DECISION DOCUMENT

Former Ithaca Gun Factory
Brownfield Cleanup Program
Ithaca, Tompkins County
Site No. C755019
February 2021

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

DECLARATION STATEMENT - DECISION DOCUMENT

Former Ithaca Gun Factory
Brownfield Cleanup Program
Ithaca, Tompkins County
Site No. C755019
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Statement of Purpose and Basis

This document presents the remedy for the Former Ithaca Gun Factory site, a brownfield cleanup site. The remedial program was chosen in accordance with the New York State Environmental Conservation Law and Title 6 of the Official Compilation of Codes, Rules and Regulations of the State of New York (6 NYCRR) Part 375.

This decision is based on the Administrative Record of the New York State Department of Environmental Conservation (the Department) for the Former Ithaca Gun Factory site and the public's input to the proposed remedy presented by the Department.

Description of Selected Remedy

The elements of the selected remedy are as follows:

1. Remedial Design

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

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

All soils in the upper two feet which exceed the restricted residential use soil cleanup objectives (RRSCOs) will be excavated and transported off-site for disposal. Approximately 4,100 cubic yards of contaminated soil will be removed from the site to meet restricted residential use criteria. Contaminated soil will be removed to bedrock in areas where depth to bedrock is less than two feet, in which comprises approximately 1.4 acres of the site. Where it is exposed during excavation, the bedrock surface will be vacuum cleaned.

Excavation and off-site disposal of subsurface soil with PCB concentrations exceeding 10 parts per million (ppm). PCB contamination has been predefined on the western parcel and is present at the depth interval from six to eight feet below ground surface and within an eight-foot by ten-foot area. Approximately 27 cubic yards of soil in the PCB contaminated area will be removed from the site.

3. Ex-situ Stabilization; Off-site Disposal

Ex-situ stabilization will be implemented to treat excavated soils exceeding the 6 NYCRR Part 371 hazardous criteria for lead. Ex-situ stabilization is a process that uses a stabilizing agent to decrease the leachability of contamination, eliminating the hazardous characteristic of the contamination and allowing the material to be disposed of as a non-hazardous solid waste (or used beneficially). Under this process the contaminated soil will be excavated and mixed in a temporary mixing facility (e.g., pug mill, mixer, etc.) with stabilizing agents prior to being disposed of at an appropriately permitted facility.

4. Backfill

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

5. Cover System

A site cover will be required to allow for restricted residential use of the site in areas where the upper two feet of surface soil will exceed the applicable soil cleanup objectives. Where a soil cover is to be used it will be a minimum of two feet 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 for the use of the site as set forth in 6 NYCRR Part 375-6.7(d). Substitution of other materials and components may be allowed where such components already exist or are a component of the tangible property to be placed as part of site redevelopment. Such components may include, but are not necessarily limited to pavement, concrete, paved surface parking areas, sidewalks, building foundations and building slabs.

6. Enhanced Bioremediation

In-situ enhanced biodegradation will be employed on the eastern parcel to treat contaminants in groundwater directly in the source area. The biological breakdown of contaminants through anaerobic reductive dechlorination will be enhanced by injecting emulsified vegetable oil (EVO) or a similar material into the subsurface to promote microbe growth. The treatment amendment will be placed in direct contact with contaminated groundwater via five injection wells screened at a depth interval of 42.5 to 57 feet below grade. Other amendments or additives may be necessary to achieve conditions for contaminant degradation and will be determined in remedial design and, if necessary, a pilot scale study. For example, if appropriate aquifer pH (6-8) and total organic carbon (TOC) concentration (greater than 50 mg/l) cannot be simultaneously maintained, the injection solution will be buffered with sodium bicarbonate to counteract the organic acids generated from biological activity. Monitoring will be required up-gradient, down-gradient, and within the treatment zone. Monitoring will be conducted for contaminants of concern and other groundwater parameters that are used as measures of effectiveness for the in-situ treatment method determined during remedial design.

