# Remedial Investigation Work Plan

## 30 Stewart Avenue
## Huntington, New York

**Submitted to:**
New York State Department of Environmental Conservation
Division of Environmental Remediation
625 Broadway
Albany, NY 12233-7020

**Submitted by:**
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Project 1519020

# Table of Contents

**Certification**

**1. Background and Site Description 1**
1.1 Introduction 1
1.2 Objective of the RIWP 1
1.4 Description of Local Hydrogeological Conditions 2
1.5 Previous Report Findings 2
1.6 Project Organizational Structure and Responsibility 7

**2. Scope of Work 9**

**3. Quality Assurance / Quality Control (QA/QC) Protocols 15**

**4. Health and Safety Protocols 16**

**5. Data Evaluation and Remedial Investigation Report 17**

**6. Remedial Action Work Plan 19**

**7. Citizen Participation Activities 20**
7.1 Description of Citizen Participation Activities 20

**8. Schedule 22**

**Appendices**

A Site Figures and Tables
B Key GEI Personnel Resumes
C Field Sampling Plan
D Quality Assurance Project Plan
E Community Air Monitoring Plan
F Health and Safety Plan

# Certification

I, Albert Jaroszewski, certify that I am currently a Qualified Environmental Professional as defined in 6 NYCRR Part 375 and that this Report Investigation Work Plan (RIWP) was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10).

November 19, 2015
Date

# 1. Background and Site Description

## 1.1 Introduction

GEI Consultants, Inc. P.C. (GEI) has prepared this Remedial Investigation Work Plan (RIWP) for the Site located at 30 Stewart Avenue (District 0400, Section 72, Block 2, Lot 19.001) in Huntington, New York (the Site). Information regarding the Site conditions was obtained from the *Phase I Environmental Site Assessment* (ESA), dated March 2015 and the *Phase II Environmental Subsurface Investigation* (ESI) report dated April 2015, prepared by GEI.

A site location map is provided as Figure 1 in **Appendix A**.

## 1.2 Objective of the RIWP

The objective of this RIWP is to obtain valid data to evaluate and define the nature, extent, and degree of petroleum volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), and metals impacts previously identified onsite. The data generated during the field investigation will be used to determine what risks, if any, that the onsite impacts present to public health and to the environment. Additionally, the RIWP has been designed to provide data needed to perform a remedial alternatives analysis for the Site.

## 1.3 Background

GEI's analysis of historical information regarding the project site indicates that the property was initially developed sometime between 1902 and 1908 with a dwelling/residence in the southern portion of the Site, and a Consolidated Ice Company facility in the northern portion of the Site. By 1914, the ice facility was expanded to the central portion of the Site and is referred to as the Consolidated Ice Company of Huntington. By 1922, the ice business continued to operate and an apparent garage was constructed in the southeastern portion of the property, but was demolished by 1930. The ice business ceased operating at the project site sometime between 1930 and 1946. By 1946, the ice company building was demolished, but the dwelling/residence remained present in the southern portion of the Site. In 1952, the current northern building was constructed, and an addition was constructed in 1966. By 1968, the northern building was occupied by a "Private Garage" facility, the vehicle maintenance shop building was constructed in the southeast portion of the Site, and the dwelling/residence is no longer present. Between 1982 and to at least 1991, the northern building was used as a cabinet maker and auto repair facility. In 1984, a 2-story building for a store, currently used for drapery/upholstery, and overhead apartment were added to the

southern portion of the main Site building. The use of the building as the lobster wholesale and distribution facility began in the early 1990s, and presently continues.

## 1.4 Description of Local Hydrogeological Conditions

The information below was derived from the Phase II ESI.

Site Soil/Stratigraphy

The upper approximate foot of material at the project Site is fill that is comprised of fine-to-coarse grained sand, with a trace of gravel and brick fragments. The sediments beneath this unit were comprised primarily of layers of fine to medium, and fine to coarse-grained sands, with little gravel and silt. Clay layers and clayey, silty, very fine sand layers, in thicknesses from a few inches to a few feet, were encountered within the sand deposits at various depths in the west-central portion of the Site. A clayey sand and sandy clay layer was present between approximately 8 feet and 11 feet below ground surface (bgs) in the west-central area of the Site. This unit was a coarser silty, clayey sand to the north and west. Clay was not encountered near the eastern and northern boundaries of the project Site.

Aquifer Characteristics

The water table at the project Site was present at a depth of between approximately 7 feet and 10 feet bgs.

Groundwater Flow Direction

Regional groundwater flow maps that include the project Site area indicate that the shallow groundwater flow at the project Site is to the north-northeast.

