RECORD OF DECISION

OR - Fulton Street - Middletown MGP Manufactured Gas Plant Program Middletown, Orange County Site No. 336030 September 2021



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

DECLARATION STATEMENT - RECORD OF DECISION

OR - Fulton Street - Middletown MGP Manufactured Gas Plant Program Middletown, Orange County Site No. 336030 September 2021

Statement of Purpose and Basis

This document presents the remedy for the OR - Fulton Street - Middletown MGP 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, and is not inconsistent with the National Oil and Hazardous Substances Pollution Contingency Plan of March 8, 1990 (40CFR300), as amended.

This decision is based on the Administrative Record of the New York State Department of Environmental Conservation (the Department) for the OR - Fulton Street - Middletown MGP site and the public's input to the proposed remedy presented by the Department. A listing of the documents included as a part of the Administrative Record is included in Appendix B of the ROD.

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;
- Fostering green and healthy communities and working landscapes which balance ecological, economic and social goals;
- Integrating the remedy with the end use where possible and encouraging green and

sustainable re-development; and

• Additionally, to incorporate green remediation principles and techniques to the extent feasible in the future development at this site, any future on-site buildings will include, at a minimum, a 20-mil vapor barrier/waterproofing membrane on the foundation to improve energy efficiency as an element of construction.

2. Excavation

Excavation and off-site disposal of source material from the site and the utility corridor along Fulton Street, including

- grossly contaminated soil, as defined in 6 NYCRR Part 375-1.2(u);
- soil with visual waste material or non-aqueous phase liquid;
- soil containing total SVOCs exceeding 500 ppm; and
- soil that create a nuisance condition, as defined in Commissioner Policy CP-51 Section G.

Approximately 6,700 cubic yards of contaminated soil will be removed from the southwestern corner of the site, including the utility corridor. Impacted soil will be transported for off-site thermal treatment. The on-site excavation would include removal of contaminated soil and former MGP structures outside the site building and along the intersection of Fulton and Canal Streets. The utility corridor excavation area runs along the northern edge of Fulton Street and is approximately 150 feet long and 30 feet wide. The depth of the excavation on-site would be to the top of the till confining layer (estimated maximum depth of 20 feet below ground surface) and approximately 10 feet deep in the utility corridor. However, the final extent of the excavation limits will be determined during remedial design. The responsible party shall make reasonable efforts to obtain access to implement the remedy. If an access agreement cannot be obtained by the responsible party for the on-site work, the utility corridor excavation will be required to be implemented as a contingency remedial measure.

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.

3. Barrier Wall

A barrier wall will be constructed along the edges of the excavation area to prevent recontamination of the utility corridor by migration of potentially mobile coal tar. The barrier along the upgradient side of the excavation will be installed to sufficiently prevent any further off-site migration of coal tar. The barrier wall type(s) will be determined during design but could consist of technologies such as sealed sheet piling, a slurry wall or a low permeability backfill.

4. Cover System

A site cover currently exists in areas not occupied by buildings and will be maintained to allow for restricted residential use of the site. Any site redevelopment will maintain the existing site cover. The site cover may include paved surface parking areas, sidewalks or soil where the upper two feet of exposed surface soil meets the applicable soil cleanup objectives (SCOs) for restricted residential use. Any fill material brought to the site will meet the requirements for the identified site use as set forth in 6NYCRR part 375-6.7(d).

5. Coal Tar Recovery

Installation and operation of coal tar recovery wells on-site and off-site. Wells will be installed in areas of greatest impacts to remove potentially mobile coal tar from the subsurface. The number, depth, type and spacing of the recovery wells will be determined during the design phase of the remedy. Coal tar will be collected periodically from each well; however, if wells are determined by the Department to accumulate large quantities of coal tar over extended time periods, they will be converted to automated collection.

6. 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 restricted residential 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.

7. 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 6 above.

Engineering Controls: The barrier wall discussed in Paragraph 3, the site cover discussed in Paragraph 4, and the recovery wells in Paragraph 5.

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;

• a provision for further investigation and remediation should large scale redevelopment occur, if

any of the existing structures are demolished, or if the subsurface is otherwise made accessible. The nature and extent of contamination in areas where access was previously limited or unavailable will be immediately and thoroughly investigated pursuant to a plan approved by the Department. Based on the investigation results and the Department's determination of the need for a remedy, a Remedial Action Work Plan (RAWP) will be developed for the final remedy for the site, including removal and/or treatment of any source areas to the extent feasible. Citizen Participation Plan (CPP) activities will continue through this process. Any necessary remediation will be completed prior to, or in association with, redevelopment that may occur. This includes the auto body/transmission shop and the car showroom and office area (any on-site structure);

• 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 the existing building should the site use change such that the site-related contaminants of concern are no longer used in the building or for any new buildings developed on or off-site (the post-office or former SUNY Southwinds parcels), including provision for implementing actions recommended to address exposures related to soil vapor intrusion;

• a provision that should a building foundation or building slab be removed in the future, a cover system consistent with that described in Paragraph 4 above will be placed in any areas where the upper two feet of exposed surface soil exceed the applicable soil cleanup objectives (SCOs);

- 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 and Maintenance 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;

• monitoring for vapor intrusion for any new buildings developed on or off-site (post-office or former SUNY Southwinds parcels), as may be required by the Institutional and Engineering Control Plan discussed above.

• a schedule of monitoring and frequency of submittals to the Department;

• monitoring and maintenance of the coal tar recovery wells referred to in paragraph 5 above and the barrier wall and cover system in paragraphs 3 and 4, respectively.

• maintaining site access controls and Department notification; and

• providing the Department access to the site and site management records.

New York State Department of Health Acceptance

The New York State Department of Health (NYSDOH) concurs that the remedy for this site is protective of human health.

Declaration

The selected remedy is protective of human health and the environment, complies with State and Federal requirements that are legally applicable or relevant and appropriate to the remedial action to the extent practicable, and is cost effective. This remedy utilizes permanent solutions and alternative treatment or resource recovery technologies, to the maximum extent practicable, and satisfies the preference for remedies that reduce toxicity, mobility, or volume as a principal element.

September 28, 2021

Date

Michael J. Ryan, J.E., Director Division of Environmental Remediation

RECORD OF DECISION

OR - Fulton Street - Middletown MGP Manufactured Gas Plant Program Middletown, Orange County Site No. 336030 September 2021

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 manufactured gas plant (MGP) waste at the site has resulted in threats to public health and the environment that would be addressed by the remedy. The waste disposal, as more fully described in this document, has contaminated various environmental media. Contaminants include MGP-related waste and/or petroleum.

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:

DECInfo Locator/on-line repository - Web Application https://gisservices.dec.ny.gov/gis/dil/index.html?rs=336030

MIDDLETOWN THRALL LIBRARY 12 Depot Street Middletown, NY 10940 Phone: (845) -341-5454

NYSDEC Central Office Attn: Attn: John Miller 625 Broadway, Floor 12 Albany, NY 12233 Phone: (518) 402-9589 A virtual public meeting was also conducted on March 11, 2021. At the meeting, the findings of the remedial investigation (RI) and the feasibility study (FS) were presented along with a summary of the proposed remedy. After the presentation, a question-and-answer period was held, during which verbal or written comments were accepted on the proposed remedy.

Comments on the remedy received during the comment period are summarized and addressed in the responsiveness summary section of the ROD.

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 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 approximately 1.8-acre O&R Middletown Fulton Street Manufactured Gas Plant (MGP) site is located in a commercial area of Middletown in Orange County, NY. The former MGP was located on the northeast corner of the intersection of Fulton and Canal Streets.

Site Features: One structure exists on the site, which currently houses both an auto body shop and a transmission shop. The site also includes the parking lot of the adjacent US post office, where a naphtha tank used during gas production was located. The site is predominantly covered by either pavement or structures except for some landscaped areas on the post office property.

Current Zoning and Land Use: The site is located in a recently rezoned area designated as Downtown Mixed Use (DMU-1). This zoning allows for various commercial purposes. It also allows for single and multi-use dwellings at the second floor or higher levels of a structure.

Past Use of the Site: From 1868 to 1952, the property was the site of a manufactured gas plant which made a combustible gas from coal. The site related contamination is coal tar, which was a condensate from the gas manufacturing process. Structures associated with the historic MGP operations include two gas holders, a tar cistern, a purifier, various oil tanks and a naphtha tank.

In 1985, before the site entered into a remedial program with the Department, MGP impacted soil was removed when it was encountered by a previous property owner during site redevelopment. The Department provided oversight during these activities. The tar cistern and its contents were removed along with 750 tons of impacted soil. Concrete was used to stabilize the excavation and, backfill was placed on top.

Site Geology and Hydrogeology: The soils underlying the site vary significantly as a result of both human activity and geologic processes. Below the pavement or topsoil is a layer of fill material which is generally 5 to 10 feet thick, but which increases in the vicinity of MGP structures. Underlying the fill is a highly variable alluvium which contains layers of silt, clay and gravel. Underlying the alluvium is a glacial till. The upper portion of the till contains sand lenses and fractures. The lower portion of the till is highly compacted and of low permeability. Depth to the till unit varies across the site from approximately 13 feet to 32 feet.

Depth to groundwater varies across the site from approximately 3 to 11 feet below ground surface. The groundwater flow is generally toward, and then along, the historic location of the Monhagan Brook which flows west to east. As such, groundwater generally flows across the site to the southeast.

A site location map is attached as Figure 1, and a site boundary map is attached as Figure 2.

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 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 included in the Tables for the media being evaluated in Exhibit A.

SECTION 5: ENFORCEMENT STATUS

Potentially Responsible Parties (PRPs) are those who may be legally liable for contamination at a site. This may include past or present owners and operators, waste generators, and haulers.

The PRPs for the site, documented to date, include:

Orange & Rockland Utilities

The NYSDEC and Orange and Rockland Utilities Inc. (O&R) entered into a series of Consent Orders, including D3-0002-9412, dated January 8, 1996, and Order D3-001-98-03, dated September 29, 1998. Together these orders obligate O&R to investigate and, as necessary, remediate this site for MGP-related contamination.

SECTION 6: SITE CONTAMINATION

6.1: <u>Summary of the Remedial Investigation</u>

A Remedial Investigation (RI) has been conducted. The purpose of the RI was to define the

nature and extent of any contamination resulting from previous activities at the site. The field activities and findings of the investigation are described in the RI Report.

