NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

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November 17, 2017

Mr. Don Benson
Benson Construction and Development, LLC
229 Homer Street
Olean, New York 14760

RE: 229 Homer Street, Site No: C905044
Olean, Cattaraugus
Revised Remedial Investigation/Alternatives Analysis Report
and Decision Document

Dear Mr. Benson:

The New York State Department of Environmental Conservation (Department) and the New York State Department of Health (NYSDOH) have reviewed the Revised Remedial Investigation/Alternatives Analysis Report (RI/AAR) for the 229 Homer Street site, dated June 2017 and prepared by Turnkey Environmental Restoration, LLC on behalf of Benson Construction and Development, LLC. The RI/AAR is hereby approved. Please ensure that a copy of the approved RI/AAR is placed in the document repository. The draft plan should be removed.

Enclosed is a copy of the Department's Amended Decision Document for the site. The remedy is to be implemented in accordance with this Amended Decision Document. Please ensure that a copy of the Decision Document is placed in the document repository.

Please contact the Department's Project Manager, Anthony Lopes, (716) 851-7220, at your earliest convenience to discuss next steps.

Sincerely,

Michael J. Cruden. P.E.
Director
Remedial Bureau E
Division of Environmental Remediation

Enclosure
ec: M. Ryan, NYSDEC
C. Staniszewski/A. Lopes, NYSDEC
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AMENDED DECISION DOCUMENT

229 Homer Street
Olean, Cattaraugus County, New York
Site Number C905044

November 2017

Prepared by the:

Division of Environmental Remediation
New York State Department of Environmental Conservation

DECLARATION STATEMENT – AMENDED DECISION DOCUMENT

229 Homer Street
Olean, Cattaraugus County
Site No. C905044
11/2017

Statement of Purpose and Basis

The New York State Department of Environmental Conservation (the Department), in consultation with the New York State Department of Health (NYSDOH), is proposing an amendment to the Decision Document (DD) for the above referenced site. The nature and extent of contamination at this site is more fully described in the original DD document and Section 6 of this document. The purpose of this proposed amendment is to: describe a revision to the preferred remedy; discuss the reasons for the proposed changes to the preferred remedy, and; explain how the revised remedy attains the remedial action objectives identified for this site.

The Department has issued this document in accordance with the requirements of 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 Environmental Remediation Programs. This document is a summary of the information that can be found in the site-related reports and documents in the document repository identified below.

In November 2016, the Department issued a Decision Document which selected a remedy to clean up the 229 Homer Street Site. The original remedy involved excavation and off-site disposal of approximately 40,000 tons of contaminated soil as the main remedial component. The proposed, revised remedy selects limited excavation and an in-situ approach, which includes soil vapor extraction (SVE) and air sparge (AS), in place of large-scale excavation.

Based on evaluations conducted during the design phase of the project, it was determined that complete excavation of all petroleum impacted subsurface soil would not be achievable due to the presence of contaminated soils immediately adjacent to and/or under existing the on-site building, and the railroad tracks immediately adjacent to the site. Structural concerns limit the ability to excavate near the building and railroad tracks. A more feasible method to address the subsurface soil contamination will be to pump air into the saturated zone to volatilize contaminants below the groundwater table using AS, and to treat the soils above the groundwater table in place, using SVE. AS/SVE remedial systems have been utilized effectively on similar sites for over 25 years; SVE has been implemented recently on several Brownfield Cleanup Program (BCP) sites in Olean, and will be implemented on this site to remove volatile contaminants from the subsurface.

Contaminants will be physically removed from the soil by applying a vacuum to wells that have been installed into the vadose zone (the area below the ground but above the water table). The vacuum draws air through the soil matrix which carries the contaminants from the soil to the SVE wells. The air extracted from the SVE wells is then treated as necessary, prior to being discharged to the atmosphere.

Excavation of grossly contaminated subsurface soil associated with pipe removal, that is at a suitable distance from the building and railroad tracks, is still proposed. The pipe removal and associated excavation and off-site disposal of grossly contaminated soil, coupled with the in-situ SVE and AS, is anticipated to provide a remedy that equally or better achieves the remedial action objectives for the site. The planned "Track 4" restricted commercial use of the site is unchanged.

The proposed revised remedy also reduces greenhouse gas emissions and conserves commercial landfill space when compared to the original remedy selected.

Description of Selected Remedy

The elements of the amended remedy are as follows:

1. Remedial Design *(Modified)*
   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. The revised remedy significantly reduces greenhouse gas emissions due to significantly lower (approx. 87%) soils excavated and trucked off-site to landfill;
   - Increasing energy efficiency and minimizing use of non-renewable energy;
   - Conserving and efficiently managing resources and materials;
   - Reducing waste, increasing recycling and increasing reuse of materials which would otherwise be considered a waste;
   - Maximizing habitat value and creating habitat when possible;
   - Fostering green and healthy communities and working landscapes which balance ecological, economic and social goals; and
   - Integrating the remedy with the end use where possible and encouraging green and sustainable re-development.

2. Excavation *(modified, see Figure 2)*
   Limited excavation and off-site disposal of contaminated soil, including:
   - grossly contaminated soil, as evidenced by the presence of mobile petroleum product;
   - removal, cleaning and off-site recycling of subsurface piping. The pipe contents will be

disposed off-site; and,
- non-aqueous phase liquids;

"Clean" fill meeting the requirements of 6 NYCRR Part 375-6.7(d) will be brought in to replace the excavated soil or complete the backfilling of the excavation and establish the designed grades at the site.

The site will be re-graded to accommodate installation of a cover system as described in remedy element 4 below.

3. In-Situ Air Sparge and Soil Vapor Extraction System *(New, see Figure 3)*
In-situ air sparge (AS) and soil vapor extraction (SVE) will be implemented to remove VOCs from the petroleum impacted area. Air sparge wells will be installed in the saturated zone to inject air into the groundwater causing VOCs to volatilize out of the groundwater and into the soil above. VOCs will be physically removed from the soil via SVE by applying a vacuum to wells that have been installed into the vadose zone (the area below the ground but above the water table). The vacuum draws air through the soil matrix which carries the VOCs from the soil to the SVE well. The air extracted from the SVE wells will be treated by passing the air stream through a biofilter to remediate the vapor and remove nuisance odors prior to it being discharged to the atmosphere.

   An area of approximately two acres of contaminated soil and groundwater will be treated at depths ranging from 5 to 23 feet below ground surface.

   The operation of the components of the remedy will continue until the remedial objectives have been achieved, or until the Department determines that continued effective operation is technically impracticable or no longer feasible.