7. Institutional Control

Imposition of an institutional control in the form of an environmental easement for the controlled property which will:

- require the remedial party or site owner to complete and submit to the Department a periodic certification of institutional and engineering controls in accordance with Part 375-1.8 (h)(3);
- allow the use and development of the controlled property for 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.

8. Site Management Plan

A Site Management Plan is required, which includes the following:

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

   Institutional Controls: The Environmental Easement discussed in Paragraph 7 above.

   Engineering Controls: The Cover System discussed in Paragraph 5 above.

   This plan includes, but may not be limited to:
   - an Excavation Plan which details the provisions for management of future excavations in areas of remaining contamination;
   - a provision for demolition of the building and/or the smokestack on the western

parcel, if and when they become unsafe or decisions for removal occur;
- descriptions of the provisions of the environmental easement including any land use and groundwater use restrictions;
- a provision for evaluation of the potential for soil vapor intrusion for any occupied buildings 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 5 above will be placed in any areas where the upper two feet of exposed surface soil exceed the applicable 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:
   - the monitoring of groundwater to assess the performance and effectiveness of the remedy;
   - a schedule of monitoring and frequency of submittals to the Department; and
   - monitoring for vapor intrusion for any buildings on the site, as may be required by the Institutional and Engineering Control Plan discussed above.

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

Declaration

The remedy conforms with promulgated standards and criteria that are directly applicable, or that are relevant and appropriate and takes into consideration Department guidance, as appropriate. The remedy is protective of public health and the environment.

2/11/2021
Date

Susan Edwards
Susan Edwards, Director
Remedial Bureau D

DECISION DOCUMENT

Former Ithaca Gun Factory
Ithaca, Tompkins County
Site No. C755019
February 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 of contaminants at the site has resulted in threats to public health and the environment that would be addressed by the remedy. The disposal or release of contaminants at this site, as more fully described in this document, has contaminated various environmental media. Contaminants include hazardous waste and/or petroleum.

The New York State Brownfield Cleanup Program (BCP) is a voluntary program. The goal of the BCP is to enhance private-sector cleanups of brownfields and to reduce development pressure on "greenfields." A brownfield site is real property, the redevelopment or reuse of which may be complicated by the presence or potential presence of a contaminant.

The Department has issued this document in accordance with the requirements of New York State Environmental Conservation Law and 6 NYCRR Part 375. This document is a summary of the information that can be found in the site-related reports and documents.

SECTION 2: CITIZEN PARTICIPATION

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

DECInfo Locator - Web Application
https://gisservices.dec.ny.gov/gis/dil/index.html?rs=C755019

Tompkins County Public Library
101 East Green Street
Ithaca, NY 14850
Phone: 607-272-4557

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 Former Ithaca Gun Factory site is located at 121-125 Lake Street in an urban area of the City of Ithaca, Tompkins County. The site consists of two separate parcels, totaling 1.63 acres. It is situated in an area with the Ithaca Falls and Fall Creek Gorge to the north, Cornell University to the east, Lake Street and residential housing to the south, and a residential neighborhood to the west.

Site Features: The eastern parcel is vacant with no buildings present and is partially vegetated where soil is present. Areas of the eastern parcel have exposed bedrock at the ground surface. On the western parcel, one small single-story building and the former Ithaca Gun Factory boiler stack still exist. The site parcels are separated by a narrow strip of land that is part of the Ithaca Falls Overlook Environmental Restoration Program (ERP) site and owned by the City of Ithaca. The eastern and western parcels each have eight-foot high chain-link fencing along their perimeters.

The site is positioned on the side of a hill; however, the two parcels occupy terraced areas and within the boundaries for each are mostly level. Approximate elevations of the level areas on the western and eastern parcels range from 490 feet above mean sea level (ft amsl) to 528 ft amsl, respectively. Areas of steeper slopes exist on the northeast and east side of the eastern parcel and on the north side of the western parcel.

