DECISION DOCUMENT

Former Marble Quarry Landfill
Brownfield Cleanup Program
Tuckahoe, Westchester County
Site No. C360143
July 2016

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

DECLARATION STATEMENT - DECISION DOCUMENT

Former Marble Quarry Landfill
Brownfield Cleanup Program
Tuckahoe, Westchester County
Site No. C360143
July 2016

Statement of Purpose and Basis

This document presents the remedy for the Former Marble Quarry Landfill 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 Marble Quarry Landfill site and the public's input to the proposed remedy presented by the Department.

Description of Selected Remedy

The elements of the selected remedy are as follows:

1. Remedial Design

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

• Considering the environmental impacts of treatment technologies and remedy stewardship over the long term;
• Reducing direct and indirect greenhouse gases and other emissions;
• Increasing energy efficiency and minimizing use of non-renewable energy;
• Conserving and efficiently managing resources and materials;
• Reducing waste, increasing recycling and increasing reuse of materials which would otherwise be considered a waste;
• Maximizing habitat value and creating habitat when possible;
• Fostering green and healthy communities and working landscapes which balance ecological, economic and social goals; and
• Integrating the remedy with the end use where possible and encouraging green and sustainable re-development.

2. Excavation

Excavation and off-site disposal of contaminant source areas that may be encountered during site development, including:

•grossly contaminated media, as defined in 6 NYCRR Part 375-1.2(u);
•soil exceeding the USEPA and 6 NYCRR Part 371 hazardous criteria for lead and other contaminants;
• any underground storage tanks (USTs), drums, fuel dispensers, underground piping or other structures or equipment associated with a source of contamination; and
•non-aqueous phase liquids.
•soil containing non-aqueous phase liquid;
•soil containing SVOCs exceeding 500 ppm; and
•soils that create a nuisance condition, as defined in Commissioner Policy CP-51 Section G.

Approximately 1264 cubic yards of contaminated soil will be removed from the site

Representative samples of material to be excavated or regraded will be obtained prior to the initiation of these activities to ensure proper monitoring, handling, and disposal methods are implemented.

Clean fill meeting the requirements of 6 NYCRR Part 375-6.7(d) will be brought in to complete the backfilling of the excavation and establish the designed grades at the site. The site will be re-graded to accommodate installation of a cover system as described in remedy element 3.

3. Site Cap

A site cap will be required to allow for commercial use of the site and minimize the infiltration of precipitation into the landfill. The cap will consist either of the structures such as buildings, pavement, sidewalks comprising the site development or a low permeability capping system in areas not covered by buildings and pavement. The barrier protection layer of the cap, 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), and the upper six inches will be of sufficient quality to maintain a vegetative layer.

4. Soil Vapor Extraction

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

5. Vapor Mitigation

Any on-site buildings will be required to have a sub-slab depressurization system, or a similar

•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;

c. an Operation and Maintenance (O&M) Plan to ensure continued operation, maintenance, inspection, and reporting of any mechanical or physical components of the active vapor mitigation system(s). The plan includes, but is not limited to:
•procedures for operating and maintaining the system(s); and
•compliance inspection of the system(s) to ensure proper O&M as well as providing the data for any necessary reporting.

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 18, 2016
Date

George Heitzman, Director
Remedial Bureau C

DECISION DOCUMENT

Former Marble Quarry Landfill
Tuckahoe, Westchester County
Site No. C360143
July 2016

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:

Tuckahoe Public Library
Attn: Swadesh Pachnanda
71 Columbus Avenue
Tuckahoe, NY 10707
Phone: 914-961-2121

New York State Department of Environmental Conservation
Attn: Sarah Shepard
Region 3 Office
21 South Putt Corners Road

New Paltz, NY 12561
Phone: 845-256-3018

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

Site Location: The site is located in the Village of Tuckahoe, Town of Eastchester, in Westchester County. To the west of the site is a residential neighborhood on Verdi Avenue, to the north are commercial properties, to the east is Marbledale Road, and to the south is a large parking area.

Site Features: The site consists of two (2) tax parcels totaling approximately 3.45 acres. The site is partially fenced on the southern, eastern, and northern sides.

Current Zoning and Land Use: The site is located in a commercially zoned area and is zoned as general commercial. The surrounding land use is mixed residential and commercial, and the site is currently vacant.

