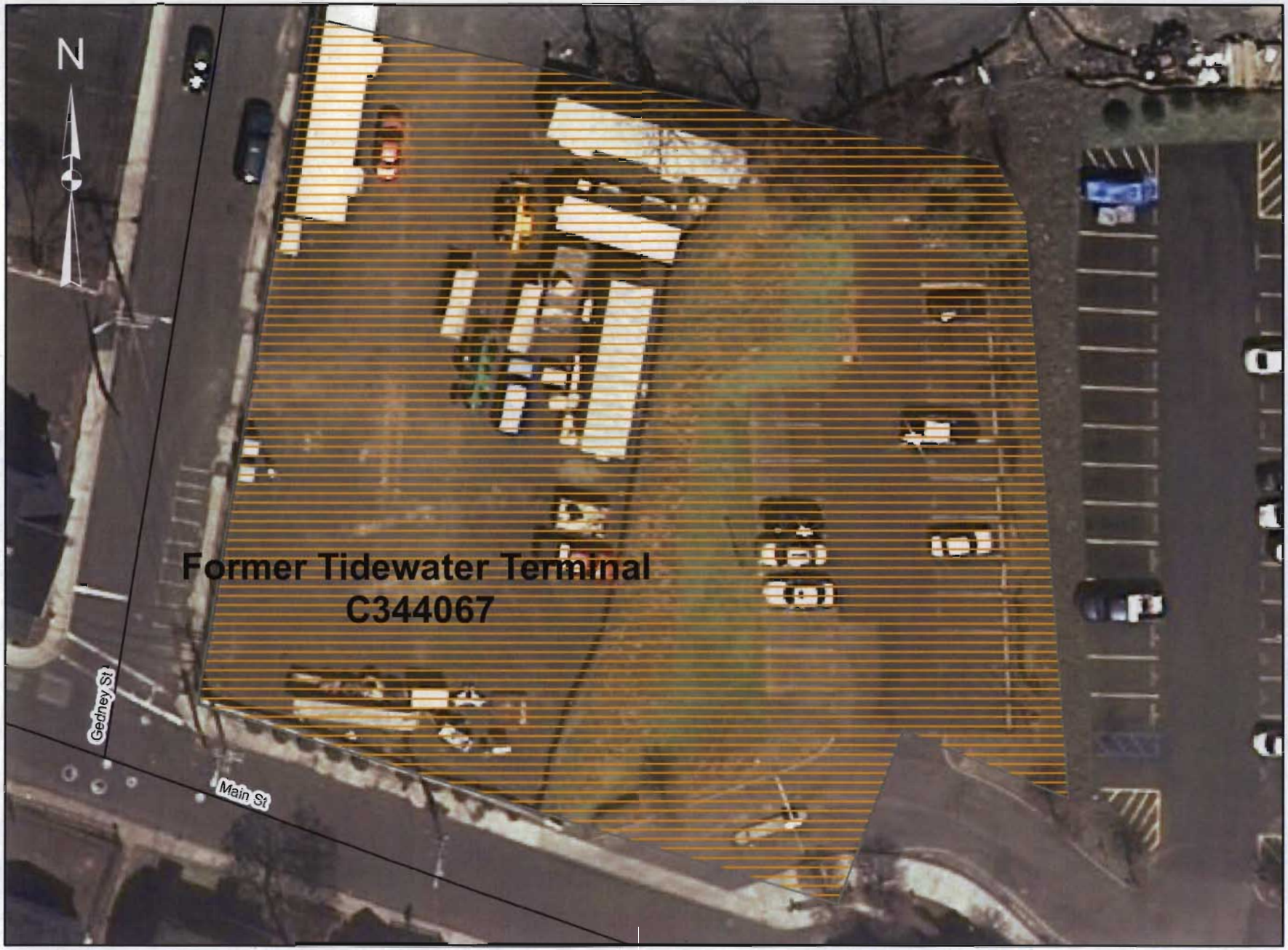
Engineering Controls: The soil cover and passive LNAPL collection system discussed above.

