DECISION DOCUMENT

34-11 Beach Channel Drive
Brownfield Cleanup Program
Far Rockaway, Queens County
Site No. C241141
June 2015

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

DECLARATION STATEMENT - DECISION DOCUMENT

34-11 Beach Channel Drive
Brownfield Cleanup Program
Far Rockaway, Queens County
Site No. C241141
June 2015

Statement of Purpose and Basis

This document presents the remedy for the 34-11 Beach Channel Drive 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 34-11 Beach Channel Drive 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:
   a. Considering the environmental impacts of treatment technologies and remedy stewardship over the long term;
   b. Reducing direct and indirect greenhouse gases and other emissions;
   c. Increasing energy efficiency and minimizing use of non-renewable energy;
   d. Conserving and efficiently managing resources and materials;
   e. Reducing waste, increasing recycling and increasing reuse of materials which would otherwise be considered a waste;
   f. Maximizing habitat value and creating habitat when possible;
   g. Fostering green and healthy communities and working landscapes which balance ecological, economic and social goals; and
   h. Integrating the remedy with the end use where possible and encouraging green and sustainable re-development.

2. Underground Storage Tank (UST) Removal-
   Removal of an UST at Lot 14 and remediation of any grossly contaminated soil and

groundwater resulting from leakage of the UST.

3. Excavation -
   All on-site soils in the upper two feet that exceed Restricted Residential Use Soil Cleanup Objectives (RRUSCO), as defined by 6 NYCRR Part 375-6.8, will be excavated and transported off-site for disposal. This site-wide excavation will also include all grossly contaminated soil, as defined in 6 NYCRR Part 375-1.2(u). Confirmation soil sampling will be conducted at excavated areas to verify compliance with the RRUSCOs. A large portion of the excavated areas will be occupied with new concrete building slab. The remaining exposed areas will be backfilled with two feet of clean soil. Clean fill 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. 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. In Situ-Chemical Oxidation (ISCO) -
   To address the deeper contamination identified, ISCO will be implemented to treat chlorinated volatile organic compounds (VOCs) in soil and groundwater. Sodium permanganate will be injected into the subsurface to destroy the contaminants along the eastern property line of Lot 24 where chlorinated VOCs were elevated in groundwater. The method and depth of injection will be determined during the remedial design.

6. Vapor Mitigation -
   Any future on-site buildings constructed at the site will be required to have a sub-slab depressurization system (SSDS), or a similar engineered system, to prevent the migration of vapors into the buildings from soil and/or groundwater.

7. Institutional Controls -
   Imposition of an institutional control in the form of environmental easement for the controlled property that:
   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), although 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 NYSDOH or County DOH; and

d. requires compliance with the Department approved Site Management Plan.

8. Site Management Plan (SMP) -
   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:
      i. Institutional Controls: The Environmental Easement as discussed in paragraph 5. above.
      ii. Engineering Controls: The Site Cover System and Sub-Slab Depressurization System discussed above.
   b. 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. provisions for the management and inspection of the identified engineering controls;
      iv. maintaining site access controls and Department notification; and
      v. the steps necessary for the periodic reviews and certification of the institutional and/or engineering controls.
   c. 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; and
      ii. a schedule of monitoring and frequency of submittals to the Department.
   d. an Operation and Maintenance (O&M) Plan to ensure continued operation, maintenance, optimization, monitoring, inspection, and reporting of any mechanical or physical components of the remedy. The plan includes, but is not limited to:
      i. compliance monitoring of treatment systems to ensure proper O&M as well as providing the data for any necessary permit or permit equivalent reporting;
      ii. maintaining site access controls and Department notification; and
      iii. providing the Department access to the site and O&M records.

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.

June 2, 2015

Date

Robert Cozzy, Director
Remedial Bureau B

DECISION DOCUMENT

34-11 Beach Channel Drive
Far Rockaway, Queens County
Site No. C241141
June 2015

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:

Far Rockaway Branch
Attn: Queensborough Public Library
1637 Central Avenue
Far Rockaway, NY 11691
Phone: (718) 327-2549

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 34-11 Beach Channel Drive site is located in a commercial area at Beach Channel Drive and Far Rockaway Boulevard in Queens. It is 0.85 acres composed of two separate parcels and is bounded by Far Rockaway Boulevard to the north, Beach Channel Drive to the west and Rockaway Expressway to the south.