The following general activities are conducted during an RI:

- Research of historical information,
- Geophysical survey to determine the lateral extent of wastes,
- Test pits, soil borings, and monitoring well installations,
- Sampling of waste, surface and subsurface soils, groundwater, and soil vapor,
- Sampling of surface water and sediment,
- Ecological and Human Health Exposure Assessments.

The analytical data collected on this site includes data for:

- groundwater
- surface water
- soil
- sediment
- soil vapor
- indoor air
- sub-slab 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. The tables found in Exhibit A list the applicable SCGs in the footnotes. For a full listing of all SCGs see: <u>http://www.dec.ny.gov/regulations/61794.html</u>

6.1.2: <u>RI Results</u>

The data have identified contaminants of concern. A "contaminant of concern" is a hazardous waste 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 in Exhibit A. Additionally, the RI Report contains a full discussion of the data. The contaminant(s) of concern identified at this site is/are:

coal tar benzene, toluene, ethylbenzene and xylenes (BTEX) polycyclic aromatic hydrocarbons (PAHS), total benzo(a)anthracene benzo(a)pyrene benzo(b)fluoranthene chrysene indeno(1,2,3-CD)pyrene naphthalene

As illustrated in Exhibit A, 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 Record of Decision.

There were no IRMs performed at this site during the RI.

6.3: <u>Summary of Environmental Assessment</u>

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.

Based upon the resources and pathways identified and the toxicity of the contaminants of ecological concern at this site, a Fish and Wildlife Resources Impact Analysis (FWRIA) was deemed not necessary for OU 01.

Nature and Extent of Contamination: Soil and groundwater were analyzed for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), metals, polychlorinated biphenyls (PCBs) and pesticides. Soil vapor and indoor air were analyzed for VOCs. Based upon investigations conducted to date, the primary contaminants of concern are coal tar and its associated compounds as follows: VOCs, including, benzene, toluene, ethylbenzene and xylene (collectively known as BTEX) and various SVOCs, including but not limited to, the polycyclic aromatic compounds (PAHs) benzo(a)anthracene, benzo(b)fluoranthene, benzo(a)pyrene, chrysene, indeno(1,2,3-cd) pyrene and naphthalene.

Soil: Coal tar impacts were observed in numerous soil borings across the site and on adjacent properties. Impacts range from tar odors to coal tar saturated soil. The greatest impacts on-site were observed in the vicinity of the tar cistern and southern gas holder at depths ranging from approximately 5 to 20 feet deep. The highest concentration of total BTEX on-site, 103 parts per

million (ppm), was detected near the southern edge of the site, at a depth of 10-12 feet. Contamination has migrated off-site to the south/south-east beneath Fulton Street and has impacted soil beneath the post office and former Southwinds Empire State University property (currently a grocery store). Impacts were considerably deeper off-site than on-site and were observed at depths ranging from approximately 15 to 45 feet below grade. In general, the shallower off-site impacts consist of tar blebs and thin lenses of tar. Odor impacted soil was also observed on the post-office property. The most significant areas of off-site impacts were observed within depressions in the till unit that run parallel to Fulton Street, at depths of 20 feet or greater. Several feet of tar saturation have been observed within these depressions which are located beneath the post office and former Southwinds property. The till unit generally acts as a semi-confining layer and helps limit the migration of tar. The highest concentration of total BTEX off-site was detected beneath the post office property at a depth of 32-34 feet deep. Overall, the highest concentrations observed were benzene at 360 ppm compared to the protection of groundwater soil cleanup objective (PGWSCO) of 0.06 ppm, toluene at 840 ppm compared to the PGWSCO of 0.7 ppm, ethylbenzene at 260 ppm compared to the PGWSCO of 1 ppm, and xylene at 990 ppm compared to the PGWSCO of 1.6 ppm.

PAH contamination was detected in numerous soil samples collected both on-site and off-site. The most contaminated soil sample on-site was collected from a test pit located along Fulton Street. Total PAHs were detected at 22,590 ppm in a sample collected at a depth of 5.5 feet. Significant PAH contamination was observed in several borings off-site including SB-47 and SB-57. SB-47 is a boring located on the former SUNY Southwinds property and had total PAHs of 3,956 ppm at a depth interval of 23-24 feet deep. SB-57 is located in the landscaped area of the post office property and had total PAH concentration of 5,315 ppm in a sample collected at a depth interval of 35-38 feet. Overall, the highest individual concentrations of PAHs observed during the RI were benzo(a)anthracene at 160 ppm compared to PGWSCO of 1 ppm, benzo(b)fluoranthene at 79 ppm compared to RRSCO of 5.6 ppm, benzo(a)pyrene at 120 ppm compared to RRSCO of 1 ppm, indeno(1,2,3-cd) pyrene at 39 ppm compared to an RRSCO of 0.5 ppm, and naphthalene at 2,500 ppm compared to PGWSCO of 12 ppm.

Groundwater: Groundwater in the area has been impacted as a result of the former MGP operations. Groundwater contamination generally corresponds with the footprint of soil contamination and migrates off-site to the south/southeast. The most contaminated well on-site was MW-10 which is located downgradient of the holders and cistern areas. This well is screened into the till unit from approximately 20 to 30 feet below ground surface. BTEX (total) compounds were detected at 1,580 parts per billion (ppb) in the most recent sampling round. The highest concentrations were detected in off-site groundwater on the post office property (MW-8, MW-11, MW-19). Total BTEX was detected at a maximum concentration of 34,500 ppb in MW-19, which is screened from approximately 15 to 25 feet. Overall, the highest detections observed during the RI were benzene at 16,000 ppb, toluene at 9,100 ppb, ethylbenzene at 5,100 ppb and xylene at 5,400 ppb. This is compared to their groundwater standards of 1 ppb for benzene and 5 ppb for toluene, ethylbenzene and xylene.

SVOCs including naphthalene and acenaphthene were detected in on-site groundwater at 1,300 ppb and 66 ppb compared to their respective groundwater standards of 10 ppb and 20 ppb. The

PAH naphthalene was detected off-site at a maximum concentration of 14,000 ppb in MW-8. This well, located in front of the post-office, is screened from 18 to 28 feet. Based on the review of this sampling data, soil vapor intrusion is not a concern for the post office building and therefore no further action is recommended.

Soil Vapor/Sub-slab Vapor and Indoor Air: Soil vapor intrusion samples were collected from three buildings. Sub-slab and indoor air samples were collected from off-site buildings including the post office and the former SUNY Southwinds building. On-site, only sub-slab vapor samples were collected from the autobody and transmission shops because of the potential for interference in indoor air due to existing site operations.

Sub-slab vapor samples collected from the on-site body and transmission shop building shows toluene, xylene and benzene in the sub-slab soil vapor at levels up to 290, 156 and 35 micrograms per cubic meter (ug/m3), respectively. Based on the current use which routinely has gasoline powered vehicles inside of the building and the fact that the body shop likely uses products containing these same contaminants, contribution to indoor air impacts if soil vapor intrusion occurs is not expected to be a current concern and would be governed by OSHA. However, the potential for soil vapor intrusion may be a future concern if the building use changes where products containing site related contaminants would no longer be used in the building. Therefore, if the use changes, a soil vapor intrusion evaluation is recommended.

Soil vapor intrusion sampling was conducted for the off-site former SUNY Southwinds building. Concentrations of potential MGP contaminants in the sub-slab soil vapor at the former SUNY Southwinds property were low. The potential MGP contaminants isopentane, toluene and xylene were detected in sub-slab soil vapor at maximum concentrations of 42, 52 and 38 ug/m3, respectively. The maximum detections in indoor air for these contaminants were 7.8, 4 and 1 ug/m3, respectively, comparable to ambient air concentrations. Based on a review of this sampling data, soil vapor intrusion is not a concern for the former SUNY Southwinds building. However, if new construction occurs on this parcel, a soil vapor intrusion evaluation is recommended.

Soil vapor intrusion sampling conducted at the off-site post office building showed several potential MGP contaminants were detected in the sub-slab soil vapor including isopentane, toluene and xylene at maximum concentrations of 50, 160 and 44 ug/m3, respectively. Of these contaminants detected in the sub-slab vapor samples, toluene was the only contaminant detected at concentrations in indoor air at levels exceeding typical background concentrations. Toluene was detected in indoor air ranging from 50 to 270 micrograms per cubic meter (ug/m3). Sub-slab soil gas concentrations for toluene ranged from 38 to 160 ug/m3. Since the indoor air samples were much higher than the corresponding detections in the sub-slab vapor, an indoor source is likely. This is supported by the site questionnaire survey, which indicated toluene is present in many adhesives and inks which are commonly used to seal and identify mailed packages. Based on the review of this sampling data, soil vapor intrusion is not a concern for the post office building. However, if new construction occurs on this parcel, a soil vapor intrusion evaluation is recommended.

Special Resources Impacted/Threatened: Surface water resources near the site include the Monhagan Brook, which passes through the site in a box culvert. Based on the results of the investigation, the site related contamination passes below this box culvert, and does not impact the culvert or the stream within.

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*.

Direct contact with contaminants in the soil is unlikely because the majority of the site is covered with buildings and pavement. People are not drinking the contaminated groundwater because the area is served by a public water supply that is not affected by this contamination. Volatile organic compounds in the groundwater and/or soil 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. Based on sampling results from the on-site building, soil vapor intrusion is not expected to be a current concern. However, there is a potential for future soil vapor intrusion concerns should the building uses change where products that contain site related contaminants are no longer used. Soil vapor intrusion sampling conducted for the off-site post office and former SUNY Southwinds buildings indicate that soil vapor intrusion be evaluated if any new buildings are developed on either of the two on-site parcels, or for either the off-site post office or former SUNY Southwinds parcels.

6.5: <u>Summary of the Remediation Objectives</u>

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:

<u>Groundwater</u>

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.

<u>Soil</u>

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.

<u>Soil Vapor</u>

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: SUMMARY OF THE SELECTED REMEDY

To be selected the remedy must be protective of human health and the environment, be costeffective, comply with other statutory requirements, and utilize permanent solutions, alternative technologies or resource recovery technologies to the maximum extent practicable. The remedy must also attain the remedial action objectives identified for the site, which are presented in Section 6.5. Potential remedial alternatives for the Site were identified, screened and evaluated in the feasibility study (FS) report.