4. Cover System *(Unchanged)*
A site cover will be required to allow for commercial or industrial use of the site, in areas where the upper one foot of exposed surface soil will exceed the applicable soil cleanup objectives (SCOs). The site cover may consist of paved parking areas, sidewalks or a soil cover. Where the soil cover is required it will be a minimum of one foot of soil placed over a demarcation layer, with the upper six inches of soil of sufficient quality to maintain a vegetative layer. Soil cover material, including any fill material brought to the site, will meet the SCOs for cover material as set forth in 6 NYCRR Part 375-6.7(d). In areas where building foundations or building slabs preclude contact with the soil, the requirements for a site cover will be deferred until such time that they are removed.

5. Institutional Controls *(Unchanged)*
Imposition of an institutional control in the form of an environmental easement for the controlled property which will:
   - require the remedial party or site owner to complete and submit to the Department a periodic certification of institutional and engineering controls in accordance with Part 375-1.8(h)(3);

- allow the use and development of the controlled property for commercial use or industrial 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.

6. Site Management Plan *(Modified, reference In-Situ Air Sparge)*
   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 5 above.

      Engineering Controls: The cover system discussed in Paragraph 4 above and the In-Situ Air Sparge and Soil Vapor Extraction System discussed in Paragraph 3 above.

      This plan includes, but may not be limited to:
      - an Excavation Plan which details the provisions for management of future excavations in areas of remaining contamination;
      - descriptions of the provisions of the environmental easement including any land use, groundwater, and surface water use restrictions;
      - a provision for evaluation of the potential for soil vapor intrusion in the on-site building should the floor slab be compromised and in future buildings developed on the site, 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 3 above will be placed in any areas where the upper one foot of exposed surface soil exceeds 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 Plan to assess the performance and effectiveness of the remedy. The plan includes, but may not be limited to:
      - a schedule of monitoring and frequency of submittals to the Department;
      - monitoring of groundwater to assess the performance and effectiveness of the remedy; and
      - monitoring for vapor intrusion for any occupied existing or future buildings developed on the site, as may be required by the Institutional and Engineering Control Plan discussed above.

New York State Department of Health Acceptance

The NYSDOH concurs that the amendment to the remedy for this site is protective of human health.

Declaration

The selected remedy is protective of public 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.

Michael J Cruden

Digitally signed by Michael J Cruden
DN: cn=Michael J Cruden, o=DER, ou=RBE, email=mjcruden@gw.dec.state.ny.us, c=US
Date: 2017.11.08 09:16:30 -05'00'

Date

Michael Cruden, Director Remedial Bureau E
Division of Environmental Remediation

DECISION DOCUMENT AMENDMENT
229 HOMER STREET SITE

City of Olean / Cattaraugus County / Site No. C905044 November 2017

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

SECTION 1: PURPOSE AND SUMMARY OF THE DECISION DOCUMENT AMENDMENT

The New York State Department of Environmental Conservation (the Department), in consultation with the New York State Department of Health (NYSDOH), is proposing an amendment to the Decision Document (DD) for the above referenced site. The nature and extent of contamination at this site is more fully described in the original DD document and Section 6 of this document. The purpose of this proposed amendment is to: describe a revision to the preferred remedy; discuss the reasons for the proposed changes to the preferred remedy, and; explain how the revised remedy attains the remedial action objectives identified for this site.

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Based on evaluations conducted during the design phase of the project, it was determined that complete excavation of all petroleum impacted subsurface soil would not be achievable due to the presence of contaminated soils immediately adjacent to and/or under existing the on-site building, and the railroad tracks immediately adjacent to the site. Structural concerns limit the ability to excavate near the building and railroad tracks. A more feasible method to address the subsurface soil contamination will be to pump air into the saturated zone to volatilize contaminants below the groundwater table using AS, and to treat the soils above the groundwater table in place, using SVE. AS/SVE remedial systems have been utilized effectively on similar sites for over 25 years; SVE has been implemented recently on several Brownfield Cleanup Program (BCP) sites in Olean, and will be implemented on this site to remove volatile contaminants from the subsurface. Contaminants will be physically removed from the soil by applying a vacuum to wells that have been installed into the vadose zone (the area below the ground but above the water table). The vacuum draws air through the soil matrix which carries the contaminants from the soil to the SVE wells. The air extracted from the SVE wells is then treated as necessary, prior to being discharged to the atmosphere.

Excavation of grossly contaminated subsurface soil associated with pipe removal, that is at a suitable distance from the building and railroad tracks, is still proposed. The pipe removal and associated excavation and off-site disposal of grossly contaminated soil, coupled with the in-situ SVE and AS, is anticipated to provide a remedy that equally or better achieves the remedial action objectives for the site. The planned "Track 4" restricted commercial use of the site is unchanged.

The proposed revised remedy also reduces greenhouse gas emissions and conserves commercial landfill space when compared to the original remedy selected.

SECTION 2: CITIZEN PARTICIPATION

The Department seeks input from the community on all remedies. A public comment period was held, during which the public was encouraged to submit comment on the proposed remedy. All comments on the remedy received during the comment period were considered by the Department in selecting a remedy for the site. Site-related reports and documents were made available for review by the public at the following document repository:

Olean Public Library
134 N 2nd Street
Olean, NY 14760-2583
Attn: Lance Chaffee, Director
Phone: (716) 372-0200

Receive Site Citizen Participation Information By Email

Please note that the Department's Division of Environmental Remediation (DER) is "going paperless" relative to citizen participation information. The ultimate goal is to distribute citizen participation information about contaminated sites electronically by way of county email listservs. Information will be distributed for all sites that are being investigated and cleaned up in a particular county under the State Superfund Program, Environmental Restoration Program, Brownfield Cleanup Program, Voluntary Cleanup Program, and Resource Conservation and Recovery Act Program. We encourage the public to sign up for one or more county listservs at http://www.dec.ny.gov/chemical/61092.html.

SECTION 3: SITE DESCRIPTION AND HISTORY

Location: The 3.34-acre site is located in an urban area bounded by Two Mile Creek and Homer Street to the west, a solid waste transfer station to the northeast, Southern Tier Rail Authority rail lines to the southeast, and the 251 Homer Street BCP site to the southwest.

Site Features: The site is relatively flat and includes one 5,575 square foot building used for offices, maintenance, and storage.

Current Zoning and Land Use: The site is currently active and is zoned for commercial use. The site is currently occupied by a construction company and includes an office and maintenance building and a storage yard for construction equipment.