## 1.5 Previous Report Findings

Prior to the preparation of the RIWP, the Phase I ESA and Phase II ESI were conducted for the Site. The Phase I ESA was performed in compliance with the scope and limitations of ASTM International (ASTM) Standard Practice E 1527-13. The tasks conducted for the Phase II ESI consisted of a geophysical survey, and the collection of subsurface soil, drywell sediment, and groundwater samples.

Phase I ESA

Recognized environmental conditions (RECs) for the project Site that were identified in GEI's Phase I ESA are summarized below. A Site map is provided as Figure 2 in **Appendix A.**

- Historical use of the northern half of the property as Consolidated Ice Company of Huntington: historical Sanborn fire insurance maps denote a "Tank Room," aboveground ammonia tanks, generators, condensers, absorbers, etc., in the former buildings associated with the ice company operations.

- Historical use of northern portion of the main building as a "Private Garage" and automotive repair facility: a floor drain exists in the north-central area of this building; this drain is connected to a drainage pipe that extends eastward to the eastern building wall and reportedly then runs northward along the exterior of the wall to a sewer line located on the adjacent property to the north. This sewer line is reportedly connected to the municipal sanitary sewer.

- The historical and current use of the building in the rear, southeastern portion of the property for vehicular automotive maintenance/repair and storage: this building is heated by an aboveground fuel oil storage tank which is located behind the building; a capped sanitary line cleanout in the floor is located along the northern wall of this building; this sanitary line appears to be currently connected to the sanitary system of the main building.

- An underground storage tank (UST) located outside along the south side of the main building.

- A drywell located in the rear yard in the vicinity of the northern boundary of the site: this structure is located in a topographic low drainage area of the rear yard.

Phase II ESI

A sample location map from the Phase II ESI is included as Figure 3 in **Appendix A**.

Based on the findings of this Phase II ESI, the following conclusions are provided:

UST Area: The field information and analytical results indicate that soil and groundwater impacts are fairly limited to the area of the UST.

Soil and groundwater concentrations detected within an order-of-magnitude above soil cleanup values and groundwater standards, respectively, were identified to be limited to within approximately 10 feet west of the UST.

It is noted that the soil and groundwater quality immediately downgradient of the UST beneath the existing building was not able to be investigated because of building access constraints and subsurface obstructions believed to be associated with former building foundations. However, based on the analytical results of samples collected from probe-holes further downgradient beneath and outside the building, groundwater impacts are likely limited to the area in the immediate vicinity of the UST.

Former Auto Repair Garage Floor Drain (within the existing wholesale lobster/seafood and distribution operation building): No soil or groundwater impacts were detected at this sampling location.

Former Auto Repair Garage Downgradient Area along Northern Boundary: The soil and groundwater results do not indicate any adverse impacts that would warrant additional investigation or remediation.

Former & Current Vehicle Maintenance Building in Rear/Southeast Corner of Property: The soil and groundwater at this location is not significantly impacted.

Northern Drywell: The soil and groundwater at this location is not significantly impacted.

Former Ammonia Tank Area: The groundwater results demonstrate no impacts from the historical ammonia tanks on the project Site.

The following results are from the *Phase II ESI*. Sampling conducted during this investigation was for soil, drywell sediment and groundwater.

*Analytical Results*

UST Area:

- *Initial Phase*

The initial phase soil probe-holes were conducted on the west side (GP-1) and east side (GP-2) of the UST. Soil samples were collected from the 6 to 8-foot and 10 to 12-foot horizons, respectively. A fuel-like odor was detected in the soil at both probe-holes from approximately 4 feet bgs to the depth of the probe-hole at approximately 12 feet. Elevated photoionization detector (PID) readings were associated with the soil samples from both probe-holes, but more notably in GP-1. The PID measurements associated with the odorous zones ranged between approximately 5 and 120 parts per million (ppm). It is noted that the PID readings were elevated above, as well as below, the clay and very fine sand layer.

Based on the indication of a release from the UST, a spill incident was called into the New York State Department of Environmental Conservation (NYSDEC) Spills Unit on February 27, 2015 and Spill Case #1411279 was assigned.

The soil analytical results in the western probe-hole, GP-1, indicated the presence of four VOCs detected at concentrations exceeding Soil Cleanup Levels (see **Table 1**). These VOCs included 1,2,4-trimethylbenzene (TMB) at 23,000 micrograms per kilogram (µg/Kg), naphthalene at 13,000 µg/Kg, n-propylbenzene at 4,300 µg/Kg, and total xylenes

at 600 µg/Kg. These compounds are associated with petroleum hydrocarbons, such as fuel oil and gasoline. Only the TMB was detected above one order-of-magnitude higher than cleanup levels.