Past Use of the Site: The site has been used in the past for commercial and industrial operations including a quarry, a landfill, and for auto repair and auto parking.

Site Geology and Hydrogeology: The site geology consists of 0-6 feet of sand fill material of moderate permeability. There is a marble formation beneath the site that varies in thickness between 3 and 150 feet, which is comprised of dolomite marble, granulite, and quartzite overlain by calcite marble. Two marble pits were mined on-site to a depth of approximately 100 feet below ground surface, which compromise the majority of the site. There is a rise in the marble between the two pits and portions of the pits' sidewalls are within the site boundaries. A highly fractured gneiss bedrock unit underlies the marble layer. The site is surrounded by shallow bedrock outcrops. The overburden water table is approximately between 20 feet below the surface and located in the landfill materials. On-site overburden groundwater is found within the two mine pits and flows into the bedrock. Regional groundwater flow is to the south-southwest toward the Bronx River.

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 under the Brownfield Cleanup Agreement is a Volunteer. The Volunteer does not have an obligation to address off-site contamination. The Department has determined that this site poses a significant threat to human health and the environment and there are off-site impacts that require remedial activities; accordingly, enforcement actions are necessary.

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

SECTION 6: SITE CONTAMINATION

6.1: Summary of the Remedial Investigation

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

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

The RI is intended to identify the nature (or type) of contamination which may be present at a site and the extent of that contamination in the environment on the site, or leaving the site. The RI reports on data gathered to determine if the soil, groundwater, soil vapor, indoor air, surface water or sediments may have been contaminated. Monitoring wells are installed to assess groundwater and soil borings or test pits are installed to sample soil and/or waste(s) identified. If other natural resources are present, such as surface water bodies or wetlands, the water and sediment may be sampled as well. Based on the presence of contaminants in soil and groundwater, soil vapor will also be sampled for the presence of contamination. Data collected in the RI influence the development of remedial alternatives. The RI report is available for review in the site document repository and the results are summarized in section 6.3.

The analytical data collected on this site includes data for:

- groundwater
- soil
- soil vapor

6.1.1: Standards, Criteria, and Guidance (SCGs)

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

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

6.1.2: RI Results

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

benzo(a)anthracene
benzo(a)pyrene
barium
dibenz[a,h]anthracene
arsenic
copper
dieldrin
PCB aroclor 1260
PCB aroclor 1248
benzene
benzo[k]fluoranthene
indeno(1,2,3-CD)pyrene
phenol
chrysene
tetrachloroethene (PCE)
trichloroethene (TCE)
lead
dichlorotetrafluoroethane
dichlorodifluoromethane
DDE
trichloromonofluoromethane

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

- groundwater
- soil
- soil vapor intrusion

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.

The remedial investigation results show evidence of impact from the Site's previous uses as a landfill, a staging area for automobiles from a nearby dealership and for auto repair and their associated petroleum ASTs and USTs. Impacts from landfill materials were found as deep at 95 feet below ground surface. The BCP site boundaries do not encompass the full limits of the former landfill. Landfill materials (ash, car parts, cinders, concrete, construction and demolition debris, and metal) are found below ground surface outside of the site boundaries. As the landfill extends to neighboring parcels, off-site soils, groundwater, and soil vapor may also be impacted with contaminants of concern. The contamination present includes; polycyclic aromatic hydrocarbons (PAHs) and PCBs in the soil and groundwater. Metals contamination is present in the soil. Groundwater also showed impacts from volatile organic compounds (VOCs) and pesticides. Soil vapor has also been investigated and has been impacted with VOCs. Contaminants present at the site were found at levels that exceed SCGs for the use of the site (identified as commercial use in BCP application):

In soil contamination was detected to a depth of 40 feet below ground surface. At total of 39 soil samples were analyzed for VOCs, SVOCs, Metals, and PCBs. The following contaminants exceeded the restricted commercial soil cleanup objectives (CSCOs):

- Benz(a)anthracene (0.27 ppm to 9.1 ppm) was detected above its SCO of 5.6 ppm.
- Benzo(a)pyrene (0.26 ppm to 11 ppm) was detected above its SCO of 1 ppm.
- Benzo(b)flouranthene (0.35 ppm to 7.7 ppm) was detected above its SCO of 5.6 ppm.
- Dibenz(a,h)anthracene (0.16 ppm to 3.7 ppm) was detected above its SCO of 0.56 ppm.
- PCBs (0.13 ppm to 1.3 ppm) were detected above their SCO of 1.0 ppm.
- Aresenic (0.9 ppm to 25.1 ppm) was detected above its SCO of 16 ppm.
- Barium (4.3 ppm to 1750 ppm) was detected above its SCO of 400 ppm.
- Copper (2.19 ppm to 649 ppm) was detected above its SCO of 270 ppm.