Past Use of the Site: From the 1880s to 1950 the site was used for oil refinery purposes and as a petroleum tank farm which has led to site contamination. Former refinery tanks and buildings were removed in 1964.

Site Geology and Hydrogeology: Site soils consist of 0-4 feet of fill material (sand, gravel, brick and shale fragments) underlain by sequences of sand, gravel, silt and clay. Depth to groundwater is 7-14 feet below ground surface (fbgs) and flows to the southeast.

A site location map is attached as Figure 1.

SECTION 4: LAND USE AND PHYSICAL SETTING

The Department may consider the current, intended, and reasonably anticipated future land use of the site and its surroundings when evaluating a remedy for soil remediation. For this site, alternatives (or an alternative) that restrict the use of the site to commercial use (which allows for industrial use, though zoning dependent) as described in Part 375-1.8(g) were evaluated in addition to an alternative which would allow for unrestricted use of the site.

A comparison of the results of the Remedial Investigation (RI) to the appropriate standards, criteria and guidance values (SCGs) for the identified land use and the unrestricted use SCGs for the site contaminants is available in the RI Report.

SECTION 5: ENFORCEMENT STATUS

The Applicant under the Brownfield Cleanup Agreement is a Volunteer. The Applicant does not have an obligation to address off-site contamination. However, the Department has determined that this site does not pose a significant threat to public health or the environment; accordingly, no enforcement actions are necessary. Off-site petroleum impacts are being addressed under the Department's Spills Program.

SECTION 6: SITE CONTAMINATION

6.1: Summary of the Remedial Investigation

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

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

The RI is intended to identify the nature (or type) of contamination which may be present at a site and the extent of that contamination in the environment on the site, or leaving the site. The RI reports on data gathered to determine if the soil, groundwater, soil vapor, indoor air, surface water or sediments may have been contaminated. Monitoring wells are installed to assess groundwater and soil borings or test pits are installed to sample soil and/or waste(s) identified. If other natural resources are present, such as surface water bodies or wetlands, the water and sediment may be sampled as

well. Based on the presence of contaminants in soil and groundwater, soil vapor will also be sampled for the presence of contamination. Data collected in the RI influence the development of remedial alternatives. The RI report is available for review in the site document repository and the results are summarized in section 6.3.

The analytical data collected on this site includes data for:

- groundwater
- soil
- soil vapor
- 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. For a full listing of all SCGs see: http://www.dec.ny.gov/regulations/61794.htm.

6.1.2: RI Results

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

arsenic
benzo(a)anthracene
benzo(b)fluoranthene
petroleum products
benzo(a)pyrene
indeno(1,2,3-CD)pyrene
benzene

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

- groundwater
- soil

6.2: Interim Remedial Measures

An interim remedial measure (IRM) is conducted at a site when a source of contamination or exposure pathway can be effectively addressed before issuance of the Decision Document.

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

6.3: Summary of Environmental Assessment

This section summarizes the assessment of existing and potential future environmental impacts presented by the site. Environmental impacts may include existing and potential future exposure pathways to fish and wildlife receptors, wetlands, groundwater resources, and surface water. The RI report presents a detailed discussion of any existing and potential impacts from the site to fish and wildlife receptors.

Nature and Extent of Contamination:

Soil and groundwater were analyzed for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), metals, polychlorinated biphenyls (PCBs), and pesticides. Based upon investigations conducted to date, the primary contaminants of concern include arsenic, SVOC's and grossly contaminated soil (GCS). Soil contamination is present off-site due to the former area wide land use as a petroleum refinery.

Surface Soil (0-2 inches)
The only exceedance of commercial use SCOs (CSCOs) was arsenic at one location (21.9 parts per million (ppm) vs. CSCO 16 ppm). The remaining SVOCs, metals, PCBs and pesticide concentrations were either non-detect or below unrestricted use SCOs.

Subsurface Soil
Areas of GCS were identified at the site in areas adjacent to subsurface piping. Petroleum-like odors and sheen were observed on the water table, and photoionization detector (PID) readings in soil headspace were measured at levels up to 1,014 ppm. No VOCs were detected above CSCOs. Four individual SVOCs exceed CSCOs at two locations including benzo(a)anthracene (up to 13 ppm; CSCO is 5.6 ppm), benzo(b)fluoranthene (up to 18 ppm; CSCO is 5.6 ppm), benzo(a)pyrene (up to 10 ppm; CSCO is 1 ppm), and indeno(1,2,3-cd)pyrene (up to 7.3 ppm; CSCO is 5.6 ppm). Arsenic was present above its respective CSCO in subsurface soil/fill at three sample locations (up to 25.9 ppm; CSCO is 16 ppm). Pesticides were reported as non-detect or at trace (estimated) concentrations below the sample quantitation limit. Herbicides and PCBs were reported as non-detect.

Groundwater
Benzene was detected in one well at a concentration (1.5 parts per billion (ppb)) slightly above its groundwater quality standard/guidance value (GWQS/GV) of 1.0 ppb. All other analytes were reported as non-detect or at concentrations below GWQS/GVs.

Sub-slab Vapor and Indoor Air

Dichlorodifluoromethane (Freon 12) was detected in a sub-slab vapor sample at a concentration of 29,000 micrograms per cubic meter (mcg/m3) and styrene was detected (at an estimated value) of 63 mcg/m3. Corresponding indoor air concentrations are generally consistent with background levels.

6.4: Summary of Human Exposure Pathways

Remedial actions completed at the site have limited the potential exposures to residual site-related soil contamination. Contaminated groundwater at the site is not used for drinking or other purposes and the area is served by a public water supply that is not affected by this contamination. Volatile organic compounds in contaminated groundwater may move into the soil vapor (air spaces within the soil), which in turn may move into overlying structures 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. The potential exists for indoor air to be impacted from contaminated soil vapor beneath the on-site building if the building slab is disturbed. The potential exists for the inhalation of contaminants due to soil vapor intrusion for any future on-site redevelopment and occupancy.

SECTION 7: SUMMARY OF ORIGINAL REMEDY AND AMENDMENT

7.1: Original Remedy

The elements of the selected remedy are as follows:

1. Remedial Design
   A remedial design program will be implemented to provide the details necessary for the construction, operation, optimization, maintenance, and monitoring of the remedial program. Green remediation principles and techniques will be implemented to the extent feasible in the design, implementation, and site management of the remedy as per DER-31. The major green remediation components are as follows;
   - Considering the environmental impacts of treatment technologies and remedy stewardship over the long term;
   - Reducing direct and indirect greenhouse gases and other emissions;
   - Increasing energy efficiency and minimizing use of non-renewable energy;
   - Conserving and efficiently managing resources and materials;
   - Reducing waste, increasing recycling and increasing reuse of materials which would otherwise be considered a waste;
   - Maximizing habitat value and creating habitat when possible;
   - Fostering green and healthy communities and working landscapes which balance ecological, economic and social goals; and
   - Integrating the remedy with the end use where possible and encouraging green and sustainable re-development.