Current Zoning and Land Use: Currently the site is vacant and consists mostly of open land; it is zoned residential. The surrounding parcels are currently used for a combination of public, residential, and commercial uses. The nearest residential area is across Lake Street to the south.

Past Use of the Site: The site was originally developed for industrial use in 1813. Companies that may have operated at the site prior to the Ithaca Gun Company include the Ithaca Manufacturing Company (agricultural equipment) and the W.H. Baker & Company gun factory.

The Ithaca Gun Company operated at the site from 1885 through 1986. The main operations included manufacture of firearms and munitions. Supporting manufacturing activities and site uses included spray-painting, drying gun stocks in ovens, firing ranges, metal plating, machine shop, and forging. These uses by the Ithaca Gun Company appear to have led to contamination of both on-site and near off-site areas.

From 1995 to 1998, following discovery of lead shot in the Falls Creek gorge area, soil sampling was conducted in on-site and off-site areas. In 2000, leaking transformers and associated PCB-

contaminated soils were removed from the site. From 2000 to 2002, the EPA conducted a removal assessment, limited building demolition, and soil removal activities mostly on adjacent off-site areas; however, some portions of the former Ithaca Gun Factory property were included. In 2001, an Environmental Site Assessment and a Site Investigation were completed for and funded by the site owner at that time. In 2002, this site was part of the property included within the Voluntary Cleanup Agreement for the Ithaca Gun Company Site, Site No. V00511. In 2009, most on-site buildings were demolished and removed from the site; one small uninhabitable building and the smokestack remain on the western parcel. Funding for the demolition activities were at least partially supported by the Empire State Development Restore NY program. A post-demolition site investigation was performed and included surface soil screening and sampling, and groundwater sampling.

Site Geology and Hydrogeology: The predominantly shale bedrock is exposed at the ground surface in level areas and is outcropping in many areas of the site. The bedrock in other areas is covered by soil or crushed masonry type building materials with thicknesses ranging from a few inches to approximately 15 feet.

Groundwater is encountered within the fractured bedrock. Depth to groundwater is approximately 15 to 20 feet below ground surface. The generalized direction of groundwater flow is to the west-northwest.

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 that restrict the use of the site to restricted-residential use (which also allows for commercial use and industrial use) 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 in consultation with the NYSDOH has determined that the site does pose a significant threat to public health due to the potential for human exposure to site-related contamination via soil vapor intrusion.

Potentially Responsible Parties (PRPs) are those who may be legally liable for contamination at a site. No PRPs have been documented to date; therefore, the Department has evaluated off-site contamination for action under the State Superfund. Legal action may be initiated at a future date by the state to recover state response costs should PRPs be identified.

SECTION 6: SITE CONTAMINATION

6.1: Summary of the Remedial Investigation

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

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

The RI is intended to identify the nature (or type) of contamination which may be present at a site and the extent of that contamination in the environment on the site or leaving the site. The RI reports on data gathered to determine if the soil, groundwater, soil vapor, indoor air, surface water or sediments may have been contaminated. Monitoring wells are installed to assess groundwater and soil borings or test pits are installed to sample soil and/or wastes 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 has been sampled for the presence of contamination. Data collected in the RI influence the development of remedial alternatives. The RI report is available for review in the site document repository and the results are summarized in section 6.3.

The analytical data collected on this site includes data for:

- groundwater
- soil
- soil vapor

6.1.1: Standards, Criteria, and Guidance (SCGs)

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

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

6.1.2: RI Results

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

lead	cis-1,2-dichloroethene
tetrachloroethene (PCE)	vinyl chloride
trichloroethene (TCE)	polychlorinated biphenyls (PCBs)

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 was analyzed for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), metals, polychlorinated biphenyls (PCBs), and pesticides. Groundwater was analyzed for VOCs, SVOCs, metals, PCBs, pesticides, and polyfluoroalkyl substances (PFAS). Soil vapor was analyzed for VOCs.