A summary of the remedial alternatives that were considered for this site is presented in Exhibit B. Cost information is presented in the form of present worth, which represents the amount of money invested in the current year that would be sufficient to cover all present and future costs associated with the alternative. This enables the costs of remedial alternatives to be compared on a common basis. As a convention, a time frame of 30 years is used to evaluate present worth costs for alternatives with an indefinite duration. This does not imply that operation, maintenance, or monitoring would cease after 30 years if remediation goals are not achieved. A summary of the Remedial Alternatives Costs is included as Exhibit C.

The basis for the Department's remedy is set forth at Exhibit D.

The selected remedy is referred to as the Deep Soil Removal, Barrier Wall, Cover System, Coal Tar Recovery with Site Management remedy.

The estimated present worth cost to implement the remedy is \$12,100,000. The cost to construct the remedy is estimated to be \$9,600,000 and the estimated average annual cost is \$164,000.

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;
- Fostering green and healthy communities and working landscapes which balance ecological, economic and social goals;
- Integrating the remedy with the end use where possible and encouraging green and sustainable re-development; and
- Additionally, to incorporate green remediation principles and techniques to the extent feasible in the future development at this site, any future on-site buildings will include, at a minimum, a 20-mil vapor barrier/waterproofing membrane on the foundation to improve energy efficiency as an element of construction.

2. Excavation

Excavation and off-site disposal of source material from the site and the utility corridor along Fulton Street, including

- grossly contaminated soil, as defined in 6 NYCRR Part 375-1.2(u);
- soil with visual waste material or non-aqueous phase liquid;
- soil containing total SVOCs exceeding 500 ppm; and
- soil that create a nuisance condition, as defined in Commissioner Policy CP-51 Section G.

Approximately 6,700 cubic yards of contaminated soil will be removed from the south-western corner of the site, including the utility corridor. Impacted soil will be transported for off-site thermal treatment. The on-site excavation would include removal of contaminated soil and former MGP structures outside the site building and along the intersection of Fulton and Canal Streets. The utility corridor excavation area runs along the northern edge of Fulton Street and is approximately 150 feet long and 30 feet wide. The depth of the excavation on-site would be to the top of the till confining layer (estimated maximum depth of 20 feet below ground surface) and approximately 10 feet deep in the utility corridor. However, the final extent of the excavation limits will be determined during remedial design. The responsible party shall make reasonable efforts to obtain access to implement the remedy. If an access agreement cannot be

obtained by the responsible party for the on-site work, the utility corridor excavation will be required to be implemented as a contingency remedial measure.

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.

3. Barrier Wall

A barrier wall will be constructed along the edges of the excavation area to prevent recontamination of the utility corridor by migration of potentially mobile coal tar. The barrier along the upgradient side of the excavation will be installed to sufficiently prevent any further off-site migration of coal tar. The barrier wall type(s) will be determined during design but could consist of technologies such as sealed sheet piling, a slurry wall or a low permeability backfill.

4. Cover System

A site cover currently exists in areas not occupied by buildings and will be maintained to allow for restricted residential use of the site. Any site redevelopment will maintain the existing site cover. The site cover may include paved surface parking areas, sidewalks or soil where the upper two feet of exposed surface soil meets the applicable soil cleanup objectives (SCOs) for restricted residential use. Any fill material brought to the site will meet the requirements for the identified site use as set forth in 6NYCRR part 375-6.7(d).

5. Coal Tar Recovery

Installation and operation of coal tar recovery wells on-site and off-site. Wells will be installed in areas of greatest impacts to remove potentially mobile coal tar from the subsurface. The number, depth, type and spacing of the recovery wells will be determined during the design phase of the remedy. Coal tar will be collected periodically from each well; however, if wells are determined by the Department to accumulate large quantities of coal tar over extended time periods, they will be converted to automated collection.

6. 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 restricted residential 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.

7. 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 6 above.

Engineering Controls: The barrier wall discussed in Paragraph 3, the site cover discussed in Paragraph 4, and the recovery wells in Paragraph 5.

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;

• a provision for further investigation and remediation should large scale redevelopment occur, if any of the existing structures are demolished, or if the subsurface is otherwise made accessible. The nature and extent of contamination in areas where access was previously limited or unavailable will be immediately and thoroughly investigated pursuant to a plan approved by the Department. Based on the investigation results and the Department's determination of the need for a remedy, a Remedial Action Work Plan (RAWP) will be developed for the final remedy for the site, including removal and/or treatment of any source areas to the extent feasible. Citizen Participation Plan (CPP) activities will continue through this process. Any necessary remediation will be completed prior to, or in association with, redevelopment that may occur. This includes the auto body/transmission shop and the car showroom and office area (any on-site structure);

• 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 the existing building should the site use change such that the site-related contaminants of concern are no longer used in the building or for any new buildings developed on or off-site (the post-office or former SUNY Southwinds parcels), including provision for implementing actions recommended to address exposures related to soil vapor intrusion;

• a provision that should a building foundation or building slab be removed in the future, a cover system consistent with that described in Paragraph 4 above will be placed in any areas where the upper two feet of exposed surface soil exceed the applicable soil cleanup objectives (SCOs);

- 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 and Maintenance 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;

• monitoring for vapor intrusion for any new buildings developed on or off-site (post-office or former SUNY Southwinds parcels), as may be required by the Institutional and Engineering Control Plan discussed above.

• a schedule of monitoring and frequency of submittals to the Department;

• monitoring and maintenance of the coal tar recovery wells referred to in paragraph 5 above and the barrier wall and cover system in paragraphs 3 and 4, respectively.

• maintaining site access controls and Department notification; and

• providing the Department access to the site and site management records.

Exhibit A

Nature and Extent of Contamination

This section describes the findings of the Remedial Investigation for all environmental media that were evaluated. As described in Section 6.1, samples were collected from various environmental media to characterize the nature and extent of contamination.

For each medium for which contamination was identified, a table summarizes the findings of the investigation. The tables present the range of contamination found at the site in the media and compares the data with the applicable SCGs for the site. The contaminants of concern at the site are coal tar comprised of PAHs and BTEX compounds (polycyclic aromatic hydrocarbons and benzene, toluene, ethylbenzene and xylene respectively). Coal tar is a non-aqueous phase liquid (NAPL). For comparison purposes, the SCGs are provided for each medium that allows for unrestricted use. For soil, if applicable, the Restricted Use SCGs identified in Section 4 and Section 6.1.1 are also presented.

Waste/Source Areas

As described in the RI report, waste/source materials were identified at the site and are impacting groundwater and soil.

Wastes are defined in 6 NYCRR Part 375-1.2(aw) and include solid, industrial and/or hazardous wastes. Source areas are defined in 6 NYCRR Part 375(au). Source areas are areas of concern at a site where substantial quantities of contaminants are found which can migrate and release significant levels of contaminants to another environmental medium.

The waste and source areas identified at the site were observed in areas corresponding with the footprint of the former MGP and in areas downgradient to those operations. Data collected during the remedial investigation (RI) indicates that the primary contaminants of concern include MGP related coal tar and its associated compounds (PAHs and BTEX). Soil saturated with coal tar was observed near and/or within historic structures including the former gas holders and tar cistern located on the auto body shop property. Coal tar has migrated to the southeast under Fulton Street and was also observed at depth beneath the post office property and the former SUNY Southwinds property (currently a grocery store). Lesser areas of contamination including tar blebs, sheens and odors were observed adjacent to the coal tar saturated source areas. Figure 3 shows the limits of the area where MGP related material was observed during the RI.

The waste/source areas identified will be addressed in the remedy selection process.

Groundwater

During the RI, groundwater samples were collected from 18 monitoring wells to determine the nature and extent of contamination in the groundwater. Four additional wells (MW-25, MW-12, MW-20 and MW-34) were also installed, but were not sampled due to the presence of coal tar in the well. Six of the monitoring wells are located on the auto body repair property, ten are located on the post office property, and the remaining six wells were installed off-site to assess contaminant migration downgradient of the site. The wells are all screened in the overburden to depths ranging from approximately 13 to 50 feet below ground surface (bgs). Several wells were screened into the dense gray till unit, which is the deepest extent of where coal tar was observed at a depth of approximately 45 feet deep.

Figure 4 depicts the well locations and concentrations of BTEX and PAHs in the groundwater plume. Contaminated groundwater has migrated southeast from where the historic MGP related structures were located and was detected off-site at two adjacent properties.

As shown in Table 1, the Standards, Criteria and Guidance values (SCGs) for the contaminants of concern were exceeded in groundwater across the site. The contaminants of concern, BTEX compounds and PAHs, were detected in the monitoring wells located adjacent to and downgradient of the former MGP. In general, the most impacted wells have accumulated at least some coal tar (MW-25, MW-8, MW-11). High levels of contaminants were also observed in well MW-19, which is located further downgradient along the eastern edge of the post office property.

Detected Constituents	Concentration Range Detected (ppb) ^a	SCG ^b (ppb)	Frequency Exceeding SCG	
VOCs				
Benzene	ND – 16,000	1	7 of 18	
Toluene	ND – 9,100	5	5 of 18	
Ethylbenzene	ND – 5,100	5	5 of 18	
Xylene	ND - 5,400	5	5 of 18	
VOCs				
Acenaphthene	ND – 120	20	4 of 18	

Table 1 - Groundwater

Detected Constituents	Concentration Range Detected (ppb) ^a	SCG ^b (ppb)	Frequency Exceeding SCG
Fluorene	ND - 88	50	3 of 18
Naphthalene	ND – 14,000	10	5 of 18
Phenanthrene	ND – 150	50	3 of 18
Benzo(a)anthracene	ND – 16	0.002	3 of 18
Chrysene	ND – 17	0.002	3 of 18

a - ppb: parts per billion, which is equivalent to micrograms per liter, ug/L, in water.

b - SCG: Standard Criteria or Guidance - Ambient Water Quality Standards and Guidance Values (TOGs 1.1.1), 6 NYCRR Part 703, Surface water and Groundwater Quality Standards, and Part 5 of the New York State Sanitary Code (10 NYCRR Part 5).

Based on the findings of the RI, the past disposal of hazardous waste has resulted in the contamination of groundwater. The site contaminants that are considered to be the primary contaminants of concern which will drive the remediation of groundwater to be addressed by the remedy selection process are: BTEX and napthalene.

Soil

There were no surface soil samples collected during the RI since the entire site is either paved or covered by structures. During the RI, a total of 111 soil samples were collected from 62 locations to evaluate subsurface soil conditions and determine the nature and extent of contamination. Samples were collected at various depths ranging from one foot to approximately sixty-five feet bgs. Borings were advanced using direct push and rotosonic drilling techniques. The cores were continuously logged for soil classification types and samples were collected where contamination was identified. If none was observed, then the sample was collected from the deepest interval of the boring.