2. Excavation
   Excavation and off-site disposal of approximately 40,000 tons of contaminated soil, including:
   - grossly contaminated media, as defined in 6 NYCRR Part 375-1.2(u);
   - soils that create a nuisance condition as defined in Commissioner Policy CP-51 Section G;
   - removal, cleaning and off-site recycling of an estimated 2,500 linear feet of subsurface piping. The pipe contents will be disposed off-site; and
   - non-aqueous phase liquids;

   On-site soil which does not exceed the above excavation criteria may be used below the cover system described in remedy element 3 below to backfill the excavation to the extent that a sufficient volume of on-site soil is available.

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

3. Cover System: A site cover will be required to allow for commercial or industrial use of the site, in areas where the upper one foot of exposed surface soil will exceed the applicable soil

cleanup objectives (SCOs). The site cover may consist of paved parking areas, sidewalks or a soil cover. Where the soil cover is required it will be a minimum of one foot of soil placed over a demarcation layer, with the upper six inches of soil of sufficient quality to maintain a vegetative layer. Soil cover material, including any fill material brought to the site, will meet the SCOs for cover material as set forth in 6 NYCRR Part 375-6.7(d). In areas where building foundations or building slabs preclude contact with the soil, the requirements for a site cover will be deferred until such time that they are removed.

4. Institutional Control
   Imposition of an institutional control in the form of an environmental easement for the controlled property which will:
   - require the remedial party or site owner to complete and submit to the Department a periodic certification of institutional and engineering controls in accordance with Part 375-1.8 (h)(3);
   - allow the use and development of the controlled property for commercial use or industrial 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.

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

      Institutional Controls: The Environmental Easement discussed in Paragraph 4 above.
      Engineering Controls: The cover system discussed in Paragraph 3 above.

      This plan includes, but may not be limited to:
      - an Excavation Plan which details the provisions for management of future excavations in areas of remaining contamination;
      - descriptions of the provisions of the environmental easement including any land use, groundwater, and surface water use restrictions;
      - a provision for evaluation of the potential for soil vapor intrusion in the on-site building should the floor slab be compromised and in future buildings developed on the site, 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 3 above will be placed in any areas where the upper one foot of exposed surface soil exceeds 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 Plan to assess the performance and effectiveness of the remedy. The plan includes, but may not be limited to:
   - a schedule of monitoring and frequency of submittals to the Department;
   - monitoring for vapor intrusion for any occupied existing or future buildings developed on the site, as may be required by the Institutional and Engineering Control Plan discussed above.

7.2 Elements of the Remedy Already Performed

No remedial activities have been performed at the site to date.

7.3 New Information

The modification of the site remedy has been made on the basis of design evaluations conducted in 2016.

It had been assumed that excavating contaminated soils near the building and proximate adjacent railroad tracks would require a shoring system to protect the building's and rails' structural integrity. Based on evaluations conducted during the design phase of the project, it was determined that vibrations created during the installation of the shoring system itself could damage the structures. Strengthening the building foundation would reduce the risks of structural damage but would be labor intensive and expensive. Sloping the remedial excavation away from the building and adjacent rails would eliminate the need for shoring but it would leave some contaminated soils in place.

AS/SVE is an effective remedy for the petroleum contaminated soils above and below the groundwater table. AS will be used to pump air into the saturated zone to volatilize contaminants below the groundwater table. SVE extracts vapors from the soil by applying a vacuum. Removing the soil vapor allows for more of the site's volatile contaminants to be progressively extracted from the soils as vapor. AS/SVE would be accomplished with a grid of injection and extraction wells, spaced approximately evenly in the target remediation zone on the eastern portion of the site; while some contaminated soil will be removed for off-site excavation during subsurface piping removal, the vast majority of contaminated soils will not be excavated but will be treated in place.

7.4 Changes to the Original Remedy

A summary of the changes to the original DD as proposed in this document are shown in the Table on the following page:

SUMMARY OF REMEDY CHANGES
229 Homer Street (Site No. C905044) Decision Document Amendment

Media:	November 2016 DD	Amended DD
Groundwater	(1) Long-term monitoring; (2) Environmental Easement to restrict groundwater use.	There are no changes to the groundwater remedy via this amendment.
Soil	(1) Excavation and off-site disposal of contaminated soil, including grossly contaminated media, soils that create a nuisance condition; removal, cleaning, and off-site recycling of subsurface piping; (2) Use of a cover system over contaminated inaccessible soils or excavation of soils if cover removed; (3) Deed restriction to limit use of property to industrial/commercial use to restrict exposure unless otherwise approved by the Department; (4) Use of a Site Management Plan (SMP) to maintain IC/ECs at the site.	(1) Limited excavation and off-site disposal of approximately 5,000 tons of grossly contaminated soil, defined as soil exhibiting the presence of mobile petroleum product. (2) Air Sparge/Soil Vapor Extraction (AS/SVE) to address VOC-impacted soil in lieu of large-scale excavation and off-site disposal of contaminated soil. There are no other changes to the soil remedy via this amendment.
Soil Vapor/Indoor Air	(1) A provision for evaluation of the potential for soil vapor intrusion in the on-site building should the floor slab be compromised and in future buildings developed on the site, including provision for implementing actions recommended to address exposures related to soil vapor intrusion; (2) A Monitoring Plan that included monitoring for vapor intrusion for any occupied existing or future buildings developed on the site, as may be required by the Institutional and Engineering Control Plan.	There are no changes to the remedy for soil vapor/indoor air via this amendment.

SECTION 8: EVALUATION OF CHANGES

8.1 Remedial Goals

Goals for the cleanup of the site were established in the original DD through the remedy selection process stated in 6 NYCRR Part 375. The goal for the remedial program is to restore the site to pre-disposal conditions to the extent feasible. At a minimum, the remedy shall eliminate or mitigate all significant threats to public health and the environment presented by the contamination identified at the site through the proper application of scientific and engineering principles.