Similar to the soil results, the groundwater sample, GW-1 analytical results included VOCs related to petroleum hydrocarbons such as fuel oil and gasoline (see **Table 3**). Six VOCs were detected; however, five of the compounds were detected marginally exceeding Class GA groundwater standards. Only two compounds, TMB and sec-butylbenzene were detected one order-of-magnitude above groundwater standards, at concentrations of 84 and 11 micrograms per liter (µg/L), respectively. The groundwater standard for these compounds is 5 µg/L. Several SVOCs were detected above groundwater standards; however, the concentrations were generally within an order of magnitude of laboratory reporting limits.

- *Second Phase*

To investigate the extent of soil and groundwater impacts detected in the initial investigation phase, probe-holes were attempted in a stepped approach. Probe-holes were initially attempted at two locations (see **Figure 3**) approximately 10 feet downgradient of the UST within the building. Two probe-holes were attempted at each of these locations. The concrete floor was initially cored at these locations but the Geoprobe® unit encountered refusal at approximately 2 to 2.5 feet below the floor. Former building foundations are believed to be accountable for the refusal. A third probe-hole (UST-3) in the nearby downgradient vicinity of the UST within the building was conducted and successfully advanced to groundwater.

In an attempt to further investigate soil and groundwater quality downgradient of the UST, beyond the two initial locations encountering refusal, another interior building boring was attempted at the closest downgradient location that was accessible for the portable Geoprobe unit. This probe-hole also met refusal at approximately 3 feet. Another probe-hole (Floor Drain-1) was then located further downgradient (see **Figure 3)** and was successfully advanced into groundwater. A final downgradient probe-hole (UST-5) was advanced halfway between the two advanced interior probe-holes, along the exterior of the building wall.

No sensory indications (e.g., odor, staining) or elevated PID readings were associated with the downgradient probe-holes. The laboratory analytical results of the soil and groundwater samples collected from downgradient probe-holes UST-3, UST-5, and Floor Drain-1 indicate that VOCs were not detected above CP-51soil cleanup values or Class GA groundwater standards (**Tables 1, 2** and **3**). Several SVOCs were detected above groundwater standards; however, the concentrations were generally within an order of magnitude of laboratory reporting limits.

To investigate the lateral extent of impacts at the UST, two probe-holes (UST-6 and UST-7) were conducted appproximately10 and 20 feet west of the UST and initial probe-hole GP-1/GW-1 located adjacent to the western side of the UST (see **Figure 3**), where soil and groundwater quality impacts were found to be highest during the initial phase of the investigation. In probe-hole UST-6, hydrocarbon-like odors and PID readings (between 3 and 43 ppm) were noted in the soil from 6 to 12 feet bgs.

The analytical results of the soil and groundwater samples collected from probe-holes UST-6 and UST-7 indicate that VOCs were not detected above soil cleanup values or Class GA groundwater standards. Similar to the initial phase UST probe-holes, several SVOCs were detected above groundwater standards; however, the concentrations were generally within an order of magnitude of laboratory reporting limits.

A groundwater sample was collected at an upgradient location (UST-8), with respect to the UST (see **Figure 1**). The analytical results of this sample indicate that VOCs were not detected, and that two SVOCs were detected above groundwater standards; however, the concentrations were generally within an order of magnitude of laboratory reporting limits.

The analytical results for each of the areas investigated during the Phase II ESI are presented below.

Former Auto Repair Garage Floor Drain (within the existing wholesale lobster/seafood and distribution operation building): One soil sample, Floor Drain-1, was collected from the 7 to 9-foot horizon. No sensory impacts or elevated PID readings were noted in soils from this probe-hole. The soil analytical results indicated that metals, VOCs or SVOCs were not detected at concentrations exceeding Soil Cleanup Levels (see **Table 2**).

In the groundwater sample, Floor Drain-1 (see **Table 4**), no metals or VOCs were detected above standards. Five SVOCs were detected above groundwater standards; however, the concentrations were generally within an order of magnitude of laboratory reporting limits.

Former Auto Repair Garage Downgradient Area along Northern Boundary: One soil sample was collected of the 6 to 8-foot horizon at GP-4. No sensory impacts were noted in this probe-hole. Slightly elevated PID readings, up to approximately 2.6 ppm, were sporadically associated with the soil throughout the probe-hole.

The soil analytical results indicated that metals, VOCs or SVOCs were not detected at concentrations exceeding Soil Cleanup Levels (see **Table 2**). In the groundwater sample, GW-4 (see **Table 4**), one metal (lead) was detected marginally above its groundwater standard. It is noted that groundwater samples were filtered for analysis. No VOCs or SVOCs were detected above standards.