All other contaminant constituents were below the SCOs for restricted commercial use.

A total of 21 groundwater samples were analyzed for VOCs, SVOCs, pesticides and PCBs. A total of 10 groundwater samples were analyzed for metals. SVOC contamination was evenly distributed

in groundwater across the site. Chlorinated VOCs were found in one well at the northeastern end of the site. Fluorinated VOCs were found in two wells in the center and north of the site. PCBs were found in in two wells in the center and south of the site. The following contaminants exceeded the groundwater standards on-site:

- Benzene (1.1 ppb to 12 ppb) was detected above its standard of 1.0 ppb.
- Freon 12 (0.92 ppb to 14 ppb) was detected above its standard of 5 ppb.
- Isopropylbenzene (5.8 ppb) was detected above its standard of 5 ppb.
- PCE (8.1 ppb to 1900 ppb) was detected above its standard of 5 ppb.
- TCE (47 ppb to 110 ppb) was detected above its standard of 5 ppb.
- Benzo(a)anthracene (0.02 ppb to 0.68 ppb) was detected above its standard of 0.002 ppb.
- Benzo(a)pyrene (0.11 ppb to 0.63 ppb) was detected above its standard of 0.002 ppb.
- Benzo(b)fluoranthene (0.06 ppb to 0.88 ppb) was detected above its standard of 0.002 ppb.
- Benzo(k)fluoranthene (0.03 ppb to 0.37 ppb) was detected above its standard of 0.002 ppb.
- Chrysene (0.05 ppb to 0.64 ppb) was detected above its standard of 0.002 ppb.
- Indeno(1,2,3-cd)pyrene (0.03 ppb to 0.36 ppb) was detected above its standard of 0.002 ppb.
- Phenol (2.4 ppb to 4.5 pbb) was detected above its standard of 0.002 ppb.
- Dieldrin (0.012 ppb) was detected above its standard of 0.004 ppb.
- PCBs (0.31 ppb to 0.46 ppb) were detected above its standard of 0.09 ppb.
- 4,4'-DDE (0.27 ppb to 0.79 ppb)were detected above its standard of 0.2 ppb.

A total of 18 vapor probes were installed across the site to a depth of 6 feet below ground surface. The following contaminants showed elevated soil vapor concentrations:

- PCE ranging from 4.5 micrograms per cubic meter (ug/m3) to 259 ug/m3.
- TCE ranging from 0.5 to 459 ug/m3.
- Freon 114 ranging from 3,550 ug/m3 to 344,000 ug/m3.
- Freon 12 ranging from 4,350 ug/m3 to 173,000 ug/m3.
- Freon 11 ranging from 1,090 ug/m3 to 198,000 ug/m3.

Air samples were collected from beneath, within and outside of four commercial properties along Marbledale Road adjacent to the landfill. Based on review of the results, no additional sampling or other actions are needed to address exposures related to soil vapor intrusion at two of the commercial properties. Immediate actions are not needed to address exposures at the other two commercial properties, but they will be monitored to ensure that additional actions are not needed in the future.

Significant Threat: The Department and the NYSDOH have determined that the elevated contaminant concentrations in soil vapor at the site border present a significant threat to the environment and public health due to the potential for off-site exposure.

6.4: <u>Summary of Human Exposure Pathways</u>

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.*

Persons who enter the site could contact contaminants in the soil by walking on the site, digging or otherwise disturbing the soil. People are not coming into contact or drinking the contaminated groundwater because the area is served by a public water supply that is not affect by this contamination. Volatile organic compounds in the contaminated groundwater or contaminated soils may move into the soil vapor (air spaces within the soil), which in turn, may move into overlying 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 there are no on-site structures, inhalation of site contaminants in indoor due to soil vapor intrusion does not represent a concern for the site in its current condition. The potential exists for the inhalation of site contaminants due to soil vapor intrusion for any future on-site redevelopment. Additional sampling is recommended for two off-site buildings identified as having the potential for indoor air impacts as a result of soil vapor intrusion. Sampling to determine the potential for soil vapor intrusion to affect indoor air of other off-site buildings is also recommended.