The remedial action objectives for this site are:

Groundwater

RAOs for Public Health Protection

- Prevent ingestion of groundwater with contaminant levels exceeding drinking water standards.
- Prevent contact with, or inhalation of volatiles, from contaminated groundwater.

RAOs for Environmental Protection

- Remove the source of ground or surface water contamination.

Soil

RAOs for Public Health Protection

- Prevent ingestion/direct contact with contaminated soil.
- Prevent inhalation of or exposure from contaminants volatilizing from contaminants in soil.

RAOs for Environmental Protection

- Prevent migration of contaminants that would result in groundwater or surface water contamination.

Soil Vapor

RAOs for Public Health Protection

- Mitigate impacts to public health resulting from existing, or the potential for, soil vapor intrusion into buildings at a site.

8.2 Evaluation Criteria

The criteria used to compare the remedial alternatives are defined in the regulation that directs the remediation of inactive hazardous waste sites in New York State (6 NYCRR Part 375). For each criterion, a brief description is provided. A detailed discussion of the evaluation criteria and comparative analysis is contained in the original and Revised Alternatives Analysis Report.

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

Overall Protection of Public Health and the Environment – The proposed revised remedy meets the Department's requirements for a Track 4 cleanup under 6 NYCRR Part 375 regulations and is

protective of public health and the environment. The RAOs for the site would be satisfied through the planned removal of GCS, in-situ air sparge and soil vapor extraction, removal of piping and contents; installation of active soil depressurization (ASD) systems in the existing and future buildings (office portions) to mitigate potential VOC vapor intrusion concerns associated with possible contaminated soil beneath the building; and the use of EC/ICs to prevent potential future exposure, and limit the future use to commercial/industrial purposes. Groundwater quality will be monitored over time in accordance with the SMP and is expected to continue to improve via natural attenuation as the contamination sources have been treated or removed. Furthermore, groundwater is not used for drinking water purposes in the area of the site; drinking water is supplied by the local municipality. Accordingly, the proposed remedy is protective of public health and fully satisfies the soil, groundwater, and soil vapor RAOs. The proposed remedy is no less protective of human health and the environment than the original remedy.

Compliance with SCGs – The planned remedial activities will be performed in accordance with applicable, relevant, and appropriate SCGs including DER-10: Technical Guidance For Site Investigation And Remediation. The SMP will include an EC/IC Plan that describes the procedures for the implementation and management of all EC/ICs at the site; a Site Monitoring Plan that describes the measures for evaluating the performance and effectiveness of the remedy to reduce or mitigate contamination at the site, including the soil cover system and all affected site media; an Excavation Work Plan to address any impacted soil/fill encountered during post-development intrusive and/or maintenance activities; an O&M Plan that describes the measures necessary to operate, monitor and maintain the mechanical components of the remedy; and, a site-wide inspection program to assure that the EC/ICs placed on the site have not been altered and remain effective. The proposed remedy is compliant with SCGs and no less compliant than the original remedy.

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

Long-Term Effectiveness and Permanence – Excavation and off-site disposal of GCS, in-situ air sparge, soil vapor extraction and removal of piping will permanently remove contaminants from the subsurface, and construction of a cover system will prevent direct contact with soil/fill exceeding CSCOs. Installation of an ASD system within the existing and future buildings will mitigate potential on-site VOC vapor intrusion concerns associated with possible contamination beneath the building. A SMP will address any impacted soil/fill encountered during future site intrusive/ maintenance activities, and provides a mechanism to assure that the EC/ICs placed on the site have not been altered and remain effective. Furthermore, an Environmental Easement for the site will be filed with Cattaraugus County, which will limit future site use to industrial/commercial uses, restrict groundwater use, and reference the Department-approved SMP. As such, the proposed remedy will provide long-term effectiveness and permanence. The proposed revised remedy is as effective and permanent as the original remedy. As the proposed revised remedy addresses more GCS adjacent to and under the building it may be considered slightly more effective in that regard than the original selected remedy.

Reduction of Toxicity, Mobility, or Volume of Contamination – The proposed remedy will reduce the toxicity, mobility, and volume of COCs significantly and permanently. Removal of GCM, piping and piping contents, treating impacted soil with air sparge and SVE reduce toxicity, mobility and volume of contaminants, and construction of a cover system will prevent direct contact with soil/fill exceeding CSCOs. Installation of an ASD system within the existing and future buildings will mitigate

potential on-site VOC vapor intrusion concerns for the building. The SMP will include an Excavation Work Plan to address any impacted soil/fill encountered during future site intrusive/maintenance activities and a site-wide inspection program to assure that the EC/ICs placed on the site have not been altered and remain effective. Accordingly, the proposed remedy satisfies this criterion and is no less effective than the original remedy. As the proposed revised remedy addresses more GCS adjacent to and under the building it may be considered slightly more effective in meeting this criterion than the original remedy.

Short-Term Impacts and Effectiveness – The short-term adverse impacts and risks to the community, workers, and environment will be controlled during implementation of the remedy. During intrusive remedial activities, including excavation and cover system placement, associated truck traffic and handling of contaminated soil/fill could potentially cause adverse short-term effects. Community air monitoring for vapors, dust particulates, and odors will be performed during intrusive activities to assure conformance with community air monitoring action levels. The potential for chemical exposure and physical injury are reduced through safe work practices; proper personal protection equipment (PPE); environmental monitoring; establishment of work zones and site control; and appropriate decontamination procedures. The planned remedial activities will be completed within one construction season and performed in accordance with a Department-approved Work Plan, including a health and safety plan (HASP) and CAMP. The proposed remedy achieves the RAOs for the site and will have less short-term impacts and risks to the community due to much lower volume of soil being excavated for off-site disposal and consequently less heavy truck traffic in the vicinity of the site during implementation of the remedy.

Implementability – No technical or action-specific administrative implementability issues are associated with the proposed remedy. Air sparge and SVE are common remedial technologies with a track record of success when used on similar sites.

Table 1 is a comparison of the NYSDEC DER-10 evaluation criteria for the original remedy compared to the revised remedy; the revised remedy is more favorable for one criteria (short-term implementability and effectiveness) and equally effective/protective for the other 8 criteria.

Cost – The capital cost of implementing the proposed remedy is estimated at $2.22 million. Total O&M costs are estimated at $800,000. The total 30-year cost of this alternative is approximately $3.02 million. Table 2 presents the capital and O&M cost estimate.

SECTION 9: AMENDED REMEDY

The changes to the selected remedy are summarized in Section 7.3 above.