Former & Current Vehicle Maintenance Building in Rear/East Area of Property: One soil sample was collected of the 6- to 8-foot horizon in GP-3. No sensory impacts were noted in this probe-hole. Slightly elevated PID readings, up to approximately 5.4 ppm, were primarily associated with shallow soil.

The soil analytical results indicated that metals, VOCs, or SVOCs were not detected at concentrations exceeding Soil Cleanup Levels (see **Table 2**).

In the groundwater sample, GW-3 (see **Table 4**) three metals (arsenic, barium and lead) were detected marginally above groundwater standards. No VOCs or SVOCs were detected above standards.

Northern Drywell: Two soil samples were collected from probe-hole GP-5/GP-6 located in the drywell. Black and brown stained fine-to-coarse grained sediment was present in the drywell from its base at 8 feet bgs to 8.5 feet bgs. The underlying material, to a depth of approximately 14 feet bgs, was not stained. PID readings in this probe-hole were slightly elevated, between 0.3 and 0.4 ppm.

The sediment and soil analytical results indicated that metals, VOCs, or SVOCs were not detected at concentrations exceeding Soil Cleanup Levels (see **Table 2**).

In the groundwater sample, GW-5, two metals (arsenic and lead) were detected marginally above groundwater standards (see **Table 4**). VOCs and SVOCs were not detected above standards.

Former Ammonia Tank Area: One upgradient groundwater sample (GW-1), from the vicinity of the UST, and one downgradient sample (GW-2), located downgradient of the former ammonia tank area, were collected to evaluate any impacts associated with the tanks. The concentrations of nitrates for the upgradient and downgradient locations were 2.53 and 1.33 milligrams per liter (mg/L), respectively, both below the groundwater standard (**Tables 3** and **4**).

## 1.6 Project Organizational Structure and Responsibility

GEI will coordinate with NYSDEC to conduct the RIWP. Approval of this RIWP by the NYSDEC will be obtained prior to Site investigation.

The drilling subcontractor will be responsible for all drilling activities to include, but not be limited to, compliance with all applicable Occupational Safety and Health Administration (OSHA) regulations, personnel health and safety, installation of soil borings, soil vapor probes, and groundwater monitoring wells associated with the RIWP, and any other specified tasks outlined in this RIWP.

GEI will be responsible for project management, subcontractor oversight, RIWP compliance, determination of corrective measures when needed, monitoring for health and safety, perimeter-air monitoring activities, collection of analytical samples, and maintenance of Site sampling and meteorological logs. GEI will also serve as the Site Health and Safety Officer.

The following are the key personnel or agencies involved with RIWP activities at the Site:

| | |
|---|---|
| NYSDEC: | Mr. Walter Parish |
| Drilling Subcontractor: | To be Selected |
| GEI: | Gary Rozmus<br>Program Manager<br>110 Walt Whitman Road, Suite 204<br>Huntington Station, NY 11746<br>(631) 479-3510<br><br>Mr. Albert Jaroszewski<br>Project Manager<br>110 Walt Whitman Road, Suite 204<br>Huntington Station, NY 11746<br>(631) 759-2963<br><br>Ms. Jaimie Wargo<br>Quality Assurance Officer<br>455 Winding Brook Drive<br>Glastonbury, CT 06033<br>(860) 368-5300 |
| Remedial Party Contact: | Gregory DeRosa, Stewart Avenue Ventures LLC<br>PO Box 8<br>Old Bethpage, NY 11804<br>(631) 923-1700 |

Resumes of key GEI personnel for this project are included in **Appendix B**.

# 2. Scope of Work

All field work will be performed in accordance with the Field Sampling Program (FSP) methods included in **Appendix C**. Analytical sampling will be performed in accordance with the Quality Assurance Project Plan (QAPP) included in **Appendix D**. A Community Air Monitoring Plan (CAMP) will be implemented during field activities and is included in **Appendix E**. The locations of all proposed sampling points for the RIWP samples are depicted in Figure 4 of **Appendix A**.

The RIWP scope of work includes the following general tasks:

- Mobilization and Site Access
- Site Preparation
- Odor and Fugitive Dust Control
- Soil Boring Installations
- Soil Vapor Probe Installations
- Groundwater Monitoring Well Installations
- Material Handling
- Site Restoration
- Survey
- Monitoring Well Sampling
- Reporting

***Execution of the RIWP***

Site work will commence at 0700 Monday through Friday with no heavy truck traffic until 0800. All work must be completed and the work area closed for the evening at 1700 unless otherwise authorized by the property owner. During working hours, the drilling subcontractor will make every effort to minimize potential community impacts. These include, but are not limited to, noise and traffic concerns associated with the execution of the RIWP. Site work will not be conducted on weekends or holidays without prior approval by the property owner.