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

- Prevent the discharge of contaminants to surface water.

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.

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, Capping, Vapor Extraction and Vapor Mitigation remedy.

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

1. Remedial Design

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

• Considering the environmental impacts of treatment technologies and remedy stewardship over the long term;
• Reducing direct and indirect greenhouse gases and other emissions;
• Increasing energy efficiency and minimizing use of non-renewable energy;
• Conserving and efficiently managing resources and materials;
• Reducing waste, increasing recycling and increasing reuse of materials which would otherwise be considered a waste;
• Maximizing habitat value and creating habitat when possible;
• Fostering green and healthy communities and working landscapes which balance ecological, economic and social goals; and
• Integrating the remedy with the end use where possible and encouraging green and sustainable re-development.

2. Excavation

Excavation and off-site disposal of contaminant source areas that may be encountered during site development, including:

•grossly contaminated media, as defined in 6 NYCRR Part 375-1.2(u);
•soil exceeding the USEPA and 6 NYCRR Part 371 hazardous criteria for lead and other contaminants;
• any underground storage tanks (USTs), drums, fuel dispensers, underground piping or other structures or equipment associated with a source of contamination; and
•non-aqueous phase liquids.
•soil containing non-aqueous phase liquid;

•soil containing SVOCs exceeding 500 ppm; and
•soils that create a nuisance condition, as defined in Commissioner Policy CP-51 Section G.

Approximately 1264 cubic yards of contaminated soil will be removed from the site

Representative samples of material to be excavated or regraded will be obtained prior to the initiation of these activities to ensure proper monitoring, handling, and disposal methods are implemented.

Clean fill meeting the requirements of 6 NYCRR Part 375-6.7(d) will be brought in to complete the backfilling of the excavation and establish the designed grades at the site. The site will be re-graded to accommodate installation of a cover system as described in remedy element 3.

3. Site Cap

A site cap will be required to allow for commercial use of the site and minimize the infiltration of precipitation into the landfill. The cap will consist either of the structures such as buildings, pavement, sidewalks comprising the site development or a low permeability capping system in areas not covered by buildings and pavement. The barrier protection layer of the cap, 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), and the upper six inches will be of sufficient quality to maintain a vegetative layer.

4. Soil Vapor Extraction

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

5. Vapor Mitigation

Any on-site buildings will be required to have a sub-slab depressurization system, or a similar engineered system, to mitigate the migration of soil vapors into the building from contaminated soil and/or contaminated groundwater. The contaminated air removed from beneath the slab will be treated, if necessary, to meet air guidelines prior to being discharged to the atmosphere.

6. Construction Groundwater Monitoring

A construction monitoring plan for groundwater will be developed and implemented during remediation. Overburden wells and bedrock wells will be constructed and sampled prior to and during construction to establish baseline concentrations and to fulfill the BCP requirement to ascertain if contaminated groundwater is migrating from the site, to monitor the impact of construction on groundwater quality, and to take measures to prevent the migration of contaminants from the site.

7. 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 use as defined by Part 375-1.8(g), although land use is subject to local zoning laws;
•restrict the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by the NYSDOH or County DOH; and
•require compliance with the Department approved Site Management Plan.

8. Site Management Plan

A Site Management Plan is required, which includes the following:
a. an Institutional and Engineering Control Plan that identifies all use restrictions and engineering controls for the site and details the steps and media-specific requirements necessary to ensure the following institutional and/or engineering controls remain in place and effective:

Institutional Controls: The Environmental Easement discussed in Section 5 above.

Engineering Controls: The site cap discussed in Section 3, the SVE system discussed in Section 4 and the sub-slab depressurization system(s) discussed in Section 5 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;
•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.