Figure 5 shows the locations of soil borings and summarizes the sampling results at various depth intervals for the contaminants that were detected across the site. The results of the sampling indicated that MGP related contamination (PAHs, BTEX) are present in subsurface soil. MGP contamination is present in the southwestern corner of the auto body property and migrates to the south and southeast under Fulton Street onto the post office portion of the site. Coal tar saturated soils have been observed on the site at depths ranging from 5 feet to the top of the till layer, which is present at approximately 15 to 20 feet deep. Mobile tar was observed collected in depressions on the surface of the till layer at depths of 20 feet or greater on the off-site properties. The till layer acts as a semi-confining layer that limits the migration of

contamination. There are fractures in the till where tar has been observed at deeper intervals. The deepest coal tar impacts were observed off-site, within the till unit approximately 45 feet deep. The highest concentrations of contaminants were detected in soil borings located on the post office property (SB-8, SB-11, SB-13 and SB-57). These samples were all collected from a similar area and at depths ranging from approximately 18 to 35 feet deep. Significant contamination was also detected further downgradient in SB-47 at depths of 12 to 24 feet deep.

Table 2 summarizes the results for the subsurface soil samples that were collected during the RI.

	Table	2-	Soil
--	-------	----	------

Detected Constituents	Concentration Range Detected (ppm) ^a	Unrestricted SCG ^b (ppm)	Frequency Exceeding Unrestricted SCG	Restricted Use SCG ^c (ppm)	Frequency Exceeding Restricted
VOCs					
Benzene	ND - 360	0.06	16 of 111	44	4 of 111
Toluene	ND - 840	0.7	14 of 111	500	2 of 111
Ethylbenzene	ND – 260	1	15 of 111	390	0 of 111
Xylene	ND - 990	0.26	19 of 111	500	4 of 111
		SVOCs			
Acenaphthylene	ND - 410	100	6 of 111	500	0 of 111
Anthracene	ND – 220	100	4 of 111	500	0 of 111
Fluoranthene	ND - 320	100	6 of 111	500	0 of 111
Fluorene	ND – 200	30	8 of 111	500	0 of 111
Naphthalene	ND – 2,500	12	16 of 111	500	6 of 111
Phenanthrene	ND - 820	100	9 of 111	500	2 of 111
Pyrene	ND - 480	100	8 of 111	500	0 of 111
Benzo(a)anthracene	ND - 160	1	20 of 111	5.6	16 of 111

Detected Constituents	Concentration Range Detected (ppm) ^a	Unrestricted SCG ^b (ppm)	Frequency Exceeding Unrestricted SCG	Restricted Use SCG ^c (ppm)	Frequency Exceeding Restricted
Benzo(a)pyrene	ND - 120	1	20 of 111	1	20 of 111
Benzo(b)fluoranthene	ND – 79	1	17 of 111	5.6	13 of 111
Benzo(k)fluoranthene	ND – 90	0.8	10 of 111	56	1 of 111
Chrysene	ND - 160	1	20 of 111	56	6 of 111
Indeno(1,2,3-cd)pyrene	ND - 39	0.5	13 of 111	5.6	8 of 111
Dibenz(a,h)anthracene	ND – 11	0.33	11 of 111	0.56	7 of 111

a - ppm: parts per million, which is equivalent to milligrams per kilogram, mg/kg, in soil;

b - SCG: Part 375-6.8(a), Unrestricted Soil Cleanup Objectives.

c - SCG: Part 375-6.8(b), Restricted Use Soil Cleanup Objectives for the Protection of Public Health for Commercial Use, unless otherwise noted.

Based on the findings of the Remedial Investigation, the past disposal of hazardous waste has resulted in the contamination of soil. The site contaminants identified in soil which are considered to be the primary contaminants of concern, to be addressed by the remedy selection process are BTEX and PAH compounds.

Surface Water

The site is situated near the historic channel of Monhagen Brook, which is a class D surface waterbody and a tributary of the Wallkill River. Stormwater sewers beneath Fulton Street discharge to the brook's box culvert. During the RI, a water sample was collected from an upgradient location (U-6) and downgradient (U-7) location within Monhagen Brook to assess for possible impacts attributed to the site. The sample locations are shown on Figure 6.

Sampling results from the surface water samples collected from Monhagen Brook indicated no SVOC detections in any of the samples. Acetone and chlorobenzene were the only VOCs detected in the surface water samples and are not related to past MGP activities. In addition, various inorganics were detected below Class D surface water standards. These VOCs and inorganics are typical of stormwater runoff from urban/developed areas.

No site-related surface water contamination of concern was identified during the RI. Therefore, no remedial alternatives need to be evaluated for surface water.

Sediments

A sediment sample was collected from Monhagen Brook at a location downgradient of the site. Figure 6 shows the location of where the sediment sample was collected (U-8). No VOCs were detected in the sample. The only inorganics detected in the sample were manganese and copper. Various SVOCs were detected in the sample which were potentially related to MGP contaminants. A further evaluation of the site's soil boring data concluded that MGP sources were present at depths below the invert of the Monhagen Brook culvert. As such, there was no migration pathway for MGP contaminants to impact the brook. An assessment of likely nearby sources has attributed that the SVOC detections were likely attributed to road surface runoff.

No site-related sediment contamination of concern was identified during the RI. Therefore, no remedial alternatives need to be evaluated for sediment.

Soil Vapor

The evaluation of the potential for soil vapor intrusion resulting from the presence of site related soil or groundwater contamination was evaluated by the sampling of sub-slab soil vapor from underneath on-site and off-site buildings and comparing the data to the indoor air sampled from inside the structures. Ambient air samples were also collected to compare to background concentrations. At this site, due to the presence of buildings in the impacted area, a full suite of VOCs samples were collected to evaluate whether soil vapor intrusion was occurring.

On-site, sub-slab soil vapor intrusion samples were collected from the Aamco Transmission and Maaco Auto Body Shops. However, indoor air samples were not collected from these businesses due to their usage of various products that contain the same chemicals that are site contaminants of concern. Off-site, a full suite of soil vapor intrusion samples were collected from the former SUNY Southwinds Building and the Middletown Post Office. Two concurrent sets of soil vapor intrusion samples were collected from the former SUNY Southwinds Building and three concurrent sets of samples were collected from the Middletown Post Office. All sampling was completed in accordance with the NYSDOH guidance document for soil vapor intrusion. Figure 7 shows the locations of the soil vapor intrusion samples that were collected.

The results of the sub-slab soil vapor samples from the Aamco Transmission and Maaco Auto Body shops indicate the presence of possible MGP related contaminants in the sub-slab air. Toluene and xylenes were detected in both samples. In the Aamco sample, toluene was detected at 290 micrograms per cubic meter (ug/m³) and total xylene was 156 ug/m³. In the Maaco sample, toluene was present at a concentration of 250 ug/m³ and xylene was detected at 148 ug/m³. These contaminants could be related to the site's past use as an MGP or the current site operations. There is no soil vapor intrusion matrix for these compounds, however it is recommended that any future structures constructed at the site be evaluated for the potential for soil vapor intrusion. Several possibly MGP related contaminants were detected in the sub-slab soil vapor samples collected at the former SUNY Southwinds Building, but most were detected at low levels. Isopentane, toluene and xylene were detected at maximum concentrations of 42, 52 and 38 ug/m³, respectively. The maximum detections in indoor air for these contaminants were 7.8, 4 and 1 ug/m³, respectively. As such, there were no significant detections of contaminants in the indoor air samples collected in this building. All of the possible MGP related contaminants were detected at concentrations consistent with background concentrations (i.e., the 75th percentile of the NYSDOH indoor air background values) and the ambient air samples that were collected. There is currently no soil vapor intrusion matrix for these compounds but, since the contaminants were present in indoor air at levels consistent with typical background concentrations, it was determined that soil vapor intrusion was not present.

At the post office building, several potential MGP contaminants were detected in the sub-slab soil vapor including isopentane, toluene and xylene at maximum concentrations of 50, 160 and 44 ug/m³, respectively. In the indoor air samples collected in the post office, isopentane and xylene were detected at maximum concentrations of 19 and 6 ug/m³, respectively. These levels are consistent with NYSDOH background values (i.e., 90th percentile of NYSDOH background levels) except for toluene. Toluene was detected in the indoor air samples at concentrations ranging from 50 to 270 ug/m³. However, these levels are much higher than the corresponding detections of toluene in the sub-slab soil vapor which ranged from 38 to 160 ug/m³. This suggested that the elevated levels of toluene. Toluene is also present in many adhesives and inks which are commonly used to seal and identify mailed packages. As such, soil vapor intrusion has been demonstrated not to be a concern for this building.

There are currently no NYSDOH Soil Vapor Intrusion decision matrices available for MGP related contaminants. Since potential MGP contaminants were identified in the sub-slab soil vapor, it is recommended that soil vapor intrusion evaluations be completed for any new structures constructed at the site, the post office and former SUNY Southwinds parcels.

<u>Exhibit B</u>

Description of Remedial Alternatives

The following alternatives were considered based on the remedial action objectives (see Section 6.5) to address the contaminated media identified at the site as described in Exhibit A.

Alternative 1: No Action

The No Action Alternative is evaluated as a procedural requirement and as a basis for comparison. This alternative leaves the site in its present condition and does not provide any additional protection to public health and the environment.

Alternative 2: Coal Tar Recovery, Cover System with Site Management

Alternative 2 requires the installation of coal tar recovery wells to facilitate the collection of mobile tar contamination both on-site and off-site. Recovery wells would be installed in areas where mobile coal tar has been observed and/or is likely to accumulate given the known subsurface conditions near the site. The number of recovery wells, their construction details and the means of coal tar collection (or NAPL recovery) would be determined during design. In addition, Alternative 2 requires that the existing site cover must be maintained as an engineering control.

Alternative 2 also includes the development of a Site Management Plan (SMP) to provide the procedures for coal tar recovery, cover system inspection and maintenance, and the site's groundwater monitoring activities. The SMP will also require institutional controls in the form of an environmental easement which would place restrictions on the site such as groundwater and land use restrictions.