***Mobilization and Site Access***

The selected drilling subcontractor will submit a Site-specific Health and Safety Plan (HASP) meeting the minimum requirements of GEI's HASP, which is included in **Appendix F**. All work will be performed in accordance with OSHA, state, and industry safety standards. All onsite personnel performing intrusive activities that have the potential to come in contact with impacted materials will have the requisite 1910.120 OSHA

Hazardous Waste Operations and Emergency Response (HAZWOPER) Training as well as Site-specific training prior to intrusive activities. All personnel performing work associated with this RIWP will be required to have both general and Site-specific training. The general training includes all applicable OSHA and state required training, such as 40-hour HAZWOPER and the 8-hour Refresher Training. Supervisory personnel will also have supervisory training. All personnel will be in a medical surveillance program. Also, Site-specific training will be given to all personnel performing fieldwork at the Site on a daily basis. This Site-specific training will include a review of potential Site hazards, required personal protective equipment (PPE), and Site warning and evacuation procedures.

The drilling subcontractor will apply for and obtain all necessary Federal, State, and local permits associated with the RIWP. These permits may include, but are not limited to, traffic routing, road opening, construction/zoning, etc. Conditions of these permits will be complied with during the construction.

The property owner will provide access to the Site. This access will be for all RIWP activities.

The drilling subcontractor will be responsible for contacting the New York City – Long Island One Call Center to request that all utilities on the Site be located and marked. The Contractor is responsible for resolving all potential conflicts. Underground utility protection will be the responsibility of the selected Contractor. When all utilities have been verified/ confirmed/protected, then intrusive activities may be initiated.

The selected drilling subcontractor will mobilize all necessary labor, equipment, supplies, and materials to complete the RIWP. Lay down areas for equipment, supplies and materials, the appropriate exclusion zone(s) and support area(s) will be identified to conduct the planned activities safely and effectively. All equipment will be inspected prior to utilization for the RIWP and checked periodically for performance and corrective repair. All equipment will be cleaned prior to arrival on the project site.

***Site Preparation***

The Site will be prepared for the RIWP. Site preparation activities necessary to provide support for the work include the establishment of work zones, support facilities, decontamination facilities, and installation of temporary security measures around work areas. The work area may change daily based on the locations of the sampling points. Modifying the work area daily should help to reduce the need for erosion control, security and overnight safety measures, and minimize disruption to normal community operations.

All work will be conducted to minimize impacts to existing utilities.

### *Odor and Fugitive Dust Control*

In accordance with NYSDEC and New York State Department of Health (NYSDOH) requirements, a CAMP will be implemented at the Site during drilling activities. The objective of the CAMP is to provide a measure of protection for the downwind community (i.e., offsite receptors, including residences and businesses and onsite workers not involved with Site RIWP activities) from potential airborne contaminant releases as a direct result of intrusive RIWP activities. Air monitoring stations will be placed up-wind and downwind of each intrusive work area (i.e., soil boring, soil vapor probe and monitoring well locations). VOCs and respirable particulates (PM-10) will be monitored at the up-wind and downwind stations on a continuous basis. In addition, to the fixed stations, VOCs and particulates will be monitored in the work zone using hand held equipment. VOCs and particulates will also be monitored around the perimeter of the work zone on a regular basis (hourly) by the GEI air monitoring personnel.

### *Soil Boring Installations*

--Building Demolition, UST Removal and Cleanup

The underground storage tank is located adjacent to the southern wall of the main site building. Investigation of the tank area will be conducted in two phases. Initially, a deep soil boring will be conducted adjacent to it prior to its removal. Follow-up investigation will be conducted when the tank is removed during demolition of the building to define any residual soil impacts and their extent. Impacted soil will be removed to the extent appropriate, and endpoint sampling will be conducted. The removal of impacted soil will be coordinated with NYSDEC during the course of the work. As a potential enhancement remediation technique, the application of Oxygen Release Compound-Advanced (ORC-A) may be added to the excavation. If other remediation is required, it will be incorporated into a Remedial Action Work Plan (RAWP).

One deep soil boring (DSB-1) will be conducted adjacent to the west side of the UST, where soil impacts were highest, based on the Phase II ESI (see Figure 4). The boring will be advanced utilizing the direct-push drilling method. Samples will be collected at continuous intervals from the depth of the previous boring at this location (approximately 10 feet) to 20 feet, in accordance with the FSP. Each sample will be inspected for impacts (e.g., staining and odor) and screened for the presence of VOCs using an organic vapor monitor (OVM) equipped with a PID.