Site Features:

Currently, there are no buildings located at the Site (lots 14 and 24). Lots 14 and 24 are used for temporary storage of construction equipment, materials, trailers, dumpsters and roll off containers. No storm drains, catch basins, or operational underground utilities are known to be present at the site.

Current Zoning and Land Use(s):

The site is located in an area zoned R6 (residential) with a commercial overlay district zoned C2-2. Generally, the R6 zoning designation allows for a broad range of housing development options, while the C2 overlay allows for a variety of commercial uses in the first two floors of any building. Currently, one lot is used for storage of construction equipment and materials and the other lot is vacant. Future land use at the site is anticipated to be mixed use buildings (residential and commercial-retail).

Past Use(s) of the Site:

Lot 14 was historically operated as an automotive service and gasoline station from the 1930's until the mid-1980s. Underground storage tanks (UST's) filled with concrete were identified at this lot. A 1987 map shows Lot 14 contained ten commercial units. Presently, Lot 14 has some remnants of the former gasoline station, including deteriorated pavement and a building slab. Lot 24 never had any operations and has been vacant land except for recent storage of mobile office trailers, construction equipment and materials.

Site Geology and Hydrogeology:

The topography of the area is generally level (8 feet above mean sea level). The Site surface has been modified from its original configuration (former marsh with an elevation near sea level) by the placement of fill from the late 1800s to the 1900s. Fill at the site consists largely of native sand. Soils underneath the fill consist of grey, orange and tan fine sand. Subsurface soils at the site consist of unconsolidated sediments of the Upper Glacial formation to a depth of approximately 100 feet below ground surface. The major aquifer systems beneath the site are the unconsolidated Upper Glacial and Jameco aquifers of the Pleistocene Series and the Magothy and Lloyd Aquifers

of the Cretaceous Series. The Upper Glacial and Jameco aquifers are separated by the Gardiners clay. The Magothy and Lloyd Aquifers are separated by the Raritan confining unit. Bedrock beneath the subject property is approximately 1,200 feet bgs.

Depth to groundwater at the site is about 5 to 10 feet bgs. The regional direction of groundwater flow is undetermined but local groundwater flow was determined to be towards the west-northwest. The groundwater flow velocity in the shallowest groundwater was estimated at 0.2 feet per day, and the flow velocity decreases downward to an estimated 0.005 feet per day in the deeper portion of the Upper Glacial Aquifer. The closest body of water is the North Basin located about 350 feet northwest of the site. Groundwater is not used as potable water in the county. Groundwater in the vicinity of this site is not located near a wellhead protection or groundwater recharge area.

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.

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:

COPPER	TETRACHLOROETHYLENE (PCE)
CHROMIUM	TRICHLOROETHENE (TCE)
BENZENE	VINYL CHLORIDE
TOLUENE	METHYL ETHYL KETONE
XYLENE (MIXED)	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.

Nature and Extent of Contamination:
Soil and groundwater were analyzed for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), metals, and polychlorinated biphenyls (PCBs) and pesticides.

Soil -

During the remedial investigation (RI), the Part 375 restricted residential use SCOs (RRUSCOs) were exceeded for cis-1,2-dichloroethene (cis-1,2-DCE) at 320 parts per million (ppm) and vinyl chloride at 14 ppm, both at 20 to 22 feet bgs. In the upper five feet, chromium (539 ppm) and copper (608 ppm) exceeded the RRUSCOs. Additional sampling during the RI exceeded the RRUSCOs for vinyl chloride at 20 to 24 feet bgs (2.1 ppm)), trichloroethene (TCE) at 26 to 28 feet bgs (1,300 ppm), and cis-1,2-DCE at 20-28 feet bgs (190 ppm). Petroleum related compounds were not detected in soil. Data does not indicate any off-site impacts in soil related to this site.