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 any 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:

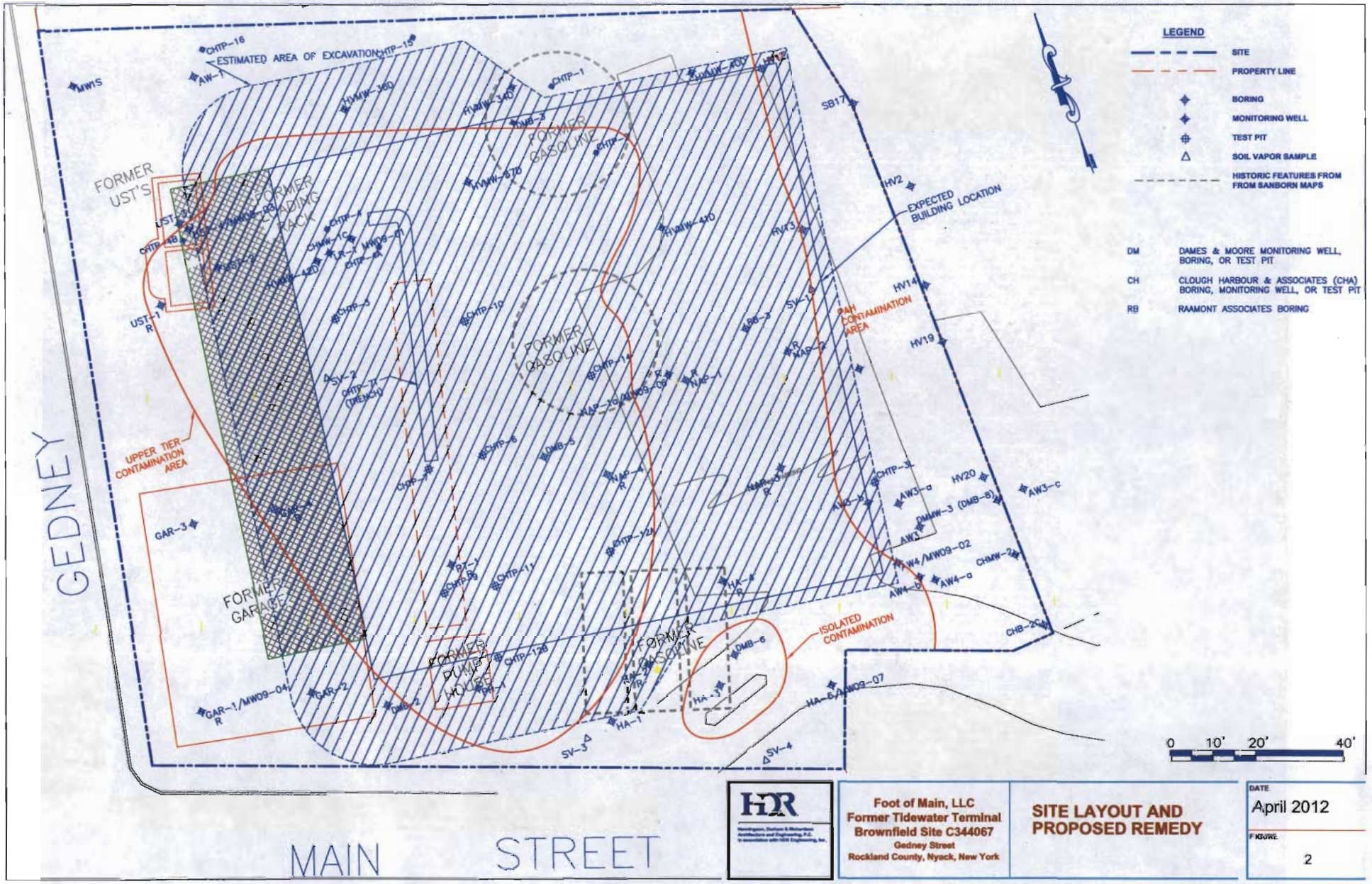
- monitoring of groundwater to assess the performance and effectiveness of the remedy;
- a schedule of monitoring and frequency of submittals to the Department;
- monitoring for vapor intrusion for any buildings occupied or developed on the site, as may be required by the Institutional and Engineering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



Former Tidewater Terminal Site
C344067

Site Location

Figure 1



HDR

Foot of Main, LLC
Former Tidewater Terminal
Brownfield Site C344067
Gedney Street
Rockland County, Nyack, New York

SITE LAYOUT AND PROPOSED REMEDY

DATE
April 2012

FIGURE
2