GZA
GeoEnvironmental
of New York

*Engineers and
Scientists*

September 19, 2005
File No. 21.0056127.00

Mr. Dan Fuller
NYSDEC Region 7
1679 Route 11
Kirkwood, New York 13795

Re: Site Investigation Work Plans
312 Maple Street
Endicott, New York

Dear Mr. Fuller:

GZA GeoEnvironmental of New York (GZA) is providing the attached Draft Work Plans, on behalf of the Broome County, for the Site Investigation at the above referenced Site for your review and comment.

The following attached Draft Work Plans are included as Appendices to this letter.

- Field Activities Plan
- Site-Specific Quality Assurance Plan
- Site-Specific Health and Safety Plan
- Citizen Participation Plan

Please do not hesitate to contact the under signed if you have any questions or require any additional information.

Sincerely,

GZA GEOENVIRONMENTAL OF NEW YORK

Daniel Troy, P.E.
Project Manager

Ernest R. Hanna, P.E.
Principal

Attachments:
A Field Activities Plan
B Site-Specific Quality Assurance Plan
C Site-Specific Health and Safety Plan
D Citizen Participation Plan

cc: Mr. Frank Evangelisti (Broome County Dept. Planning & Economic Development)
Mr. Justin Deming (NYSDOH)

364 Nagel Drive
Buffalo
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ATTACHEMENT A

FIELD ACTIVITIES PLAN

SITE INVESTIGATION/REMEDIAL ALTERNATIVE REPORT
312 MAPLE STREET
ENDICOTT, NEW YORK
SITE NO. B00168-7

SITE INVESTIGATION/REMEDIAL ALTERNATIVE REPORT
FIELD ACTIVITIES PLAN
312 MAPLE STREET
ENDICOTT, NEW YORK
SITE NO. B00168-7

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1.0 INTRODUCTION

1.1 PURPOSE OF THE WORK ASSIGNMENT

The purpose of this Field Activity Plan (FAP) is to describe activities planned for the fieldwork portions of the Site Investigation (SI) AND Interim Remedial Measure (IRM) at the facility located at 312 Maple Street, Endicott, New York (See Figure 1).

The work described in this FAP is being done under the New York State Department of Environmental Conservation (NYSDEC) Environmental Restoration Program (ERP). GZA GeoEnvironmental of New York (GZA) will complete a Site SI, IRM and Remedial Alternatives Report (RAR) for the Boome County Department of Planning and Economic Development.

The objective of the SI is to characterize the nature and extent of potential contamination and fill materials on-Site to provide data for completing a RAR. If necessary, additional or contingent work (i.e, Phase II investigation) will be performed to provide additional information to close data gaps needed for an adequate remedial alternatives assessment. The RAR will identify and evaluate alternatives available for remediation of the Site, and will be used as the basis for final selection of the remedial response.

1.2 SITE DESCRIPTION

The Site is located at 312 Maple Street in Endicott, New York on the southwest corer of Maple Street and North Duane Avenue. Surrounding property is mixed residential/commercial. Northern Suffolk railroad tracks border the Site to the south. The Site is currently occupied by a manufacturer of wood cabinetry. Previous owners/operators include shoe companies, coal companies, electronic assemblers and a metal finishing job shop.

The Site is about 0.93 acres in size and includes three adjoining Site buildings (Buildings 1, 2, and 3 as shown on Figure 2). Building 1 is a single story masonry structure. Building 2 is a steel framed and sided structure with a concrete slab-on-grade floor. Building 3 is a masonry and wood framed, two story building with a basement.

Based on previous studies performed by GZA, two source areas were originally identified at the Site. The first is a zone of unsaturated soils contaminated with trichloroethene (TCE) located southeast of Building 2 (see attached Site Plan). The second is the three dry wells located inside Buildings 2 and 3. Subsequent meetings and conversations with NYSDEC defined the surface soils east of Building 3 and south of Building 2 as areas of concern that may also require additional investigation/remediation. The groundwater at the site is contaminated with TCE but is not considered to be a source area.

TCE Contaminated Unsaturated Soils: It is estimated that approximately 250 cubic yards (cy) of soil are contaminated based on our previous remedial investigations[1]. However, the contamination could extend beyond these limits (i.e. the TCE could extend beneath the building). The TCE contaminated soil source area appears to be on both the 312 Maple Street Site and the adjoining Northern Suffolk Railroad property.

Three Dry Wells: Two dry wells are located in Building 2 and one drywell is located in Building 3. Each dry well is about three feet deep. The areal dimensions of the dry wells are unknown. The levels of volatile organic compounds (VOCs) detected in the soil samples from the bottom of the dry wells are generally low. Metals and other compounds (e.g., semi-volatile organic compounds) are also present.