Groundwater -

During the RI, the highest VOC concentrations were in the intermediate groundwater at the eastern edge of Lot 24 (31 to 36 feet bgs). TCE was 310 parts per billion (ppb); vinyl chloride was 420 ppb; and cis-1,2-DCE was 4,800 ppb. During the Phase 2 RI, several VOCs exceeded the groundwater standards. Vinyl chloride (440 ppb), TCE (130 ppb) and MEK (2200 ppb) exceeded the groundwater standards in the shallow groundwater. In the intermediate groundwater, vinyl chloride ranged from 23 ppb to 1,100 ppb and TCE ranged from 16 ppb to 410 ppb. Off-site, methyl ethyl ketone (MEK) was detected in shallow and intermediate groundwater at 2,200 ppb and 1,000 ppb, respectively. Acetone was also detected off-site in shallow groundwater (820 ppb) and intermediate groundwater (530 ppb). Vinyl chloride was detected at 84 ppb and MEK at 1,000 ppb in intermediate groundwater. Metals and PCE were not detected in the shallow and intermediate groundwater.

Soil Vapor -

During the RI, the highest concentrations of soil vapor were found in the south and southeast portions of the site. The maximum TCE concentration was 1,700 µg/m3; toluene was 670 µg/m3; and PCE was 150 µg/m3. At off-site locations northwest and south of the site, the primary contaminants were petroleum related VOCs and low levels of chlorinated VOCs. The maximum concentration of benzene was 20 µg/m3; toluene was 190 µg/m3; xylenes were 175 µg/m3; MEK was 130 µg/m3; PCE was 3.7 ug/m3; TCE was 19 µg/m3; and vinyl chloride was not detected.

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 completely fenced and restricts public access. However, persons who enter the site could contact contaminants in the soil by walking on unpaved areas, 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 (VOCs) 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. The potential exists for people to inhale site contaminants in indoor air due to soil vapor intrusion in any future on-site building development. Off-site soil vapor intrusion is not likely as a result of this site.

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 Excavation, ISCO and Cover System remedy.

The elements of the selected remedy, as shown in Figures 2A, 2B and 2C 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:
   a. Considering the environmental impacts of treatment technologies and remedy stewardship over the long term;
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   h. Integrating the remedy with the end use where possible and encouraging green and sustainable re-development.

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the excavated areas will be occupied with new concrete building slab. The remaining exposed areas will be backfilled with two feet of clean soil. Clean fill brought to the site will meet the requirements for the identified site use as set forth in 6 NYCRR Part 375-6.7(d).

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5. In Situ-Chemical Oxidation (ISCO) -
   To address the deeper contamination identified, ISCO will be implemented to treat chlorinated volatile organic compounds (VOCs) in soil and groundwater. Sodium permanganate will be injected into the subsurface to destroy the contaminants along the eastern property line of Lot 24 where chlorinated VOCs were elevated in groundwater. The method and depth of injection will be determined during the remedial design.

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   Any future on-site buildings constructed at the site will be required to have a sub-slab depressurization system (SSDS), or a similar engineered system, to prevent the migration of vapors into the buildings from soil and/or groundwater.

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   Imposition of an institutional control in the form of environmental easement for the controlled property that:
   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), although 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 NYSDOH or County DOH; and
   d. requires compliance with the Department approved Site Management Plan.

8. Site Management Plan (SMP) -
   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:

i. Institutional Controls: The Environmental Easement as discussed in paragraph 5. above.
ii. Engineering Controls: The Site Cover System and Sub-Slab Depressurization System discussed above.

b. 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. provisions for the management and inspection of the identified engineering controls;
   iv. maintaining site access controls and Department notification; and
   v. the steps necessary for the periodic reviews and certification of the institutional and/or engineering controls.