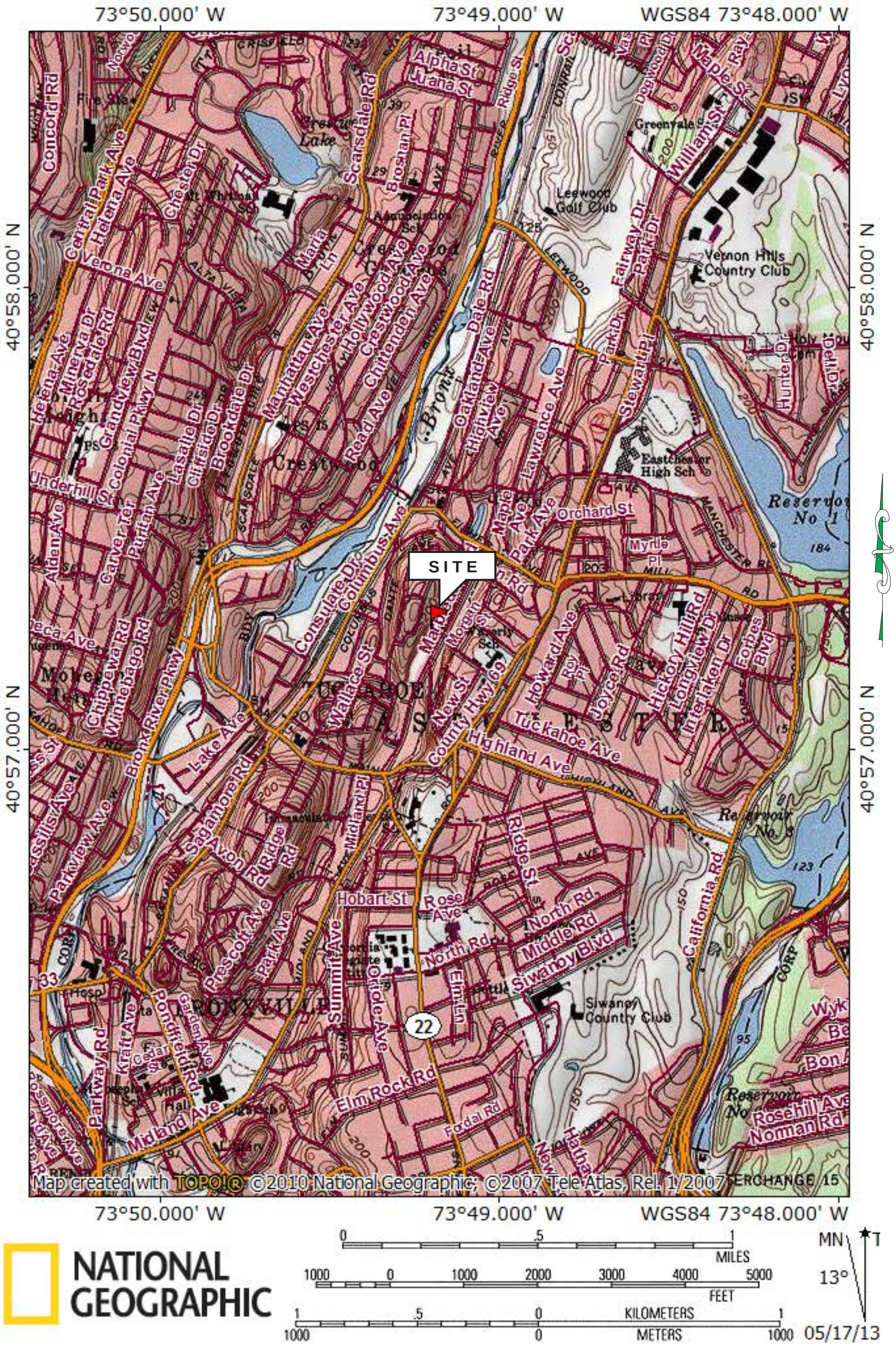
b. a Monitoring Plan to assess the performance and effectiveness of the remedy. The plan includes, but may not be limited to:
•monitoring of groundwater to assess the performance and effectiveness of the remedy;
•a schedule of monitoring and frequency of submittals to the Department;

c. an Operation and Maintenance (O&M) Plan to ensure continued operation, maintenance, inspection, and reporting of any mechanical or physical components of the active vapor mitigation system(s). The plan includes, but is not limited to:
•procedures for operating and maintaining the system(s); and