Soil - The primary contaminant of concern detected in soil is lead. Lead is the most prevalent contaminant in soil at the site based on frequency of occurrence and concentrations detected. Lead was detected in surface and subsurface soil of the eastern and western parcels at concentrations exceeding the restricted residential SCO (RRSCO) of 400 parts per million (ppm) for lead in 50 percent of all soil samples. The maximum concentrations of lead reported for surface soil and subsurface soil at the site are 2,690 ppm and 21,800 ppm, respectively.

Secondary contaminants of concern in soil are PCBs. PCBs were detected in subsurface soil at concentrations exceeding the RRSCO of 1 ppm for PCBs on the western parcel. One sample exceeded the USEPA Toxic Substance Control Act (TSCA) limit of 50 ppm for PCBs and; therefore, is identified as a TSCA waste. The maximum concentration of PCBs is 62 ppm, detected in a subsurface sample within the depth interval from 6 to 8 feet below ground surface. Delineation sampling shows the occurrence of PCB contaminated soil to be limited in areal and vertical extent.

Detections of other metals and some SVOCs were found in a few isolated soil samples at concentrations slightly exceeding their respective RRSCOs. The metal constituents were arsenic,

cadmium, and mercury. The SVOCs were benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, chrysene, dibenzo[a,h]anthracene, and indeno(1,2,3-cd)pyrene. Typically, soil samples with these constituents also exceeded the RRSCO for lead.

Lead contaminated soil as previously found in off-site areas, immediately adjacent to the site boundaries, have been addressed through USEPA removal actions and the Ithaca Falls Overlook site remedy.

Groundwater - The primary contaminants of concern in site groundwater are the VOCs, cis-1,2-dichloroethene (cis-1,2-DCE), tetrachloroethene (PCE), trichloroethene (TCE), and vinyl chloride. Maximum concentrations of cis-1,2-DCE, PCE, TCE, and vinyl chloride in groundwater on site were 14,000 parts per billion (ppb), 360 ppb, 9,520 ppb, and 530 ppb, respectively. The groundwater standard is 5 ppb for cis-1,2-DCE, PCE, and TCE, and 2 ppb for vinyl chloride. The highest concentrations of contaminants occur on-site within the fractured bedrock. Although the movement of groundwater is reduced vertically by a decrease in fractures with increased depth, contaminated groundwater does migrate off-site to the west. The off-site area of groundwater contamination has been investigated and continues to be monitored by the Department as part of the Former Ithaca Gun Factory - Off-site remedial program. Based on sampling results, only one site-related compound, TCE, has been detected in off-site groundwater, but at concentrations below the groundwater standard.

For PFAS, perfluorooctanoic acid (PFOA) and perfluorooctanesulfonic acid (PFOS) were reported at concentrations of up to 5.8 and 5.2 parts per trillion (ppt), respectively, below the 10 ppt screening levels for groundwater for each. 1,4-dioxane was reported at concentrations of up to 0.47 parts per billion (ppb), below the screening level of 1 ppb in groundwater.

Soil Vapor - VOCs detected in soil vapor samples on-site and included in the NYSDOH soil vapor intrusion guidance include 1,1,1-trichloroethane, carbon tetrachloride, and TCE, with maximum concentrations of 31 micrograms per cubic meter ($\mu g/m^3$), 18 $\mu g/m^3$, and 18 $\mu g/m^3$, respectively. Locations for sampling of soil vapor on-site were limited due to the low thickness or absence of soil over bedrock. Due to the off-site migration of VOC contamination in groundwater, the Department's Former Ithaca Gun Factory - Off-site remedial program includes continued evaluation of soil vapor intrusion. Based on sampling results for TCE, mitigation has been conducted at eight off-site structures.