Surface Soils: Surface soils were sampled and identified to contain potentially elevated metals, primarily arsenic, in the area south and east of Building 3; and polycyclic aromatic hydrocarbons (PAHs), in the area south of Building 2. The metals and PAHs are considered typical in industrial settings. These areas of potential concern were identified during GZA's initial environmental investigations.

2.0 DESCRIPTION OF FIELD ACTIVITIES

The SI is intended to obtain Site-specific data to better define the nature and extent of contamination and the degree to which the releases and potential contamination pose a threat to human health and the environment. The identified TCE contaminated soil is anticipated to be removed during the IRM process.

The subtasks described below are intended to accomplish the field activity objectives. Additional information, regarding the methodologies to be used, is provided in the Site-specific Quality Assurance Project Plan (QAPjP). Field activities will be completed in accordance with the Site-specific Health and Safety Plan (HASP).

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1 "Environmental Investigations, 312 Maple Street, Endicott, New York, GZA GeoEnvironmental of New York, June 11, 1999" and Supplemental Environmental Site Assessment 312 Maple Street, Endicott, New York, GZA GeoEnvironmental of New York, April 27, 1999".

General Field Activities

General field activities include, mobilization, implementing the health and safety plan, sampling and testing, decontamination and handling of investigation wastes and removal of contaminated soil. Subcontracts with the excavation and disposal company, driller, analytical labs, data validation consultant, and surveyor will be executed upon NYSDEC approval of the FAP including final site-specific field sampling plan, QAPjP and HASP.

Site Meeting

GZA plans to meet or discuss project specifics via conference call with the NYSDEC, NYSDOH, and Broome County Department of Economic Development prior to mobilization to the Site. The meeting topics will include the "level of effort" required and expected regarding the field activities (i.e., IRM soil excavation and disposal, investigation and sampling) and background sample collection locations.

Mobilization

Following authorization to proceed with the field investigation from NYSDEC, the Underground Facilities Protection Organization (UFPO) will be contacted to clear exploration locations. Utility clearance will require three working days by UFPO (1-800-962-7962). GZA and its subcontractors then will mobilize the necessary materials and equipment to the Site.

A project kick-off meeting will be held prior to initiating field work to orient field team members and subcontractors with the Site and to familiarize GZA personnel and our subcontractor personnel with Site background, scope of work, potential dangers, health and safety requirements, emergency contingencies and other field procedures.

Health and Safety

It is anticipated that the work to be completed at the Site will be done at level D personal protection with the potential to upgrade to level C. Field workers will be instructed to keep level C equipment available should it be needed. Should health and safety monitoring during field activities indicate a threat to field personnel or warrant an upgrade beyond level C protection, work will stop and Site conditions will be re-evaluated by NYSDEC and GZA.

Decontamination and Handling of Investigation Derived Waste

The sampling methods and equipment selected limit both the need for decontamination and the volume of waste material to be generated. Decontamination procedures specific to each of the field activities are described in the QAPjP. Personal protective equipment and disposable sampling equipment will be placed in plastic garbage bags for disposal as a solid waste.

Excess soil cuttings, not returned to the soil probe or borehole, will be drummed and stored on-Site for future disposal unless the soil appears to be uncontaminated. Determination regarding contamination will be assessed initially with an organic vapor meter (OVM) equipped with a photo-ionization detector (PID). Readings less than 1 parts per million (ppm) during headspace screening and visual observations that indicate the soils do not appear to be impacted will indicate the soils are clean. If less than 1 ppm, the material will be placed on the ground near the exploration location.

Purge water will be placed on the ground, provided it is placed onto soils that are already contaminated with similar contaminants. If the discharge of water onto the soil will result in contamination of soils or groundwater that are "clean", then the water will be drummed.

The volume of material to be disposed from drums is unknown, if any. Costs associated with testing and disposal is not included in our SI/RAR budget. GZA will coordinate with Broome County and NYSDEC, if drums need to be tested and disposed. GZA will collect samples for testing, if requested.

2.1 FIELD WORK

A summary of the exploration level of effort is contained in Table 1.

2.1.1 IRM Source Removal;

Based upon the results of GZA's previous investigations, approximately 250 cubic yards (or approximately 400 tons) of TCE contaminated soil is assumed to be located around MW-1 (assumed "source area"). Due to the concentrations of TCE detected in the previously analyzed soil samples, this material will likely be treated as a hazardous waste. The following activities will be completed as part of the assumed "source area" IRM.