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

d. an Operation and Maintenance (O&M) Plan to ensure continued operation, maintenance, optimization, monitoring, inspection, and reporting of any mechanical or physical components of the remedy. The plan includes, but is not limited to:
   i. compliance monitoring of treatment systems to ensure proper O&M as well as providing the data for any necessary permit or permit equivalent reporting;
   ii. maintaining site access controls and Department notification; and
   iii. providing the Department access to the site and O&M records.

FIGURE 1 – SITE LOCATION

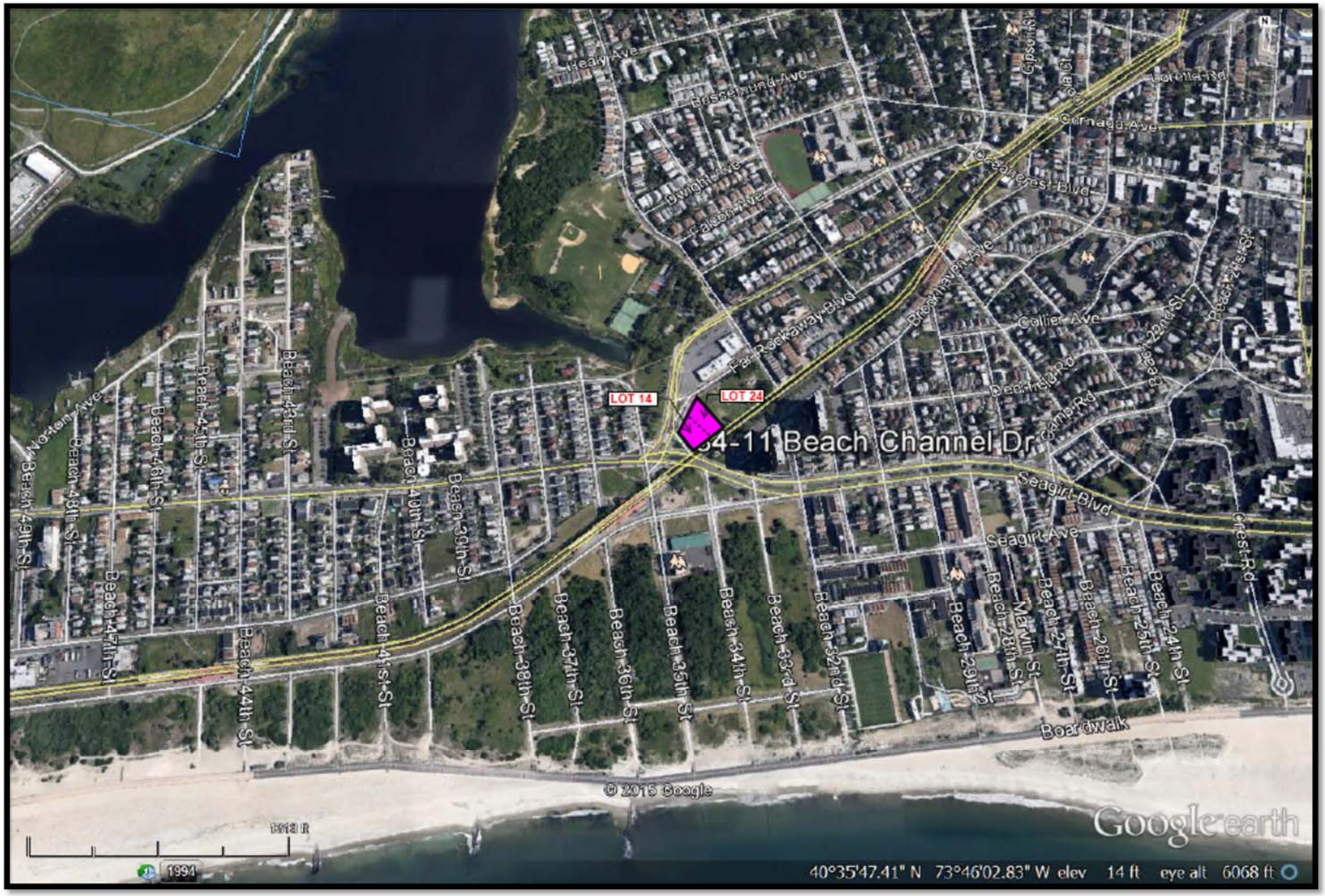

FIGURE 2A - EXCAVATION

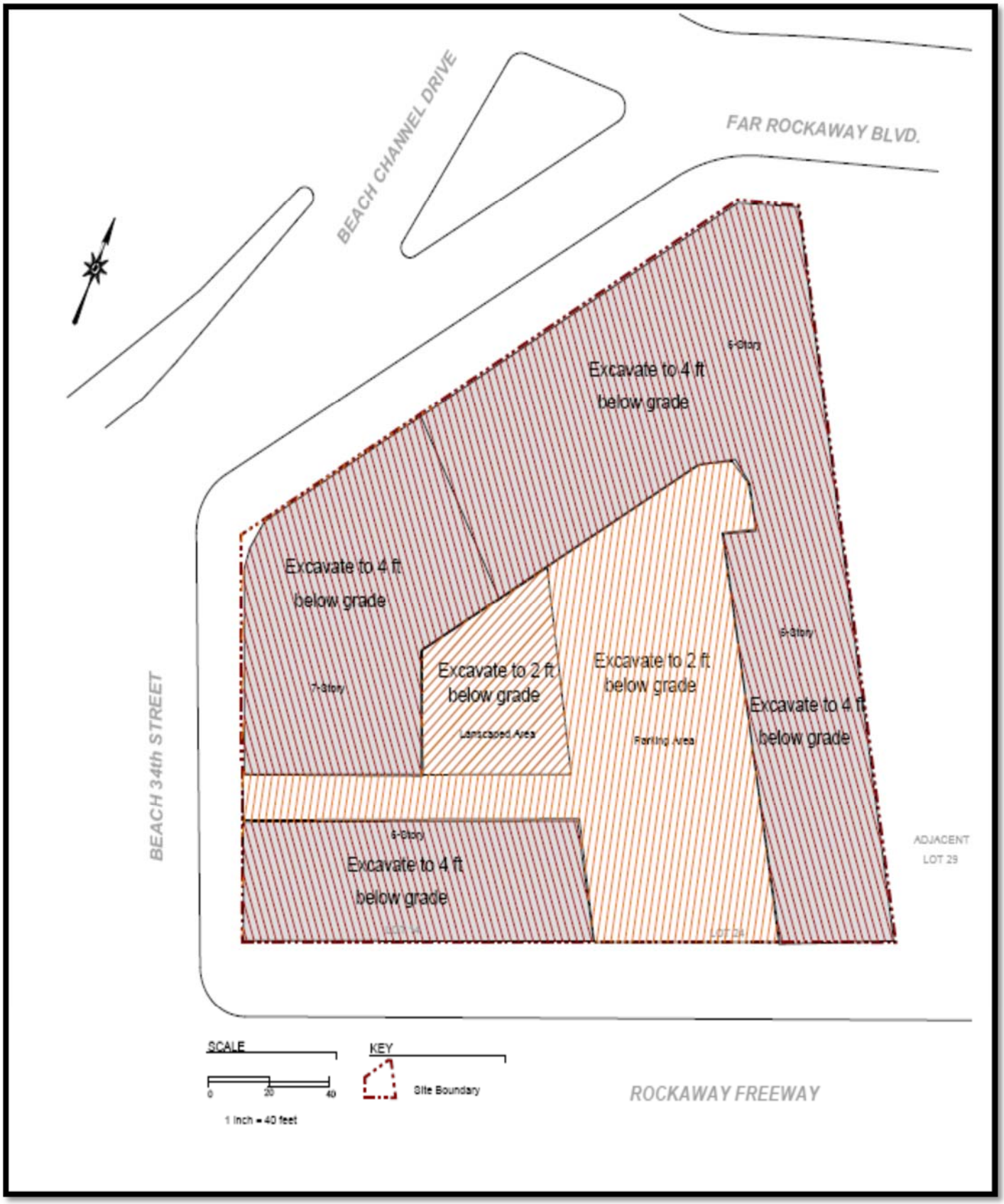

FIGURE 2B- CHEMICAL OXIDANT INJECTION PLAN

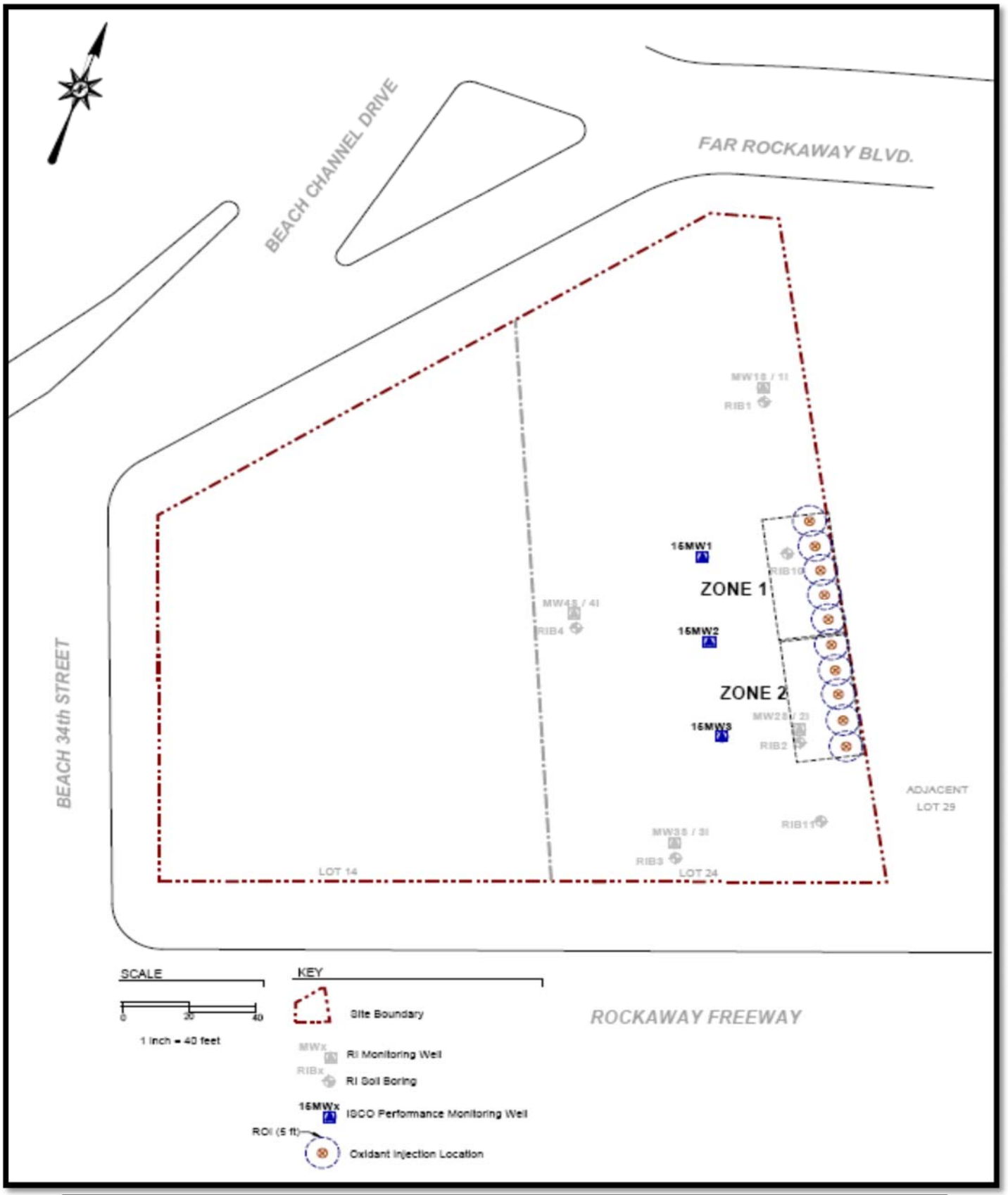

FIGURE 2C – SSDS LAYOUT