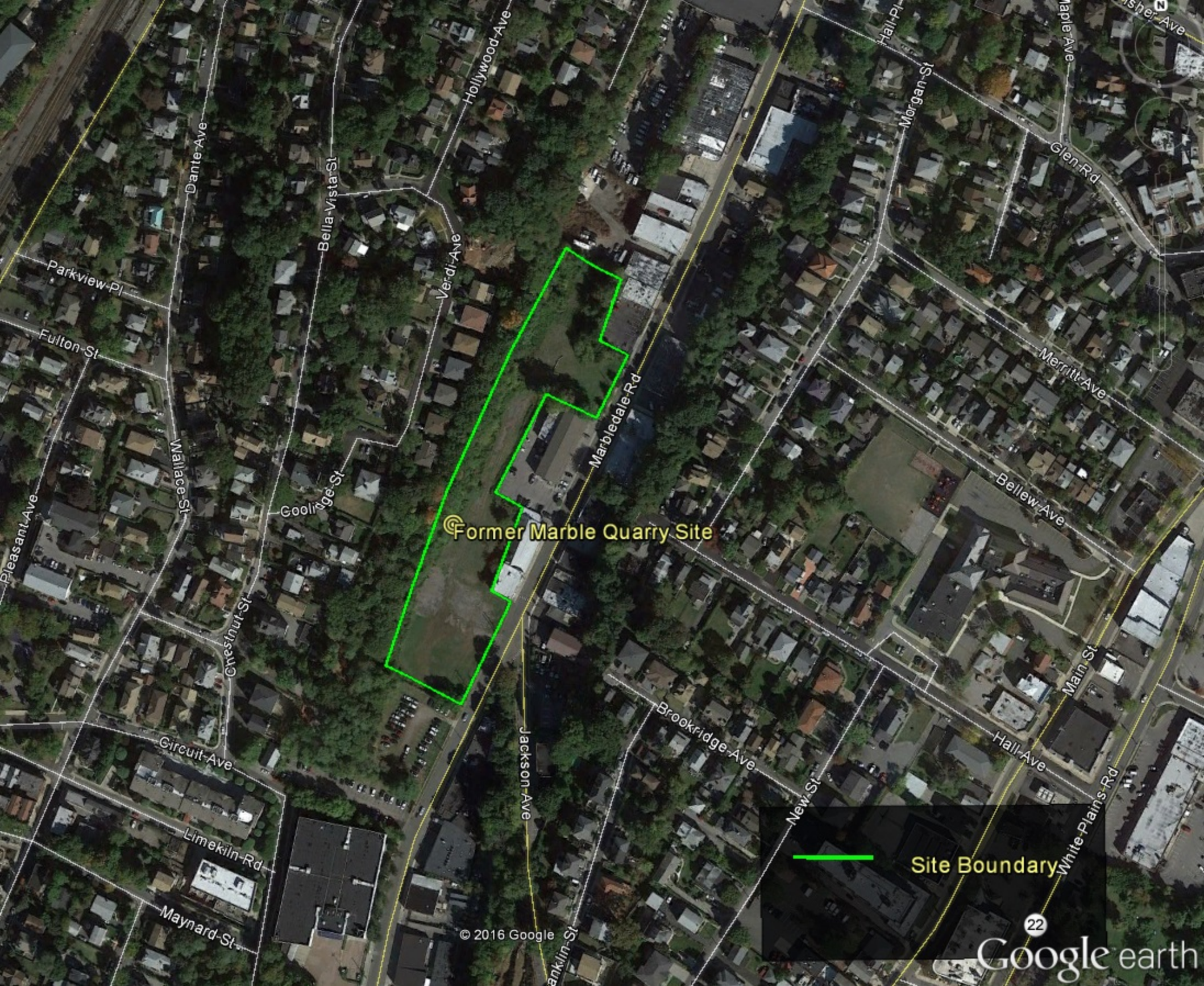
•compliance inspection of the system(s) to ensure proper O&M as well as providing the data for any necessary reporting.