Present Worth:	\$3,400,000
Capital Cost:	
Annual Costs:	\$164,000

Alternative 3: Utility Corridor Soil Removal, Cover System, Barrier Wall, Coal Tar Recovery with Site Management

Alternative 3 includes the same coal tar recovery, cover system and SMP components as Alternative 2. Alternative 3 also includes the removal of MGP impacted soil to a depth of approximately ten feet in the vicinity of the utility corridor that runs along the northern part of Fulton Street near the former MGP. Alternative 3 removes approximately 1,700 cubic yards of soil and all MGP impacted soil is transported off-site for thermal treatment. A low permeability barrier will be installed along the boundary of the excavation to prevent recontamination of the utility corridor. The corridor will be demarcated to denote the clean limits and the area will be backfilled with soil meeting the required SCOs.

Present Worth:	
Capital Cost:	
Annual Costs:	

Alternative 4: Shallow Soil Removal, Cover System, Barrier Wall, Coal Tar Recovery with Site Management

Alternative 4 includes the same remedial components as Alternative 3. In addition to the utility corridor soil removal, Alternative 4 also includes the removal of shallow MGP impacted soil and structures on the former MGP property (autobody property). This alternative removes approximately 3,400 cubic yards of soil to a depth of approximately ten feet. All MGP impacted soil will then be sent to a disposal facility for thermal treatment. A demarcation layer will be placed in areas where deeper contamination remains, and the excavation will be backfilled with clean soil meeting the required SCOs. Contaminated soil beneath the autobody shop will not be removed under this alternative and will be addressed under the SMP.

Present Worth:	
Capital Cost:	
Annual Costs:	

Alternative 5: Deep Soil Removal, Cover System, Barrier Wall, Coal Tar Recovery with Site Management

Alternative 5 includes the same remedial components as Alternatives 3 and 4, but this remedy expands the soil removal efforts to include accessible MGP impacted soil and structures to depths of up to twenty feet below grade, or until the top of the till layer, on the former MGP property. Alternative 5 removes approximately 6,700 cubic yards of accessible soil. All MGP impacted soil will then be sent to a disposal facility for thermal treatment. Any contaminated soil beneath the autobody shop will not be removed under this alternative and will be addressed under the SMP. The means of excavation support will be determined during design but could utilize steel sheet piling or a slurry excavation method. Alternative 5 includes the same demarcation layer and backfill requirements as Alternatives 3 and 4.

Present Worth:	
Capital Cost:	
Annual Costs:	

Alternative 6: Restoration to Pre-Disposal or Unrestricted Conditions

Alternative 6 achieves all of the SCGs discussed in Section 6.1.1 and Exhibit A and, soil meets the unrestricted soil clean objectives listed in Part 375-6.8 (a). This alternative would include excavation and removal of all MGP impacted soil and structures on the former MGP property and off-site properties. Excavation will be completed to the top of the till layer as needed where MGP impacted soil is encountered. All contaminated soil will be sent off-site for thermal treatment. Alternative 6 would require the demolition of part of the autobody shop building and a small portion of the post office to allow for the excavation activities. Portions of Fulton Street and South Street would also be shut down to accommodate the excavation needed in these areas. All properties would be restored following remediation activities.

Exhibit C

Remedial Alternative Costs

Remedial Alternative	Capital Cost (\$)	Annual Costs (\$)	Total Present Worth (\$)
1. No Action	\$0	\$0	\$0
 Coal Tar Recovery, Cover System, Site Management 	900,000	164,000	3,400,000
 Utility Corridor Removal, Cover System, Barrier Wall, Coal Tar Recovery, Site Management 	6,000,000	164,000	8,500,000
 Shallow Soil Removal, Cover System, Barrier Wall, Coal Tar Recovery, Site Management 	7,900,000	164,000	10,400,000
 Deep Soil Removal, Cover System, Barrier Wall, Coal Tar Recovery, Site Management 	9,600,000	164,000	12,100,000
6. Restoration to Pre-Disposal or Unrestricted Conditions	90,000,000	0	90,000,000

Exhibit D

SUMMARY OF THE SELECTED REMEDY

The Department is selecting Alternative #5, Deep Soil Removal, Cover System, Barrier Wall, Coal Tar Recovery with Site Management Remedy as the remedy for this site. Alternative #5 will achieve the remediation goals for the site by excavating the majority of impacted soil from the on-site source area, removing soil from the utility corridor to address the greatest potential for exposure, using recovery wells both on-site and off-site to remove mobile coal tar, installing a barrier wall to eliminate further off-site contaminant migration, maintaining the site's existing cover system, and by implementing an SMP to manage the coal tar collection, ICs and ECs. The elements of this remedy are described in Section 7. The selected remedy is depicted in Figure 8 with the contingency remedy shown on Figure 9.

Basis for Selection

The selected remedy is based on the results of the RI and the evaluation of alternatives. The criteria to which potential remedial alternatives are compared are defined in 6 NYCRR Part 375. A detailed discussion of the evaluation criteria and comparative analysis is included in the FS report.

The first two evaluation criteria are termed "threshold criteria" and must be satisfied in order for an alternative to be considered for selection.

1. <u>Protection of Human Health and the Environment.</u> This criterion is an overall evaluation of each alternative's ability to protect public health and the environment.

The selected remedy, Alternative 5, will satisfy this criterion by removing the majority of MGP impacted soil from the on-site source area and addressing contamination in the utility corridor that poses the greatest potential for exposure and by preventing mobile tar from leaving the site and entering the utility corridor once it has been cleaned up, as well as collecting mobile subsurface MGP tar from areas both on-site and off-site. Alternative 5 also includes maintaining the site's existing cover system, which will reduce the likelihood of exposure to contamination remaining on-site. Alternative 1 (No Action) does not provide any protection to public health and the environment and will not be evaluated further. Alternative 2 provides less protection than Alternative 5 because it does not remove the contaminated soil in the utility corridor. Alternative 5, by removing a smaller volume of impacted soil from the site. Alternative 6 provides the most protection for human health and the environment by removing all contaminated soil above the till unit.

2. <u>Compliance with New York State Standards, Criteria, and Guidance (SCGs).</u> Compliance with SCGs addresses whether a remedy will meet environmental laws, regulations, and other

standards and criteria. In addition, this criterion includes the consideration of guidance which the Department has determined to be applicable on a case-specific basis.

Alternative 5 complies with the SCGs by excavating contaminated soil on-site and in the utility corridor. Alternative 5 collects mobile MGP source material on the former MGP property and in areas where mobile tar was observed off-site. Alternative 5 also maintains the site's current cover system, which is consistent with local zoning (restricted residential) and prevents exposure to contamination remaining in sub-surface soil. Alternative 2 also complies with this criterion but removes less contaminated soil than Alternative 3. Alternatives 3 and 4 comply with this criterion through the site cover and the removal of contaminated soil but remove less impacts than Alternative 5. Alternative 6 provides compliance with SCGs by removing all MGP impacted soil beneath the site and surrounding areas.

The next six "primary balancing criteria" are used to compare the positive and negative aspects of each of the remedial strategies.

3. <u>Long-term Effectiveness and Permanence.</u> This criterion evaluates the long-term effectiveness of the remedial alternatives after implementation. If wastes or treated residuals remain on-site after the selected remedy has been implemented, the following items are evaluated: 1) the magnitude of the remaining risks, 2) the adequacy of the engineering and/or institutional controls intended to limit the risk, and 3) the reliability of these controls.

Alternative 5 provides long-term effectiveness and permanence by excavating contaminated soil from the utility corridor, which is in the area with the greatest potential to encounter MGP waste, and placing an impermeable barrier to prevent any recontamination. Alternative 5 also removes significant mobile MGP contamination from the on-site source area and installs a barrier wall to prevent the further spread of contamination. Alternative 5 will require the use of long-term ICs and ECs, including a cover system, which provides long-term protection from exposure to remaining contamination. Alternative 2 provides less long-term effectiveness and permanence than Alternative 5 because it does not remove any impacted soil. Alternatives 3 and 4 satisfy this criterion, but to a lesser degree than Alternative 5, because they include less soil removal on-site. Similar to Alternative 5, Alternatives 2, 3 and 4 would each require some degree of long-term site management activities since each remedy leaves some degree of contamination at the site. Alternative 6 provides the most long-term effectiveness by removing all MGP contaminated soil from the site and surrounding areas and is expected to require few, if any, institutional controls and monitoring.

4. <u>Reduction of Toxicity, Mobility or Volume.</u> Preference is given to alternatives that permanently and significantly reduce the toxicity, mobility or volume of the wastes at the site.

Alternative 5 reduces mobility and volume on-site and off-site by physically removing MGP impacted soil from the site, the utility corridor, collecting mobile coal tar from the subsurface by means of NAPL recovery and preventing further migration of contamination using a subsurface

barrier wall. Alternatives 2, 3 and 4 satisfy this criterion to some extent, but to a lesser degree than Alternative 5 because they remove smaller volumes of MGP impacted soil from the autobody property. However, their performance with regards to the post office property and the off-site areas would likely be similar to Alternative 5. Of all the remedial alternatives, Alternative 6 provides the most reduction of contaminant mobility and volume by removing all MGP impacted soil both on-site and off-site.

5. <u>Short-term Impacts and Effectiveness.</u> The potential short-term adverse impacts of the remedial action upon the community, the workers, and the environment during the construction and/or implementation are evaluated. The length of time needed to achieve the remedial objectives is also estimated and compared against the other alternatives.

Alternative 5 will have several short-term impacts to the community, on-site business and site workers. These include rerouting traffic in the vicinity of the work area to accommodate the remedial activities on-site and along Fulton Street. Since Alternative 5 requires ground intrusive excavation, there will be the potential for site workers to be exposed to contamination during these efforts; however proper personal protective equipment will be used to prevent exposure. Alternatives 3, and 4 will have slightly less short-term impacts than Alternative 5 because of the shorter duration associated with removing smaller quantities of soil. These include a shorter shutdown of the on-site businesses and nearby roads as well as disruptions to other nearby businesses. Alternative 2 would also have less short-term impacts than Alternative 5 but would require a longer timeframe to meet the remedial objectives. Alternatives 3 and 4 would also require longer to achieve remedial objectives than Alternative 5 on-site, but the timeframe in offsite areas would likely be comparable. Alternative 6 has severe short-term impacts due to the large-scale nature of its ground intrusive work, including the demolition of nearby structures, disruption of services from the grocery store and post-office and prolonged road closures. However, this alternative achieves cleanup objectives the quickest.