Waste Characterization

Prior to excavation, GZA will collect composite soil samples from the proposed IRM area. The samples will be collected from three to four soil probe sample locations around the existing monitoring well MW-1 location, from depths ranging between 1 and 10 feet below ground surface (bgs). The samples will be analyzed for waste characterization, which is expected to include toxicity characteristic leaching procedures (TCLP) for VOCs, semi-volatile organic compounds (SVOCs), metals, polychlorinated biphenyls (PCBs), pesticides and herbicides. Additionally, samples will be tested for ignitability, reactivity and corrosivity (pH). Due to the high concentrations of TCE detected in one sample during our previous investigations (160 parts per million (ppm) at B-3 approximately 2 to 4 feet bgs), GZA expects the landfill receiving the waste material will request a composite soil sample be analyzed for total VOCs. GZA assumes and has budgeted that the hazardous waste soil requiring disposal will be characterized as an F-listed waste.

Exterior TCE Contaminated Soil Removal

Excavation efforts of the IRM will be completed in the general area proximate to MW-1 located southeast of Building #2. Coordination with the rail line (reportedly Norfolk Southern) will be required as a portion of the excavation is planned on the railroad right-of-way. The soils will be removed by standard excavation (excavator) methods. Additionally, due to the close proximity of the buildings, potential utilities and proximity of railroad property, hand digging may also be required. Excavated soil will be screened with an organic vapor meter (OVM) equipped with a photoionization detector (PID) to assist in determining its characterization as clean soil, hazardous waste not requiring pre-treatment or hazardous waste requiring pre treatment. GZA assumes soil requiring disposal will be directly loaded into trucks for transportation to a permitted landfill capable of receiving the assumed hazardous waste soil. Community air monitoring will be conducted during the IRM activities.

Due to the building locations, it may not be practicable to remove all potential impacted soil during excavation. GZA will complete the removal of soil which appears to been significantly impacted by the TCE contamination or "source" removal. During this excavation, monitoring well MW-1 would have to be abandoned. This monitoring well would be replaced at completion of the IRM activities.

GZA will collect confirmatory soil samples prior to backfilling of the excavation to assess the concentrations of TCE remaining in the sidewalls. GZA will collect, at a minimum, one confirmatory sample from each of the four sidewalls and bottom from the "source" excavation. More samples may be required depending on the size and depth of the excavation or NYSDEC requirements. Confirmatory samples will be analyzed for Target Compound List (TCL) VOCs via EPA Method 8260, TCL SVOCs via EPA Method 8270,

Target Analyte List (TAL) metals and PCBs via EPA Method 8082. After confirmatory samples are collected, the excavation will be backfilled with a clean, imported material (e.g., bank run stone or crusher run stone).

Drywells No. 1 And No. 2 Closure

If readily accessible, the soil from within both drywells located inside Building 2 will be removed for off-site disposal as part of the IRM. The soil removal will generally be completed to a depth of approximately 3 to 4 feet bgs. At the completion of soil removal, confirmatory soil samples will be collected from the respective bottoms of each drywell. Samples will be tested for TCL VOCs via EPA Method 8260, TCL SVOCs via EPA Method 8270, TAL metals and PCBs via EPA Method 8082. The drywells will then be closed by backfilling each with a cement grout to the ground surface. If access to the drywells is not allowable, soil probes will be completed within the vicinity of each dry well as discussed below (see Section 2.1.3).

Soil excavated from the drywells is not expected to be a hazardous waste. However, since the volume of material of soil to be excavated is assumed to be small (less than 1 cubic yard), this soil may be disposed along with the hazardous waste from the TCE contaminated soil discussed above. A data report summarizing the IRM activities, volume of soil disposed and confirmatory sample results will be prepared at the completion of the IRM.

2.1.2 Groundwater Well Installation, Assessment and Sampling

Two monitoring wells will be installed at the Site during the SI work. One monitoring well will replace MW-1 (removed as part of IRM) and a second monitoring well will be installed along the western site boundary to better assess groundwater for that portion of the Site. See Figure 2 for existing and proposed monitoring well locations.

To assess the current groundwater conditions at the Site, GZA will inspect, screen for organics and measure the three existing monitoring wells (MW-2 through MW-4) for serviceability in addition to developing screening and measuring the two proposed monitoring wells. If the three existing wells are determined to be functional, GZA will collect water level data, purge each well of three to five well volumes (or purge until dry-like conditions) and collect groundwater samples using low flow methods. The two newly installed monitoring wells will be developed similarly to establish the filter pack for each well. Additionally, hydraulic conductivity tests (e.g., slug test) will be completed in the monitoring wells to help define groundwater conditions around the wells.