Samples will be collected in 2-foot intervals. One sample will be collected for analysis of the most impacted based on visual and olfactory findings and PID screening results. One sample will also be collected from beneath the zone of deepest impacts.

--Area-wide Soil Sampling

Five shallow soil samples (SSB-1 through SSB-5) will be collected to provide general coverage of the shallow soil conditions across the site. The samples will be collected from the two feet immediately below the current Site asphalt.

Soil samples will be properly transported to a NYSDOH Environmental Laboratory Accreditation Program (ELAP)-certified laboratory under chain-of-custody (COC) procedures and analyzed for target compound list (TCL) VOCs by United States Environmental Protection Agency (USEPA) Method 8260B, SVOCs by EPA Method 8270C and for Total Analyte List (TAL) metals by EPA Method 6010B and 7471B. Quality Assurance/Quality Control (QA/QC) samples will be collected according to the Quality Assurance Project Plan (QAPP) included in **Appendix D**. The data will be provided in a Category B data deliverable.

***Soil Vapor Monitoring Point Installations***

Three soil vapor samples (SV-1, SV-2, and SV-3) will be collected. All samples will be collected in accordance with the Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York (NYSDOH October 2006). Conditions in the field may require adjustment to the sampling locations. The soil vapor probes will be installed to a depth of 6 feet below grade.

The soil vapor points will be installed using 1-inch diameter steel drill rods advanced using direct push drilling methods. The soil vapor probe will consist of a prefabricated 2-3 inch perforated steel vapor probe tip attached to 3/8-inch diameter low-density polyethylene (LDPE) plastic riser tubing. Once driven to depth, the rods are removed leaving only the tip and the tubing. The vapor probe borehole will be backfilled with #2 Morie well grade gravel. A surface seal will be placed using an impermeable clay seal installed within the last 6 inches of the probe-hole annulus from surface grade level. The vapor well will be purged using a hand pump or equivalent device after installation.

Samples will be collected in 6-liter Summa canisters which have been certified clean by the laboratory and analyzed by using USEPA Method TO-15. Flow rate of both purging and sampling will not exceed 0.2 liters per minute (L/min). Sampling will occur for the duration of 2 hours. A sample log sheet will be maintained summarizing sample identification, date and time of sample collection, sampling depth, identity of samplers, sampling methods and devices, soil vapor purge volumes, volume of the soil vapor extracted, vacuum of canisters before and after the samples are collected, apparent moisture content of the sampling zone, and chain of custody protocols.

As part of the vapor intrusion evaluation, a tracer gas will be used in accordance with NYSDOH protocols to serve as a quality assurance/quality control (QA/QC) device to verify the integrity of the soil vapor probe seal. Helium will be used as the tracer gas and a box will serve to keep it in contact with the probe during testing. A portable monitoring device will be used to analyze a sample of soil vapor for the tracer prior to sampling. If the tracer sample results show a significant presence of the tracer, the probe seals will be adjusted to prevent infiltration. As the conclusion of the sampling round, tracer monitoring will be performed a second time to confirm the integrity of the probe seals.

***Groundwater Monitoring Well Installations***

Five groundwater monitoring wells (MW-1 through MW-5) will be installed. The wells will be installed to bridge the water table.

Each monitoring well will be constructed with 10 feet of 2-inch diameter schedule (SCH) 40 polyvinyl chloride (PVC) 0.010-inch slotted well screen threaded to 2-inch diameter SCH 40 PVC riser to surface. The wells will be completed with a Morie #2 sand pack to 2 feet above top-of-screen, 2 feet of wetted bentonite pellets, and tremie-grout to surface. Monitoring wells will be finished with an expanding well cap and accessed through an 8-inch bolted manhole. Drill cuttings and development water will be properly stored onsite until proper transportation and disposal.

***Monitoring Well Development***

Monitoring wells may be developed using a high flow pump and will be monitored for drawdown and recovery. Well development fluids will be pumped into 55-gallon drums, a large volume tank, or mobile tanker truck. All groundwater generated during development activities will be disposed offsite at an appropriate facility.

***Material Handling***

RIWP-derived wastes produced during soil boring and monitoring well installations, including soil cuttings, groundwater, decontamination waters, and removed groundwater will be collected and stored within 55-gallon United States Department of Transportation/United Nations (USDOT/UN) drums. The transporter and transport vehicle must be approved in accordance with 6 NYCRR, Chapter IV, Part 364. The location of the waste storage area will be determined during the preliminary Site visit to be completed prior to the start of RIWP activities.