6. <u>Implementability.</u> The technical and administrative feasibility of implementing each alternative are evaluated. Technical feasibility includes the difficulties associated with the construction of the remedy and the ability to monitor its effectiveness. For administrative feasibility, the availability of the necessary personnel and materials is evaluated along with potential difficulties in obtaining specific operating approvals, access for construction, institutional controls, and so forth.

Alternative 5 requires the use of technologies and procedures that are readily implementable. Alternative 5 includes the completion of soil excavation, barrier wall and recovery well installation activities in an urban setting with nearby utilities. This work can be completed with careful planning and execution to ensure the safety of the public and the workers. Alternative 2 is easier to implement than Alternative 5 since it does not require excavation activities. Alternatives 3 and 4 are also technically feasible and require significant planning and coordination with the on-site and off-site businesses and highway authority. Alternatives 3 through 5 would each require the re-routing of subsurface and overhead utilities in order to be implemented. Alternatives 3 and 4 are slightly less challenging to implement compared to Alternative 5 because they require excavation of smaller volumes of soil. Each of the alternatives will require property access agreements for on- and off-site areas to implement the remedy. Alternative 6 is the most challenging remedy to implement and may not be feasible given the large-scale excavation, demolition and utility relocation activities that it requires.

7. <u>Cost-Effectiveness</u>. Capital costs and annual operation, maintenance, and monitoring costs are estimated for each alternative and compared on a present worth basis. Although cost-effectiveness is the last balancing criterion evaluated, where two or more alternatives have met the requirements of the other criteria, it can be used as the basis for the final decision.

The costs of the alternatives vary significantly. Alternative 2 requires only minimal remedial activities and as such is significantly cheaper than the other remedial alternatives. Alternatives 3, 4 and 5 each have moderate costs associated with their implementation with Alternative 5 being the most expensive. Each of these alternatives include some degree of excavation work in addition to requirements for long-term monitoring and maintenance activities. Alternative 6 requires large scale demolition, excavation and restoration work and would be by far the most expensive remedial option.

8. <u>Land Use.</u> When cleanup to pre-disposal conditions is determined to be infeasible, the Department may consider the current, intended, and reasonable anticipated future land use of the site and its surroundings in the selection of the soil remedy.

With the exception of Alternative 6, each remedial alternative is expected to leave contamination at the site which could impact the future use of the property. However, each of the remedies is expected to meet the requirements for the anticipated future use of the site. Alternatives 2 and 3 require more land use restrictions than Alternatives 4 and 5 because they do not remove soil contamination from the autobody shop property.

The final criterion, Community Acceptance, is considered a "modifying criterion" and is taken into account after evaluating those above. It is evaluated after public comments on the Proposed Remedial Action Plan have been received.

9. <u>Community Acceptance.</u> Concerns of the community regarding the investigation, the evaluation of alternatives, and the PRAP are evaluated. Appendix A contains a responsiveness summary that describes public comments received and the Department's responses to the concerns raised. In this case, Alternative 3 had been proposed in the PRAP. However, based on comment from the property owner, Alternative 5, a more robust remedy has been selected as outlined in the attached responsiveness summary.

As described above, Alternative 5 satisfies the threshold criteria and provides the best balance of the balancing criterion.



Fulton Middletown MGP Site (336030) Fulton and Canal Streets, Middletown, NY Figure 2 - Site Boundary



0 0.0276.055 0.11 0.165 0.22 Miles Miles

Department of Environmental Conservation



LEGEND

SB-49/MW-49 🕀

SB-41	\square
SB-48	
SB-61	\bigcirc
SB-31	۲
SB-31/MW-28	•
LSG-1	
FB-1	
SB-31	•
MW-1	\oplus
SB-09/SG-26/GTB-1	\bigcirc
SG-1	Δ
U-5	\diamond
TP-1	

NAPHTHALENE OR TAR-LIKE ODORS
SHEENS
TAR BLEBS, TAR LENSES OR STAINING
TAR SATURATED SOIL MATRIX
SOIL BORING/ MONITORING WELL LOCATION (2005)
SHALLOW/DEEP BORING LOCATION (2005)
DEEP BORING LOCATION (2005)
SHALLOW BORING LOCATION (2005)
SRI SOIL BORING LOCATION
SRI SOIL BORING LOCATION COMPLETED AS MONITORING WELL.
SRI SOIL-GAS SURVEY LOCATION
SRI SOIL-GAS FIELD BLANK LOCATION
SRI CULVERT SAMPLE LOCATION
MONITORING WELL INSTALLED PRIOR TO SRI
SOIL BORING INSTALLED PRIOR TO SRI
SOIL GAS SURVEY LOCATION COMPLETED AS SOIL BORING PRIOR TO SRI
FORMER SEWER/SURFACE WATER SAMPLE LOCATION
FORMER TEST PIT LOCATION
EXISTING STRUCTURE

× × ×
⊡ CB
ЩLР
X SP
Ø UP
Ø FP
R HYD
- -
EB
24" FIR
8" BLACK BIRCH

FENCE FORMER STRUCTURES CATCH BASIN LIGHT POLE SIGN POST UTILITY POLE FLAG POLE HYDRANT TRAFFIC LIGHT POLE ELECTRIC BOX CONIFEROUS TREE/W 24" DIA. DECIDUOUS TREE/W 8" DIA.

FULTON STREET FORMER MGP SITE MIDDLETOWN, NEW YORK

ORANGE AND ROCKLAND UTILITIES, INC. SPRING VALLEY, NEW YORK



AREAL EXTENT OF **OBSERVED MGP IMPACTS**

PROJECT 042310



9	7/10/2003	
	4600 D	
)	7400 D	
	3600 D	
	5400 D	
	2900 D	
	24 J	
	37 J	
	29 J	
	88 J	
)	14000 BD	
	130	
	44 J	
	15 J	
	16 J	
	110 U	
	110 U	
	17 J	
	110 UJ	

3	2/17/2005	
	5 J	
	23	
	140	
	110	
	NA	
)	60 J	
	250 U	
D	1000	
	250 U	

SD 40/M/ 40	$(\cap$
3D-49/IVIVV-49	T

SB	-41	
SB-	48 -	- -
SB	-61	\bigcirc
SB	-31	
8B-31/ MW	-28	•
LSC	G-1	
FB-	1	
SB-	31	•

SB-09/SG-26/GTB-1

SG-1 ∆

U-5 ◊

MW-1 🕀

TP-1 📼



	· · <u> </u>
⊡ CB	
¤ LP	
¤ SP	
ø up	
Ø FP	
<mark>я</mark> НҮD	

-**-**--- TL

🔀 EB

ND

NA

NE

PPM

ug/L

VOCs

SVOCs

24" FIR

8" BLACK BIRCH

SOIL BORING/ MONITORING WELL LOCATION (2005)
SHALLOW/DEEP BORING LOCATION (2005)
DEEP BORING LOCATION (2005)
SHALLOW BORING LOCATION (2005)
SRI SOIL BORING LOCATION
SRI SOIL BORING LOCATION COMPLETED AS MONITORING WELL.
SRI SOIL-GAS SURVEY LOCATION
SRI SOIL-GAS FIELD BLANK LOCATION
SRI CULVERT SAMPLE LOCATION
MONITORING WELL INSTALLED PRIOR TO SRI
SOIL BORING INSTALLED PRIOR TO SRI
SOIL GAS SURVEY LOCATION COMPLETED AS SOIL BORING PRIOR TO SRI
FORMER SEWER/SURFACE WATER SAMPLE LOCATION
FORMER TEST PIT LOCATION

EXISTING STRUCTURE

FENCE FORMER STRUCTURES CATCH BASIN LIGHT POLE SIGN POST UTILITY POLE FLAG POLE HYDRANT TRAFFIC LIGHT POLE ELECTRIC BOX CONIFEROUS TREE/W 24" DIA. DECIDUOUS TREE/W 8" DIA.

NOT DETECTED NOT ANALYZED NOT EXCEEDANCE PARTS PER MILLION MICROGRAMS PER LITER VOLATILE ORGANIC COMPOUNDS SEMI-VOLATILE ORGANIC COMPOUNDS



FULTON STREET FORMER MGP SITE MIDDLETOWN, NEW YORK

ORANGE AND ROCKLAND UTILITIES, INC. SPRING VALLEY, NEW YORK

JL Consultants 455 WINDING BROOK DRIVE SUITE 201 GLASTONBURY, CONNECTICUT 06033

GROUNDWATER ANALYTICAL RESULTS SUMMARY

March 2006 ROD Figure 4

PROJECT 042310



GEI\O&R\FULTON\042310\SRIA\PLATES\FULTON-SOIL ANALYTICAL.dwg

SB-49/MW-49 ⊕
SB-41 🛙
SB-48
SB-61 ()
SB-31
SB-31/MW-28 💮

LSG-1	

FB-1	
SB-31	•

- MW-1 🕀
- SB-09/SG-26/GTB-1

SG-1 ∆

U-5 ◊

- x - x - x _____

⊡ CB
X LP
X SP
ø up
Ø FP
ρ HYD
-∲- TL
🛛 ЕВ
24" FIR
8" BLACK BIRCH

SVOCs

mg/kg VOCs

MIILLIGRAM PER KILOGRAM VOLATILE ORGANIC COMPOUNDS

SEMI-VOLATILE ORGANIC COMPOUNDS



JL Consultant 455 WINDING BROOK DRIVE SUITE 201 GLASTONBURY, CONNECTICUT 06033

SOIL ANALYTICAL RESULTS SUMMARY

MIDDLETOWN, NEW YORK

ORANGE AND ROCKLAND UTILITIES, INC. SPRING VALLEY, NEW YORK

PROJECT 042310

March 2006

ROD Figure 5

LEGEND

SOIL BORING/ MONITORING WELL LOCATION (2005)

SHALLOW/DEEP BORING LOCATION (2005)

DEEP BORING LOCATION (2005)

SHALLOW BORING LOCATION (2005)

SRI SOIL BORING LOCATION

SRI SOIL BORING LOCATION COMPLETED AS MONITORING WELL.

SRI SOIL-GAS SURVEY LOCATION

SRI SOIL-GAS FIELD BLANK LOCATION

SRI CULVERT SAMPLE LOCATION MONITORING WELL INSTALLED PRIOR TO SRI

SOIL BORING INSTALLED PRIOR TO SRI

SOIL GAS SURVEY LOCATION COMPLETED AS SOIL BORING PRIOR TO SRI

FORMER SEWER/SURFACE WATER SAMPLE LOCATION

FORMER TEST PIT LOCATION

EXISTING STRUCTURE

FENCE FORMER STRUCTURES CATCH BASIN LIGHT POLE SIGN POST UTILITY POLE FLAG POLE HYDRANT TRAFFIC LIGHT POLE ELECTRIC BOX CONIFEROUS TREE/W 24" DIA. DECIDUOUS TREE/W 8" DIA.