6.4: Summary of Human Exposure Pathways

This human exposure assessment identifies ways in which people may be exposed to site-related contaminants. Chemicals can enter the body through three major pathways (breathing, touching or swallowing). This is referred to as *exposure.*

The site is completely fenced, which restricts public access. However, trespassers who enter the site could contact contaminants in the soil by walking on the site, digging or otherwise disturbing the soil. Soil removal activities have been completed to remove contaminated soil found in offsite surface soils. Contaminated groundwater at the site is not used for drinking or other purposes and the site is served by a public water supply that obtains water from a different source not affected

by this contamination. Volatile organic compounds in soil vapor (air spaces within the soil) may move into buildings and affect the indoor air quality. This process, which is similar to the movement of radon gas from the subsurface into the indoor air of buildings, is referred to as soil vapor intrusion. Because there is no onsite habitable structure, inhalation of site contaminants in indoor air due to soil vapor intrusion does not represent a concern for the site in its present condition. However, the potential exists for the inhalation of site contaminants due to soil vapor intrusion for any onsite development. Subslab depressurization systems (systems that ventilate/remove the air beneath the building) have been installed in offsite buildings to prevent the indoor air quality from being affected by site related contamination. The potential exists for inhalation exposures to site contamination via the soil vapor intrusion pathway in other offsite buildings.

6.5: Summary of the Remediation Objectives

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

The remedial action objectives for this site are:

Groundwater

RAOs for Public Health Protection

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

RAOs for Environmental Protection

- Restore ground water aquifer to pre-disposal/pre-release conditions, to the extent practicable.

Soil

RAOs for Public Health Protection

- Prevent ingestion/direct contact with contaminated soil.

RAOs for Environmental Protection

- Prevent migration of contaminants that would result in groundwater or surface water contamination.
- Prevent impacts to biota from ingestion/direct contact with soil causing toxicity or impacts from bioaccumulation through the terrestrial food chain.

Soil Vapor

RAOs for Public Health Protection

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

SECTION 7: ELEMENTS OF THE SELECTED REMEDY

The alternatives developed for the site and the evaluation of the remedial criteria are presented in the Alternatives Analysis. The remedy is selected pursuant to the remedy selection criteria set forth in DER-10, Technical Guidance for Site Investigation and Remediation and 6 NYCRR Part 375.

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

The selected remedy is referred to as the Excavation, In-situ Groundwater Treatment, Cover System, and Site Management remedy.

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

1. Remedial Design

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

- Considering the environmental impacts of treatment technologies and remedy stewardship over the long term;
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- 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
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feet, in which comprises approximately 1.4 acres of the site. Where it is exposed during excavation, the bedrock surface will be vacuum cleaned.

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carbon (TOC) concentration (greater than 50 mg/l) cannot be simultaneously maintained, the injection solution will be buffered with sodium bicarbonate to counteract the organic acids generated from biological activity. Monitoring will be required up-gradient, down-gradient, and within the treatment zone. Monitoring will be conducted for contaminants of concern and other groundwater parameters that are used as measures of effectiveness for the in-situ treatment method determined during remedial design.

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   - a provision for demolition of the building and/or the smokestack on the western parcel, if and when they become unsafe or decisions for removal occur;
   - descriptions of the provisions of the environmental easement including any land use and groundwater use restrictions;
   - a provision for evaluation of the potential for soil vapor intrusion for any occupied buildings 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 5 above will be

placed in any areas where the upper two feet of exposed surface soil exceed the applicable SCOs;
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    - the monitoring of groundwater to assess the performance and effectiveness of the remedy;
    - a schedule of monitoring and frequency of submittals to the Department; and
    - monitoring for vapor intrusion for any buildings on the site, as may be required by the Institutional and Engineering Control Plan discussed above.