***Site Restoration***

The drilling subcontractor will restore all areas disturbed by the RIWP activities to pre-existing conditions based on the applicable access agreements. Restoration actions shall include, but may not be limited to:

- Removal of all temporary facilities, including decontamination areas, and unused materials
- Replacement or repair of all asphalt and concrete surfaces removed or damaged during the RIWP, as appropriate.

***Survey***

All monitoring well and soil boring locations will be surveyed by a professional surveying firm.

Following completion of the RIWP activities, a New York State Licensed Land Surveyor will survey all monitoring wells. The elevation of each new monitoring well will be determined to ±0.01 foot. All locations and elevations will be tied to the New York State Plane Coordinate System.

***Monitoring Well Sampling***

Groundwater samples will be collected from each monitoring well following installation and proper well development utilizing low-flow sampling techniques. Field parameter readings will be monitored during sampling including pH, oxidation reduction potential (ORP), specific conductance and dissolved oxygen (DO). Each monitoring well will be sampled for TCL VOCs by EPA Method 8260B, TCL SVOCs by EPA Method 8270, and dissolved TAL Metals by EPA Method 6010B and 7471B. QA/QC samples will be collected according to the QAPP included in **Appendix D**. Groundwater samples will be properly transported to a NYSDOH ELAP-certified laboratory under COC procedures.

***Reporting***

Reporting is discussed in Section 5.

# 3. Quality Assurance / Quality Control (QA/QC) Protocols

QA/QC protocols are included in **Appendix D**.

# 4. Health and Safety Protocols

Health and safety protocols are detailed in the HASP, which is included in **Appendix F**.

# 5. Data Evaluation and Remedial Investigation Report

The soil, soil vapor and groundwater sample results will be compared to 6 New York Codes, Rules, and Regulations (NYCRR) Part 375 Unrestricted Use Soil Cleanup Objectives (SCOs), NYSDOH guidance values, and the New York State Ambient Water Quality Standards and Guidance Values for Class GA Groundwater, respectively.

***Data Evaluation***

The purpose of the data evaluation is to determine the extent of onsite soil, soil vapor, and groundwater impacts and to assure that data obtained during the implementation of the RIWP are adequate in quantity and quality, and applicable to project objectives. In order to make this determination, the data will be reviewed for the quality of data coverage, compatibility of data collection methods, and completeness, with respect to meeting project objectives.

To facilitate the interpretation of data generated during the remedial investigation activities, the data will be tabulated in data summary tables. Figures showing sampling locations with the corresponding analytical results will be prepared to enhance the overall understanding of Site conditions in regard to the magnitude, location, and flow and transport of contamination.

***Geologic/Hydrogeologic and Water Quality Characteristics***

Geologic and hydrogeologic characterization will incorporate the results of subsurface evaluation and sampling activities, groundwater sampling and monitoring activities, as well as general hydrogeologic and hydraulic features of the Site. The characterization will set forth conclusions regarding the direction, gradients, and potential fluctuations or anomalies of shallow groundwater in the immediate vicinity of the Site.

<u>Additional Field Investigations</u>

Additional field investigations may be required as the data is developed during the implementation of the site investigation. Conditions that would warrant additional investigation include data gaps, further delineation of groundwater or soil contamination, or additional data necessary to evaluate or determine the effectiveness of a potential remedial alternative technology.

If additional investigation is required, a supplemental work plan will be prepared and submitted to the NYSDEC for review and approval for implementation during the course of this site investigation.

Remedial Investigation Report

The results, along with supporting documentation, will be provided to the NYSDEC in the form of a Remedial Investigation Report (RIR). Laboratory data will be provided as a Category B deliverable and a third-party data usability summary report (DUSR) will be prepared. All data generated as part of the remedial investigation (RI) will be submitted to NYSDEC in the appropriate Electronic Data Deliverable (EDD) format. The RIR will contain a description of the source, as well as characterizations of the geologic, hydrogeologic, soil, soil vapor and water quality.

Interim Remedial Measures (IRM)

In addition to the removal of the UST and cleanup of affected media described in this work plan, IRMs may be proposed to address unacceptable or imminent risks. Preliminary results from the RI will be used to evaluate the necessity for an immediate response associated with a particular medium, route of exposure, or potential sensitive receptor. The IRM will be selected with the understanding that the measure should be compatible with the overall project objectives and long-term remedial action goals.

If an IRM is deemed necessary, a work plan will be submitted to the NYSDEC, which describes the proposed measure, justification for its selection, and a schedule for the activities associated with its implementation. Depending on specific circumstances and conditions at the Site following complete implementation of IRMs, the activities associated with the IRMs may be determined to constitute complete remediation.