The elements of the proposed, amended remedy listed below are identified as *unchanged, modified or new* when compared to the November 2016 remedy:

The selected remedy is a Track 4: Restricted use with a site-specific soil cleanup objectives remedy.

The elements of the proposed remedy, as shown in Figures 2 and 3, are as follows:

1. Remedial Design *(Modified)*

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. The revised remedy significantly reduces greenhouse gas emissions due to significantly lower (approx. 87%) soils excavated and trucked off-site to landfill;
- Increasing energy efficiency and minimizing use of non-renewable energy;
- Conserving and efficiently managing resources and materials;
- Reducing waste, increasing recycling and increasing reuse of materials which would otherwise be considered a waste;
- Maximizing habitat value and creating habitat when possible;
- Fostering green and healthy communities and working landscapes which balance ecological, economic and social goals; and
- Integrating the remedy with the end use where possible and encouraging green and sustainable re-development.

2. Excavation *(modified, see Figure 2)*
   Limited excavation and off-site disposal of contaminated soil, including:
   - grossly contaminated soil, as evidenced by the presence of mobile petroleum product;
   - removal, cleaning and off-site recycling of subsurface piping. The pipe contents will be disposed off-site; and,
   - non-aqueous phase liquids;

   "Clean" fill meeting the requirements of 6 NYCRR Part 375-6.7(d) will be brought in to replace the excavated soil or complete the backfilling of the excavation and establish the designed grades at the site.

   The site will be re-graded to accommodate installation of a cover system as described in remedy element 4 below.

3. In-Situ Air Sparge and Soil Vapor Extraction System *(New, see Figure 3)*
   In-situ air sparge (AS) and soil vapor extraction (SVE) will be implemented to remove VOCs from the petroleum impacted area. Air sparge wells will be installed in the saturated zone to inject air into the groundwater causing VOCs to volatilize out of the groundwater and into the soil above. VOCs will be physically removed from the soil via SVE by applying a vacuum to wells that have been installed into the vadose zone (the area below the ground but above the water table). The vacuum draws air through the soil matrix which carries the VOCs from the soil to the SVE well. The air extracted from the SVE wells will be treated by passing the air stream through a biofilter to remediate the vapor and remove nuisance odors prior to it being discharged to the atmosphere.

   An area of approximately two acres of contaminated soil and groundwater will be treated at depths ranging from 5 to 23 feet below ground surface.

The operation of the components of the remedy will continue until the remedial objectives have been achieved, or until the Department determines that continued effective operation is technically impracticable or no longer feasible.

4. Cover System *(Unchanged)*
   A site cover will be required to allow for commercial or industrial use of the site, in areas where the upper one foot of exposed surface soil will exceed the applicable soil cleanup objectives (SCOs). The site cover may consist of paved parking areas, sidewalks or a soil cover. Where the soil cover is required it will be a minimum of one foot of soil placed over a demarcation layer, with the upper six inches of soil of sufficient quality to maintain a vegetative layer. Soil cover material, including any fill material brought to the site, will meet the SCOs for cover material as set forth in 6 NYCRR Part 375-6.7(d). In areas where building foundations or building slabs preclude contact with the soil, the requirements for a site cover will be deferred until such time that they are removed.

5. Institutional Controls *(Unchanged)*
   Imposition of an institutional control in the form of an environmental easement for the controlled property which will:
   - require the remedial party or site owner to complete and submit to the Department a periodic certification of institutional and engineering controls in accordance with Part 375-1.8(h)(3);
   - allow the use and development of the controlled property for commercial use or industrial 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.

6. Site Management Plan *(Modified, reference In-Situ Air Sparge)*
   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 5 above.

      Engineering Controls: The cover system discussed in Paragraph 4 above and the In-Situ Air Sparge and Soil Vapor Extraction System discussed in Paragraph 3 above.

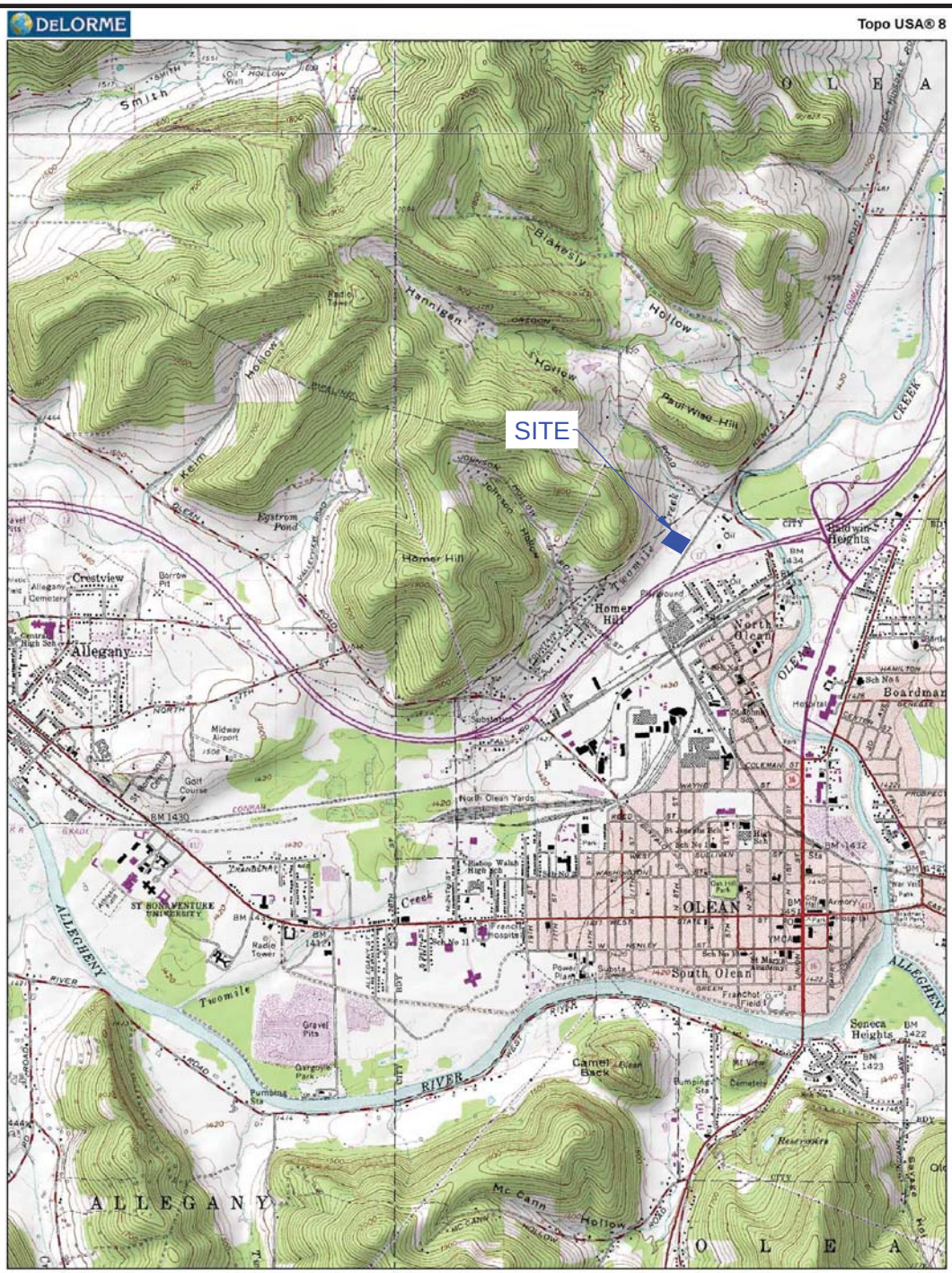
      This plan includes, but may not be limited to:
      - an Excavation Plan which details the provisions for management of future excavations in areas of remaining contamination;
      - descriptions of the provisions of the environmental easement including any land use, groundwater, and surface water use restrictions;
      - a provision for evaluation of the potential for soil vapor intrusion in the on-site building should the floor slab be compromised and in future buildings developed on the site, 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 3 above will be placed in any areas where the upper one foot of exposed surface soil exceeds 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 Plan to assess the performance and effectiveness of the remedy. The plan includes, but may not be limited to:
   - a schedule of monitoring and frequency of submittals to the Department;
   - monitoring of groundwater to assess the performance and effectiveness of the remedy; and
   - monitoring for vapor intrusion for any occupied existing or future buildings developed on the site, as may be required by the Institutional and Engineering Control Plan discussed above.