FIGURE 1
SITE LOCATION MAP

109-125 MARBLEDALE ROAD
TUCKAHOE, NEW YORK



NATIONAL GEOGRAPHIC


Former Marble Quarry Site
Site Boundary
Hollywood Ave
Dante Ave
Bella Vista St
Verdi Ave
Parkview Pl
Fulton St
Wallace St
Coolidge St
Pleasant Ave
Chestnut St
Circuit Ave
Limekiln Rd
Maynard St
Marbledale Rd
Jackson Ave
Brookridge Ave
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Morgan St
Hall Pl
Maple Ave
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Hall Ave
White Plains Rd
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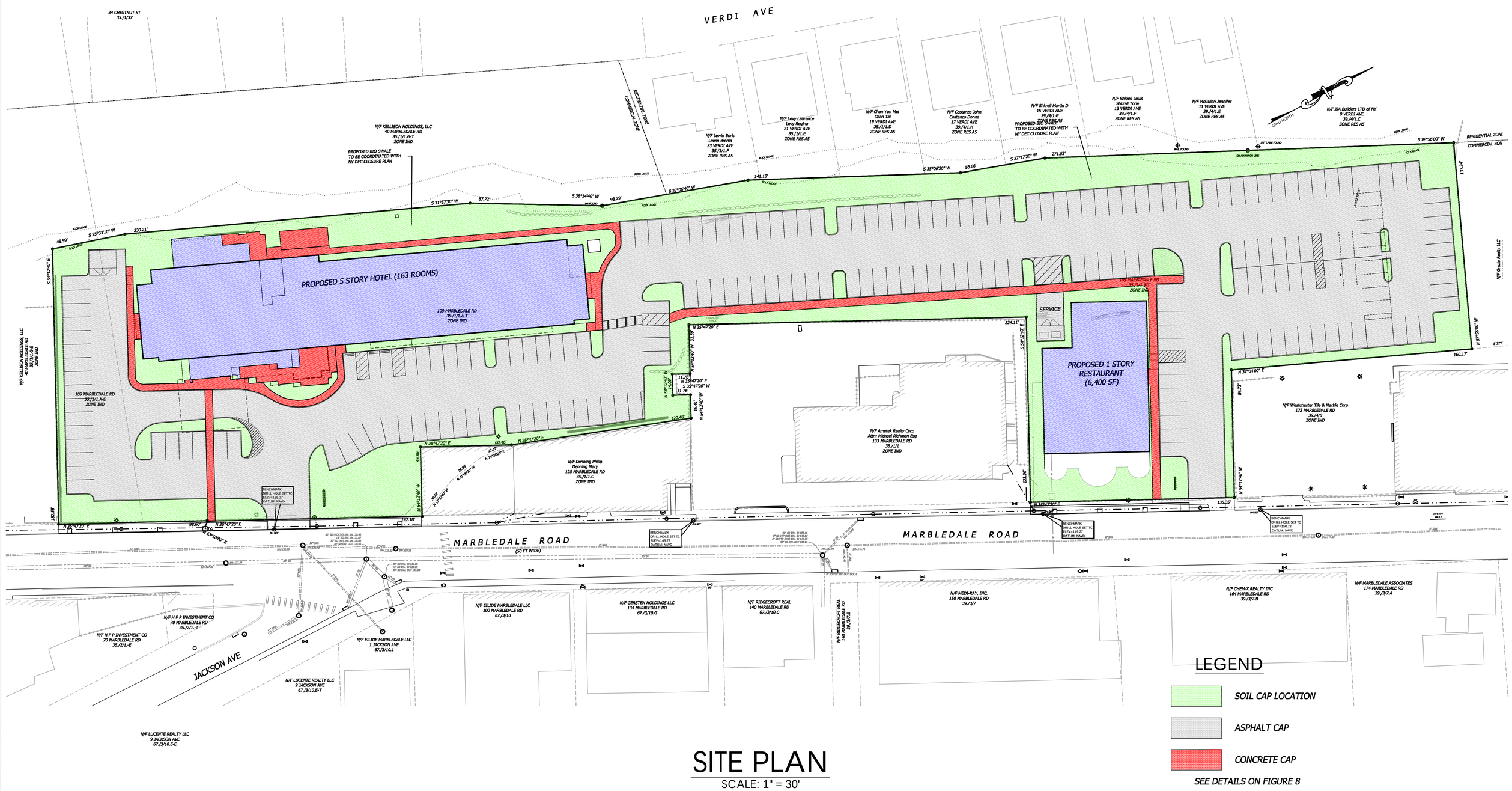

SITE PLAN

SCALE: 1" = 30'

109-125 MARBLEDALE ROAD
TUCKAHOE, NEW YORK

CAP AREA
PLAN