<u> </u>	EGEND
	EXISTING STRUCTURE
-xx-	FENCE
	FORMER STRUCTURES
⊡ CB	CATCH BASIN
жLР	LIGHT POLE
¤ SP	SIGN POST
ØUP	UTILITY POLE
ø FP	FLAG POLE
R HYD	HYDRANT
≁τ∟	TRAFFIC LIGHT POLE
XI EB	ELECTRIC BOX
🔁 24° FIR	CONIFEROUS TREE/W 24" DIA.
💏 8" BLACK BIRCH	DECIDUOUS TREE/W 8" DIA.
● SB-31	SRI SOIL BORING LOCATION
€ SB-31/MW-28	SRI SOIL BORING LOCATION COMPLETED. AS MONITORING WELL.
LSG-1	SRI SOIL-GAS SURVEY LOCATION

LEGEND:

SG-## SOIL GAS SAMPLING LOCATION INDOOR AIR SAMPLING LOCATION **O** IA-## AMBIENT AIR SAMPLING LOCATION AMB-##

GVD 1927

APPROXIMATE SAMPLING LOCATIONS O&R FULTON STREET SITE

ROD Figure 7



Publish Date: 2019/04/15 1:01 PM | User: rpetrie Filepath: K:\Projects\0921-Con_Edison\Fulton Street FS\0921-R-010-Fulton St FS-Alternative 6.dwg 5-6



ROD Figure 8

Alternative 5

Feasibility Study Fulton Street Former MGP Site, Middletown, New York Orange and Rockland Utilities



HORIZONTAL DATUM: New York East, HARN, U.S. Feet. VERTICAL DATUM: NAVD88

(presumed)

- Many locations are approximate. Refer to note 1, item 1.1 above for surveyed
- locations.
- 3. Location of former Monhagen Brook inferred based on voids encountered in soil borings SB-16, SB-69, SB-79 and SB-74.

Publish Date: 2019/04/15 1:01 PM | User: rpetrie Filepath: K:\Projects\0921-Con_Edison\Fulton Street FS\0921-R-007-Fulton St FS-Alternative 3.dwg 5-3





NAPL NOTES:

- LOCATIONS OF PROPOSED NAPL COLLECTION WELLS AND GROUNDWATER MONITORING WELLS ARE APPROXIMATE. ACTUAL NUMBER AND LOCATIONS OF THESE WELLS WILL BE DETERMINED DURING THE REMEDIAL DESIGN PHASE.
- 2. IMPACTS OBSERVED NORTHWEST OF POST OFFICE ARE NOT CONSIDERED MGP-RELATED SOURCE MATERIAL.



ROD Figure 9

Alternative 3

Feasibility Study Fulton Street Former MGP Site, Middletown, New York Orange and Rockland Utilities

APPENDIX A

Responsiveness Summary

RESPONSIVENESS SUMMARY

OR - Fulton Street – Middletown MGP Manufactured Gas Plant Project Middletown, Orange County, New York Site No. 336030

The Proposed Remedial Action Plan (PRAP) for the Fulton Street – Middletown MGP site was prepared by the New York State Department of Environmental Conservation (the Department) in consultation with the New York State Department of Health (NYSDOH) and was issued to the document repositories on February 25, 2021. The PRAP outlined the remedial measure proposed for the contaminated soil, groundwater and soil vapor at the Fulton Street – Middletown MGP site.

The release of the PRAP was announced by sending a notice to the public contact list, informing the public of the opportunity to comment on the proposed remedy.

A public meeting was held on March 11, 2021, which included a presentation of the remedial investigation and feasibility study (RI/FS) for the Fulton Street – Middletown MGP site as well as a discussion of the proposed remedy. The meeting provided an opportunity for citizens to discuss their concerns, ask questions and comment on the proposed remedy. These comments have become part of the Administrative Record for this site. The public comment period for the PRAP ended on March 25, 2021.

This responsiveness summary responds to all questions and comments raised during the public comment period. The following are the comments received, with the Department's responses:

Questions received at the March 11, 2021 virtual public meeting:

COMMENT 1: The proposed remedial alternative (Alternative 3) does not provide sufficient cleanup of the site. Putting up a wall to stop migration of contamination doesn't solve the problem. Alternatives 4 or 5 would provide a better cleanup. Although shutting down our business and nearby roads is bad, we don't see it as being any worse than Alternative 3.

RESPONSE 1: Short-term impacts to the on-site business and community were evaluated as part of the remedy selection process. Part of the reasoning for proposing Alternative 3 was to address the most likely potential for exposure (the utility corridor) and do so by posing a minimum impact to you as the property owner and the community. The proposed remedy was based on Orange and Rockland's assessment that access to perform a more robust remedy would not be provided by the property owner. However, based on more recent input that has been received, the Department has revised the ROD to select Alternative 5 with a minimum (contingency) of completing the components of Alternative 3 if access needed to complete Alternative 5 cannot be resolved.

COMMENT 2: What are O&R's responsibilities for the site?

RESPONSE 2: O&R is obligated under a Consent Order with the Department to investigate and remediate the site in accordance with the Department's Record of Decision (ROD).

COMMENT 3: Why has the site not been cleaned up already? Why is it taking so long?

RESPONSE 3: The process for investigating and cleaning up sites can vary widely due to site specific factors. In general, however, the process usually takes several years. Some of the factors that can impact the timeframe include the site's potential for exposure and the need for supplemental investigations. Issues including access can also impact the timeframe for how quickly a site can progress.

COMMENT 4: How much longer to cleanup this site?

RESPONSE 4: Upon issuance of the ROD, there will likely need to be a pre-design investigation to inform the remedial design. The design will then be reviewed and approved by the Department and NYS Department of Health. Then, O&R will need to obtain the necessary permits, legal access and select a contractor to complete the work. Cumulatively, it is expected that these activities will take 24 months or more.

COMMENT 5: DOH talked about soil vapor intrusion testing earlier. Why was there no indoor air sampling for the autobody shop?

RESPONSE 5: While sub-slab sampling was completed at the body shop, indoor air samples were not required due to the nature of the on-site businesses which are using products which contain some of the same compounds as the site's contaminants of concern. This makes it difficult to differentiate between chemicals present in indoor air as a result of current operations from those that may be the result of soil vapor intrusion. However, based on sub-slab vapor sample results alone, we have determined that the potential for inhalation exposure as a result of soil vapor intrusion is a future concern and warrants indoor air sampling if the use of that building changes and it is occupied by entities that do not use similar chemicals as part of their operations.

COMMENT 6: How do you know they are using some of the same chemicals?

RESPONSE 6: The Department and NYSDOH have conducted soil vapor intrusion (SVI) investigations and collected chemical data at hundreds of sites across the state. The primary chemicals of MGP-related compounds are the same as those found in gasoline, lubricants, solvents, refrigerants, and paints (i.e., those materials in use on-site presently).

COMMENT 7: If you dug a foot or two down at the site, what would you find?

RESPONSE 7: The shallowest coal tar contamination was observed on-site at approximately 5 feet below ground surface. Contamination is present at varying depths on-site and much of it is present on the surface of the till unit. This layer varies with the topography but ranges from approximately 15 feet to 20 feet deep. A significant amount of contamination is present on-site in the vicinity of the former MGP structures. It migrates off-site to the south under Fulton Street and

other nearby properties. Off-site impacts are deeper, with the most significant impacts present at depths greater than 20 feet.

COMMENT 8: What is the source of drinking water in the community?

RESPONSE 8: The site and surrounding area is served by the City of Middletown Water System that gets its water from several reservoirs not impacted by site contamination.

COMMENT 9: The survey says there were collection wells dug at the site. Was that the last time work was completed?

RESPONSE 9: Most of the remedial investigation activities were completed during the late 1990s and early-to-mid 2000s. The initial phase of the RI began in 1998, and the supplemental RI was completed in 2006. Additional work was completed in 2016 as part of a separate investigation referred to as the "Feasibility Study Refinement Investigation". As the name suggests, this investigation was necessary to complete the evaluation of the various remedies under consideration and to assess current site conditions.

COMMENT 10: Is there a comparable MGP site?

RESPONSE 10: There are similar MGP sites across the state. The LeRoy MGP in western New York also has an on-site autobody shop operating on-site where MGP impacts have also been identified. Each site has its own characteristics. There are sites located on vacant land and others that are in urban environments with businesses operating on them.

COMMENT 11: Can you provide me with information regarding other similar MGP sites?

RESPONSE 11: Yes, we can provide you with some information regarding other sites. Much of the information may already be available in our online document repository found at: https://www.dec.ny.gov/data/DecDocs/336030/. Information on other sites including environmental and health assessment summaries, are available on NYSDEC's Environmental Site Remediation Database at:

https://www.dec.ny.gov/cfmx/extapps/derexternal/index.cfm?pageid=3.

COMMENT 12: What determines what makes a site a higher priority than others?

RESPONSE 12: The potential for human exposure and/or environmental damage informs the remedial priority. Some sites may have an immediate human exposure concern which would make it a high priority. Others may have contamination that impacts nearby waterbodies, which qualifies as a significant environmental concern. At this site, the water supply is not threatened by the site, and the potential for direct contact with contamination is low unless excavation occurs within the contaminated area.

COMMENT 13: How is NYSDEC going to investigate 250 MGP sites across the state? This contamination appears very worrisome to leave in the ground for so long.

RESPONSE 13: There are many other remediation sites the state manages in other remedial programs, such as State Superfund and Brownfield Cleanup Programs. All sites are prioritized based on a variety of factors.

To date, 261 MGP sites have been identified statewide, of which 240 are under an Order on Consent with the Department to complete a remedial program. 103 of these sites have been remediated and/or require no further action. 33 more have completed investigations, with the next phase being remedial design. 31 more are in the investigation stage.

The investigation and remediation process can be lengthy. The goal of the investigation process is to fully delineate the nature and extent of contamination. This is followed by a Feasibility Study that is intended identify, screen and evaluate various remedial alternatives. It is an iterative process, and the need for additional or supplemental investigation can lead to delays. As noted above, access issues also can contribute to delays. The Department is committed to continuing to investigate and cleanup these sites as quickly as possible.