# 6. Remedial Action Work Plan

Remedial alternatives, beyond the planned UST removal, soil excavation and potential addition of ORC-A, are not anticipated to be warranted for the Site, but may be evaluated based on the information generated during the implementation of this RIWP, which will be summarized and presented in the RIR.

If additional remediation beyond the removal and cleanup associated with the UST is required because other impacts are identified which require remediation, then the following steps may be needed.

- Remedial Alternatives Scoping

- Objectives of the Remedial Alternatives Evaluation

The overall objective of the remedial alternatives evaluation process is to select a remedial action. The selected remedial action will exhibit the following characteristics:

  - Protection of public health and the environment;
  - Attains federal and state public health and environmental requirements identified for the Site;
  - Utilizes permanent solutions and alternative treatment technologies to most practical extent within proven technological feasibility and availability;
  - Utilizes treatment to permanently reduce the toxicity, mobility, volume, or extent of contamination; and
  - Minimizes costs.

- Analysis of Remedial Action Alternatives

- Remedial Action Work Plan

Upon completion of the RI results and findings, as well as the removal and cleanup of the underground storage area, the need for further remediation will be evaluated. If warranted, a Draft RAWP will then be submitted to NYSDEC for comment and approval.

# 7. Citizen Participation Activities

GEI will provide personnel and materials to assist the NYSDEC in providing the community with information relating to the ongoing investigations at the Site. GEI will:

- Establish a Community Information Repository at the local library, or other community center;
- Participate in public meetings that the NYSDEC deems necessary to apprize the community of the current or proposed activities;
- Identify public and elected officials who may have a need to be informed;
- Identify the affected or interested public; and
- Disseminate the approved fact sheets to the Site Contact List.

A description of the plan is presented below.

## 7.1 Description of Citizen Participation Activities

This section describes the specific citizen participation activities that are to be carried out during the implementation of the RIWP.

Citizen Participation Plan

The Citizen Participation Plan (CPP) will be deposited in the designated document repository. In addition to the CPP, previously prepared documents, such as the Phase I report, Phase II report, Consent Order, and HASP will be filed in the repository.

RIWP

The Final RIWP will be placed on file in the document repository as well.

Remedial Investigation Report

The Draft RIR will be placed in the information repositories and the public will be so notified of this with the fact sheet.

Interim Remedial Measures

If an IRM is to be implemented, the public will be involved as part of the RI/FS Citizen Participation Process.

Remedial Action Work Plan

If further remediation is determined to be needed, a Draft RAWP will be prepared which details the proposed remedial action plan, NYSDEC will issue a Preliminary Decision Document (PDD). The PDD will be placed in the document repository. An NYSDEC fact sheet will be distributed to the media on the Contact List to announce the availability of the PDD for public review and comment. A fact sheet and notice of public meeting, if necessary, will be distributed by a mailing. Public comments will be solicited to aid in the preparation of the Final RAWP. The public meeting will be conducted, if required. Following the public comment period, NYSDEC will issue a Decision Document, at which time the RAWP will be finalized. The Final FS Report will be placed in the document repository.

# 8. Schedule

The project schedule for implementation of the RIWP activities is presented below. The schedule may be affected by regulatory review time periods, contractor response timeframes, timeframes necessary to negotiate access agreements with property owners, community issues, permit review and approval timeframes, or other unknown factors. In addition, if the scope of the proposed RIWP changes as a result of negotiating access or regulatory review, then revisions to the work plan, and plans and specifications or change orders with the drilling subcontractor and/or GEI may be required and the schedule presented herein, may be impacted. Every effort, however, will be made to keep the project on the anticipated schedule.

| **MILESTONE** | **Time Frame (weeks)** | |
|---|---|---|
| | **Individual** | **Cumulative** |
| GEI Submits Final RIWP to NYSDEC | 0 | 0 |
| NYSDEC Approves Final RIWP | 1 | 1 |
| NYSDEC Issues Letter of Complete Application | 7 | 8 |
| Drilling Subcontractor Mobilizes for Soil Borings, Soil Vapor Probes, and Groundwater Well Installations | 1 | 9 |
| RIWP Activities Completed | 2 | 11 |
| GEI Submits Remedial Investigation Report (RIR) | 4 | 15 |

Note: The need for a Remedial Action Work Plan (RAWP) will be determined based on the findings of the RI, after the underground storage tank and impacted soil is removed.

# Appendix A

## Site Figures

# Appendix B

## Key GEI Personnel Resumes

# Appendix C

## Field Sampling Plan

# Appendix D

## Quality Assurance Project Plan

# Appendix E

## Community Air Monitoring Plan

# Appendix F

## Health and Safety Plan