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

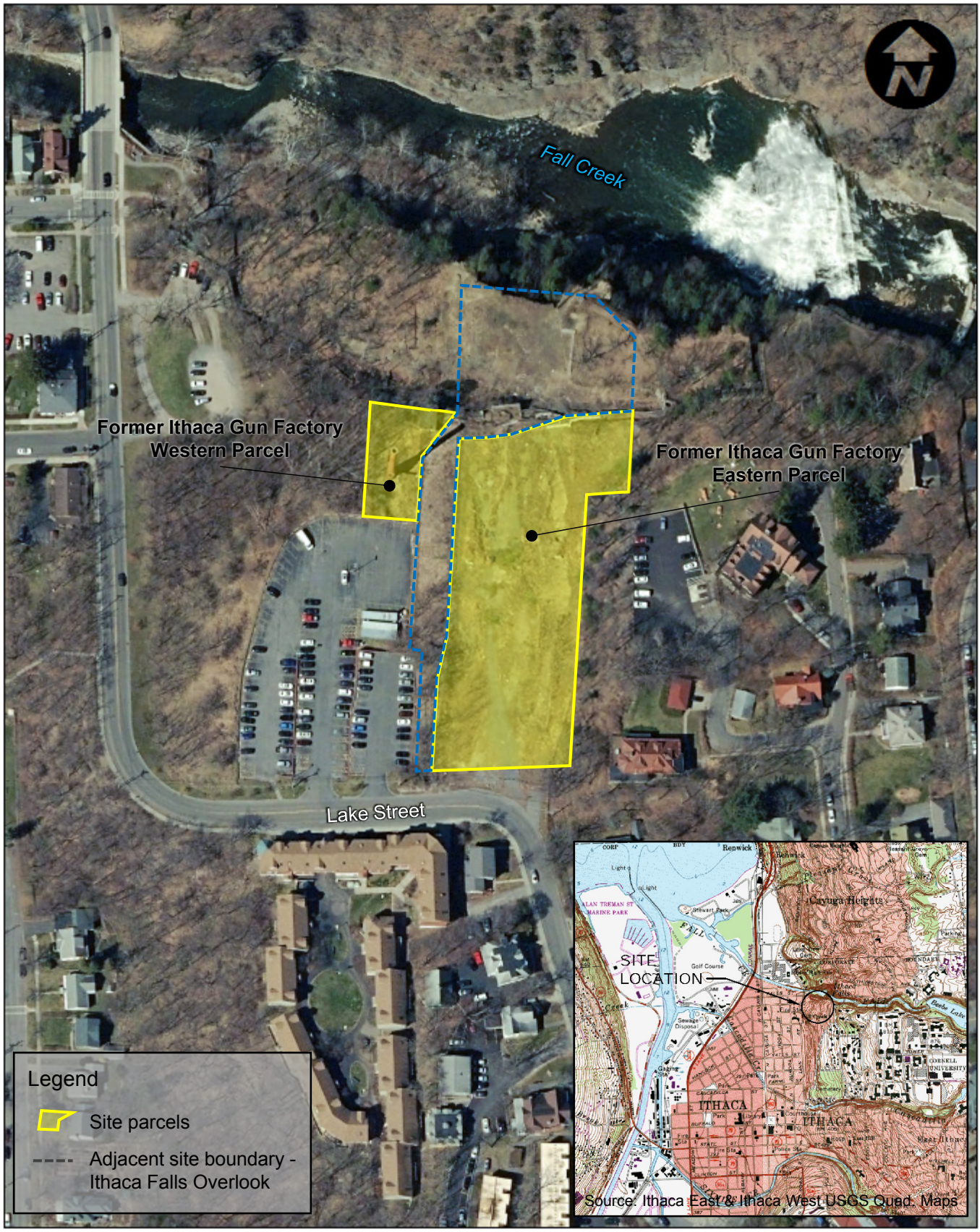

FIGURE 1 – SITE LOCATION MAP

Former Ithaca Gun Factory, C755019
City of Ithaca, Tompkins County

Scale
0 25 50 100 Feet

FIGURE 2 – REMEDIAL ELEMENTS
Former Ithaca Gun Factory, C755019
City of Ithaca, Tompkins County