Letters received during the comment period:

Hechler Development and Aamco Transmissions submitted a letter (dated March 9, 2021) which included the following comments:

COMMENT 14: We refer to the above referenced Proposed Remedial Action Plan (the "Plan") for Site No. 336030 (the "Site") for the remediation of environmental contamination caused by a manufactured gas plant formerly operated by Orange and Rockland Utilities ("O&R") on the Site. The Plan relates to Orders from the NYS Department of Environmental Conservation (the "DEC") from 1996 and 1998. The Plan concludes that based on the findings of the Remedial Investigation, the past disposal of hazardous waste has resulted in contamination of groundwater and soil (Plan, 16 and 18). The Plan identifies O&R as the responsible party for such contamination (Plan, 4).

The Plan identifies six alternatives for remediation of the Site. The Plan states that "[t]he goal of the remediation program is to restore the site to pre-disposal conditions to the extent feasible" and further states that "[a]t 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 though the proper application of scientific and engineering principles." (Plan, 9).

The Plan proposes Alternative 3 for the remediation of the Site. This plan will involve, among other things, the placement of additional collection wells on our property and the excavation of Fulton Street between Canal Street and South Street and the rerouting of traffic away from the Site area (Plan, 11 and 27). From our discussions with representatives of the DEC and ConEd, we understand the excavation will require the portion of Fulton Street between Canal Street and South Street to be shut down completely for an extended period of time and partially for another extended period while such excavation and other remediation work is being done.

Hechler Development Corporation owns the property located on part of the Site at 45 Fulton Street between Canal Street and South Street. We purchased the property in 1994 in connection with our

automotive repair business, AAMCO Transmissions and Total Car Care, which opened on the property the same year. We selected this property for our business because of its central location in Middletown and its high accessibility- it is easy and convenient for our customers to find us and to bring us their cars to fix. As with all retail businesses, location, curb appeal, visibility and access are all key factors for success.

Alternative 3, the remediation plan being proposed, (i) does not accomplish the Department's remediation goals and (ii) has a negative adverse impact on our business and our property and as such, effectively amounts to a condemnation.

The road closures at the Site related to the remediation plan are effectively a condemnation of the property because it will put us out of business. Our business depends on customers being able to easily and conveniently bring in their cars, as we are not the only provider in town and customers can easily go elsewhere. Closing Fulton Street, even partially, will have a negative material adverse impact on our business. We have experienced short term road closures in the past over the last 27 years and we have lost approximately half of our sales due to even a partial short-term road closure. In short, any type of road closure on Fulton, Canal or South Street makes it impossible for us to conduct our business at the Site, and certainly makes it unprofitable to do so.

Moreover, the limited scope of Alternative 3 does not effectively achieve the Department's remediation goals. The Plan clearly states that Alternatives 4, 5 and 6 provide more protection for public health and the environment compared to Alternative 3 (Plan, Exhibit D). Alternative 3 does not alleviate the environmental issues as it would leave the majority of the contaminated soil in place where the contamination can spread into other areas creating a larger problem for the future. The balancing of public interest set forth in the Plan does not accurately depict the issue-Alternative 3 will greatly impact the local community and businesses without actually performing the proper environmental cleanup. Therefore, Alternatives 4, 5 and 6 are better approaches as they involve more comprehensive and efficient remediation and as such, are more beneficial to public health and the environment and better accomplish the Department's goals. We understand the work involved in Alternatives 4, 5 and 6 will have a larger impact on our property but given the fact that Alternative 3 is going to render our business inoperable anyway, we believe one of the more thorough clean up options (Alternative 4-6) should be selected.

Given the need for more comprehensive environmental remediation and the material adverse impact of the limited remediation option (Alternative 3) on our business and property, it would be better for our Property to be acquired in combination with the cleanup which would allow ConEd to conduct a more appropriate and complete remediation of the Site. ConEd has been made aware that we are prepared to sell our property so that there would be no adverse impact on timing or the ability to implement one of the better cleanup alternatives on the Site.

RESPONSE 14: The Department understands your concerns. Both short-term and long-term impacts were considered during the evaluation of the remedy in an attempt to select the best remedy for the site. Based upon these comments, the Department has reevaluated the proposed remedy and has selected Alternative 5, acknowledging that the components of Alternative 3 will be implemented, at a minimum, if access cannot be resolved.

Hechler Development and Aamco Transmissions submitted a letter (dated March 18, 2021) which included the following comments:

COMMENT 15: We refer to the above referenced Proposed Remedial Action Plan (the "**Plan**") for Site No. 336030 (the "**Site**") for the remediation of environmental contamination caused by a manufactured gas plant formerly operated by Orange and Rockland Utilities ("**O&R**") on the Site. Reference is also made to our comments dated March 9, 2021 previously submitted to the NYS Department of Environmental Conservation (the "**DEC**"). The comments contained herein are intended to supplement our prior comments.

In addition to the material adverse impact of the remedies proposed by the Plan on our businesses described in our prior comments we have come to learn, upon further review of the Plan and upon further discussions with the DEC that Alternatives 3, 4 and 5 set forth in the Plan will not result in the cleanup of our property located on the Site at 45 Fulton Street. None of these Alternatives will adequately remediate the environmental contamination caused by O&R- our property will still be contaminated even after completion of one of these Alternatives.

Stated plainly, going forward with Alternatives 3, 4 or 5 will put us out of business while still leaving the Site contaminated. Alternatives 3, 4 and 5 are wholly inadequate, impractical and illogical as they do not actually fix the problem and do not remediate the environmental contamination caused by O&R on our property.

These Alternatives simply involve doing the bare minimum in an effort to save costs at the expense of protecting the public and the environment from the hazards posed by the existing contamination.

As such, these Alternatives must be deemed unacceptable by the DEC and must be rejected. A new plan must be proposed by the DEC that will sufficiently clean up the contamination and actually achieve the goals of the DEC of protecting public health and the environment.

RESPONSE 15: Based upon Hechler Development's initial comments, the Department has selected remedial Alternative 5, with Alternative 3 as a contingent remedy, if an access agreement cannot be reached. This course of action would provide flexibility and allow for the implementation of a remedy under various potential future scenarios. As discussed in the Proposed Remedial Action Plan, both Alternatives 3 and 5 meet the threshold criteria for being protective of human health and the environment. Alternative 5 has the added benefit or removing significant source contamination from the vicinity of the on-site MGP structures.

The remedial program requires the cleanup of a site to pre-existing conditions to the extent feasible. In many instances it is not feasible to fully remediate a site (MGPs or otherwise), particularly in developed urban areas where contamination has migrated beneath critical infrastructure. Therefore, placement of an environmental easement on the site and adherence to a site management plan are well-established and commonly used instruments to manage the long-term institutional and engineering controls to address contamination that cannot feasibly be removed or otherwise remediated. The site management plan outlines the procedures for the future maintenance and monitoring of the remedy. Hechler Development submitted an email (dated March 24, 2021) which included the following comments:

COMMENT 16: As discussed on our call today, we would like to submit the additional comments below to the DEC. These comments are being submitted on behalf of Hechler Development Corp and AAMCO Transmissions. Please consider these comments supplementary to all prior comments we have submitted to the DEC in the past.

1. <u>Proponent of issuance of final order</u>. We request that the DEC postpone the issuance of the final decision for the Fulton Street site. As you know, we are currently in discussions with ConEd for ConEd to purchase our property. Delaying issuing the final order will allow the DEC to account for the outcome of said discussions and any resulting changes in ownership and/or plans for future use of the property.

2. <u>DEC's current contingency plan</u> / <u>Request for protection of property ownership's interests</u>. Thank you for letting us know that your current plan, generally speaking, is to order remedial Alternative 5 with the contingency that our property be available for such work, and if it is not available then the plan will allow for remedial Alternative 3. If this becomes part of the final order, we request that language be added to the order that obligates Con Ed to cooperate with us, and use best efforts to reach an agreement with us so that they are able to complete the Alternative 5 remedial work. Without this obligation, ConEd might easily be let off the hook and end up doing the bare minimum (i.e. Alternative 3).

3. <u>All uses permitted by current zoning</u>. We request that the final order obligates ConEd to clean up the property such that it can be used for all uses which are permitted by its current zoning, including, but not limited to, restricted residential use (which we understand to mean retail/office on the ground floor with residential use starting on the floor above such ground floor). We need to be assured that we will not end up with a site that is insufficiently cleaned up such that it is unable to be utilized for all of the uses for which it is currently zoned (i.e. restricted residential).

As you know, we have been nothing but cooperative with ConEd/O&R and the DEC since we bought the property in 1994 and we hope to continue our cooperative and cordial relationship.

RESPONSE 16: The Department expects that all responsible parties will negotiate site access in a reasonable manner and in good faith. The responsible party is required to document all efforts they have made to obtain access and must exhaust all reasonable measures to negotiate an agreement with a property owner.

All of the remedial alternatives, with the exception of Alternative 1, No Action, would be protective of human health and the environment. Each alternative was developed to meet the requirements for restricted residential use, which is consistent with the site's current and anticipated zoning.

APPENDIX B

Administrative Record

Administrative Record

OR – Fulton Street – Middletown MGP Site Manufactured Gas Plant Project Middletown, Orange County, New York Site No. 336030

- *1.* Proposed Remedial Action Plan for the OR Fulton Street Middletown MGP site, dated February 2021, prepared by the Department.
- 2. Orders on Consent, Index No. D-3-0002-9412 and D3-0001-98-03, between the Department and Orange and Rockland Utilities, Inc., executed on January 8, 1996 and September 29, 1998, respectively.
- 3. Final Remedial Investigation Report dated November 2000, prepared by GEI Consultants, Inc.
- 4. Final Supplemental Remedial Investigation Addendum Report dated March 2006, prepared by GEI Consultants, Inc.
- 5. Final Feasibility Study Refinement Investigation Report dated January 2017, prepared by Arcadis of New York, Inc.
- 6. Final Feasibility Study Report dated March 2021, prepared by Anchor QEA Engineering, PLLC
- 7. Letter dated March 9, 2021 from Hechler Development Corporation and Kimba Transmissions D/B/A AAMCO Transmissions.
- 8. Letter dated March 18, 2021 from Hechler Development Corporation and Kimba Transmissions D/B/A AAMCO Transmissions.
- 9. Email correspondence dated March 24, 2021 from Hechler Development Corporation.