F:\CAD\TurnKey\Benson\229 Homer Street\2017 Remediation Redesign\Figure 1; Site Location and Vicinity Map.dwg

FIGURE 1



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PROJECT NO.: 0225-015-001

DATE: MAY 2, 2017

DRAFTED BY: RFL

SITE LOCATION AND VICINITY MAP

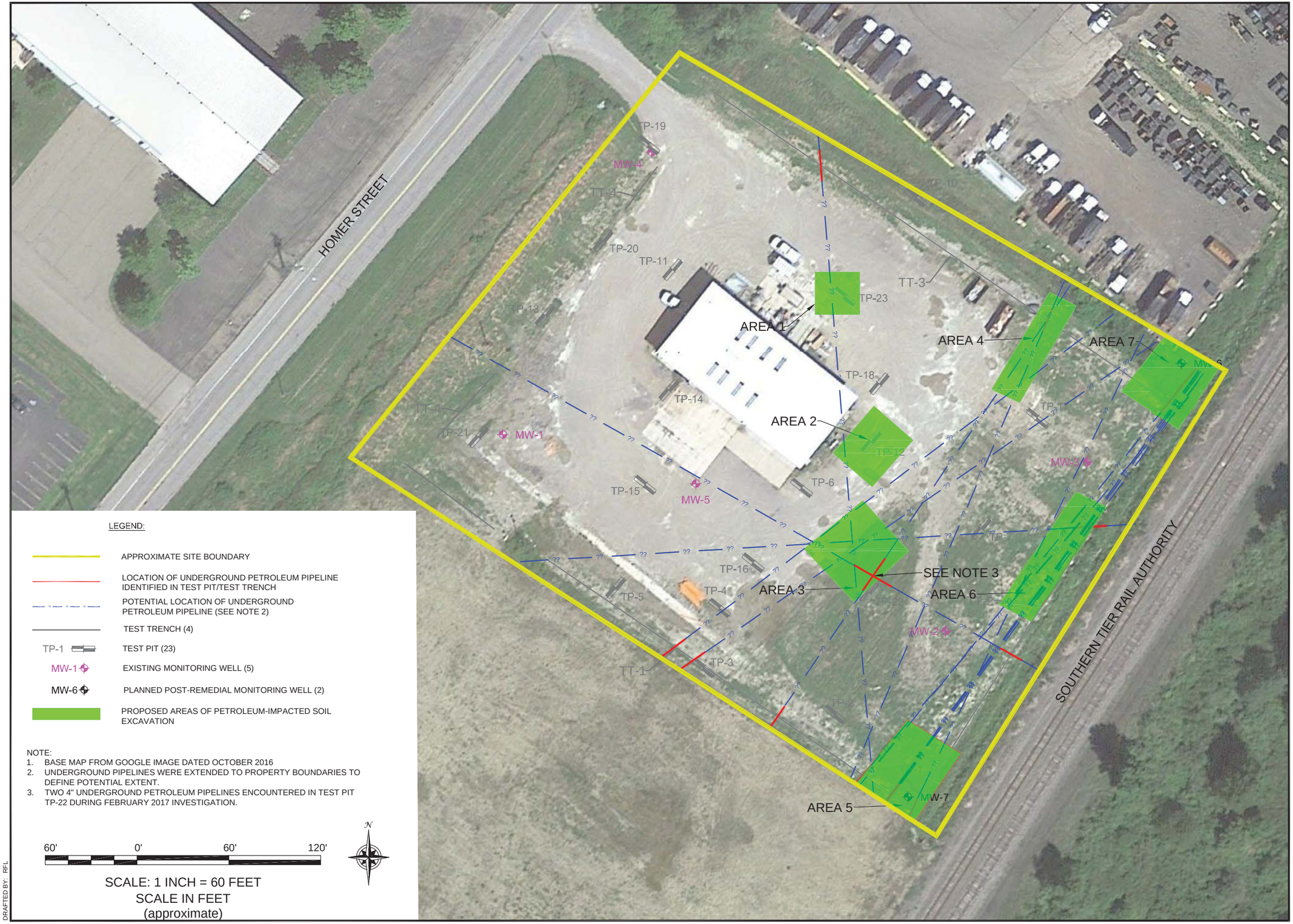
RI / AA REPORT

229 HOMER STREET SITE
OLEAN, NEW YORK

PREPARED FOR

BENSON CONSTRUCTION AND DEVELOPMENT, LLC

F:\CAD\TurnKey\Benson\229 Homer Street\2017 Remediation Redesign\Figure 2; Pipes and Hot Spot Remediation DD 2017.dwg



LEGEND:

- APPROXIMATE SITE BOUNDARY
- LOCATION OF UNDERGROUND PETROLEUM PIPELINE IDENTIFIED IN TEST PIT/TEST TRENCH
- POTENTIAL LOCATION OF UNDERGROUND PETROLEUM PIPELINE (SEE NOTE 2)
- TEST TRENCH (4)
- TP-1 TEST PIT (23)
- MW-1 EXISTING MONITORING WELL (5)
- MW-6 PLANNED POST-REMEDIAL MONITORING WELL (2)
- PROPOSED AREAS OF PETROLEUM-IMPACTED SOIL EXCAVATION

NOTE:
1. BASE MAP FROM GOOGLE IMAGE DATED OCTOBER 2016
2. UNDERGROUND PIPELINES WERE EXTENDED TO PROPERTY BOUNDARIES TO DEFINE POTENTIAL EXTENT.
3. TWO 4" UNDERGROUND PETROLEUM PIPELINES ENCOUNTERED IN TEST PIT TP-22 DURING FEBRUARY 2017 INVESTIGATION.

60' 0' 60' 120'

SCALE: 1 INCH = 60 FEET
SCALE IN FEET
(approximate)

N

DATE: MAY 2, 2017
DRAFTED BY: RFL

PIPE REMOVAL AND GCPS-IMPACTED SOIL EXCAVATION AREAS

RI / AA REPORT

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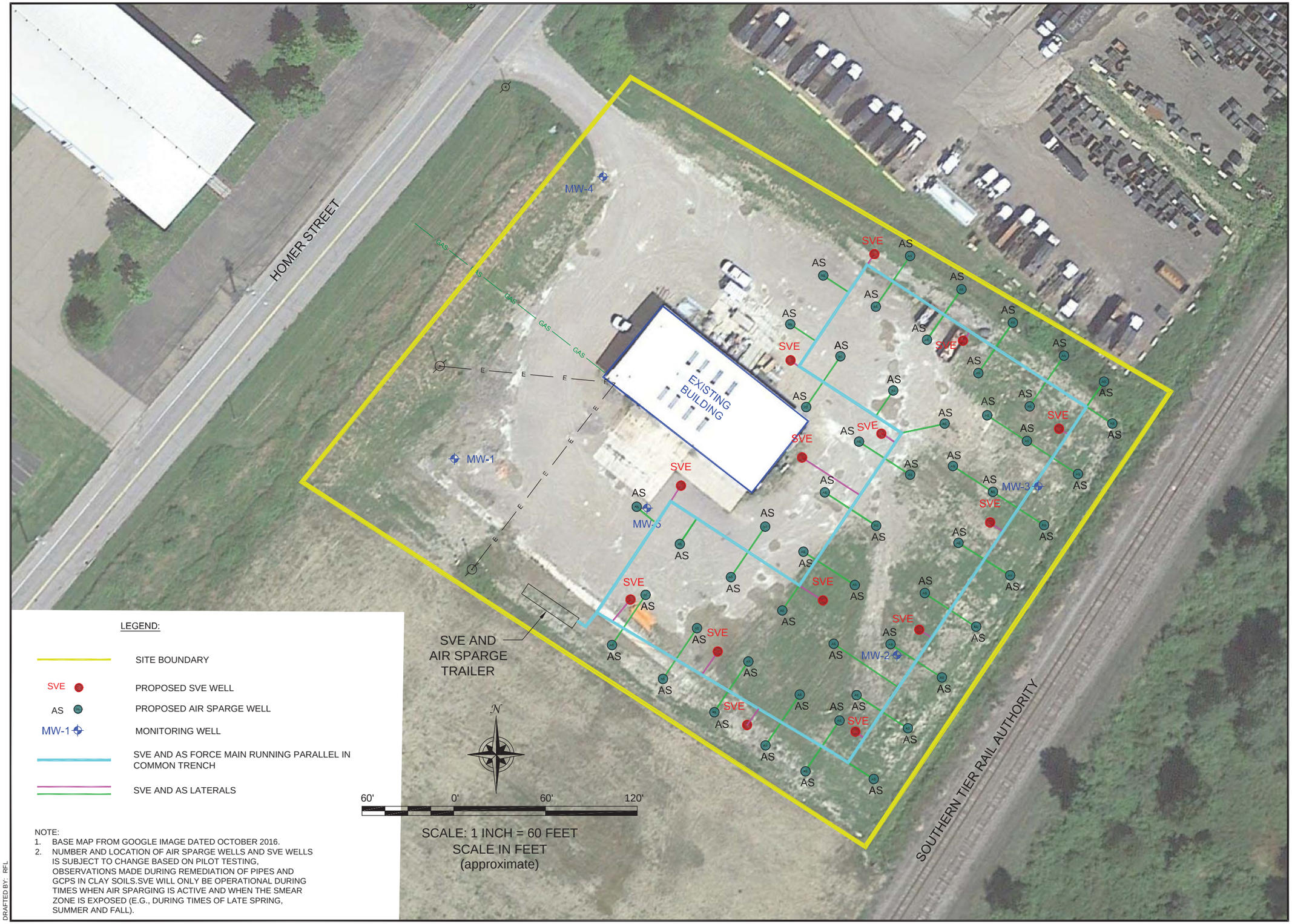
FIGURE 2

F:\CAD\TurnKey\Benson\229 Homer Street\2017 Remediation Redesign\Figure 3; SVE and AS Insitu Remediation.dwg



LEGEND:

- SITE BOUNDARY
- SVE — PROPOSED SVE WELL
- AS — PROPOSED AIR SPARGE WELL
- MW-1 — MONITORING WELL
- SVE AND AS FORCE MAIN RUNNING PARALLEL IN COMMON TRENCH
- SVE AND AS LATERALS

NOTE:
1. BASE MAP FROM GOOGLE IMAGE DATED OCTOBER 2016.
2. NUMBER AND LOCATION OF AIR SPARGE WELLS AND SVE WELLS IS SUBJECT TO CHANGE BASED ON PILOT TESTING, OBSERVATIONS MADE DURING REMEDIATION OF PIPES AND GCPS IN CLAY SOILS.SVE WILL ONLY BE OPERATIONAL DURING TIMES WHEN AIR SPARGING IS ACTIVE AND WHEN THE SMEAR ZONE IS EXPOSED (E.G., DURING TIMES OF LATE SPRING, SUMMER AND FALL).

DATE: MAY 2, 2017
DRAFTED BY: RFL

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PROPOSED INSITU REMEDIATION SVE AND AIR SPARGE

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FIGURE 3