Groundwater purged from monitoring wells will be placed in 55-gallon drums for disposal. The elevations of each monitoring well will be re-measured using stadia rod and level methods. The data obtained from this activity, the groundwater concentration of TCE and its flow direction, will be compared to previous findings.

Previous studies at the Site have determined that groundwater at the site is predominantly contaminated with TCE in excess of NYSDEC groundwater standards. However, by removing the potential source of contamination (subsurface soils near monitoring well MW-1 and accessible dry well sediment) as part of the IRM, additional TCE should not be present to leach into the groundwater. GZA will collect and analyze groundwater samples in accordance with our approved QAPjP from the three existing and two proposed monitoring wells for TCL VOCs, TCL SVOCs, PCBs and TAL metals (similar sampling will be completed from the temporary wells should they be installed). The sample results will be compared to past investigations to evaluate natural attenuation.

2.1.3 Dry Well Subsurface Investigation

The anticipated remediation for Dry Wells No. 1 and No. 2 includes excavation and off-site disposal of the soil inside the drywells as part of the IRM discussed above. However, if access is not allowable around Dry Well No. 1 (due to the presence of large operational equipment), soil probes will be done within the vicinity of this dry well for the purpose of field screening and collecting soil, groundwater and soil gas samples for laboratory analysis. The general scope of dry well investigation work follows.

- Soil samples will be collected continuously at 2-foot intervals, for field screening, until the water table is encountered. These samples will be screened in order of collection until results are non-detect.
- Where allowable, two soil probes will be completed approximately 4 feet and two probes approximately 8 feet away from the dry well. Two soil samples shall be collected for laboratory analysis from each boring from anticipated depths of 4 to 12 feet below the grade elevation. See Figure 2 for proposed boring locations.
- If allowable, a piezometer will be installed in one of the soil probes completed near the dry well. The piezometer will generally consist of a 1-inch diameter, slotted PVC pipe and will be used for the collection of ground water samples and ground water elevation data.
- Two soil gas samples may also be collected from soil borings completed around the dry well. Specifically, the soil gas samples are to be collected at depths of 8 and 12 feet bgs near the dry well.
- The soil samples and the groundwater samples (if sufficient sample is available) obtained from soil probes completed around Dry Well No. 1 will be analyzed for TCL VOCs, TCL SVOCs, PCBs and TAL metals. The soil gas samples will be tested for TO-15 VOCs.

2.1.4 Subsurface Soil Investigation

Several soil probes are proposed to be completed in the areas between former surface soil samples SS-4 (southern corner of Building 3) and SS-9 (southwestern corner of Building 2). Approximately 6 to 8 soil probes will be completed between SS-4 and SS-9 for the purpose of further delineation of apparent Site contamination in both vertical and horizontal directions. Soil samples will be collected continuously to an approximate depth of 16 feet bgs, 5 feet below the top of the groundwater table or to refusal, which ever is encountered first. Soil samples will be screened with an OVM. Based on the field screening and olfactory observations, one sample from each soil probe will be collected for analytical testing. Each soil sample will be tested for TCL VOCs and TCL SVOCs. Additionally, soil samples collected near SS-4 will be tested for TAL metals, specifically arsenic.

2.1.5 Subslab/Indoor Air and Vadose Zone Soil Gas

Subslab and Indoor Air Sampling

Subslab and indoor air monitoring is proposed for the three on-site buildings. One air sample will be collected from the ambient air inside each building in the areas of likely higher contamination and close to the remedial area if possible. An additional air sample will be collected from the air space beneath the floor of each of the three buildings again close to an area of known contamination. The air samples will be collected under the floor slab through an approximate 1-inch diameter hole drilled in the floor. Dedicated tubing will be placed into the hole and sealed at the floor surface with bee's wax. A one-liter sampling canister will be attached to the tubing with an airtight seal for sample collection. Additionally, one exterior air sample will be collected for background comparative purposes. Sampling will be completed for a 1-hour duration in general accordance with NYSDOH and DER-10 requirements.

Vadose Zone Investigation

A vadose zone investigation will be completed along the perimeter locations of the Site to assess for possible volatile organics migrating from the Site. The soil gas samples will be collected from depths between the ground surface and the groundwater table. Proposed sampling will be completed along the property boundaries at the four property corners and at four midpoint locations. Sampling locations will be installed by means of direct push probing equipment.

Each air sample will be collected for a sampling duration of approximately 1-hour. Air samples collected will be analyzed via USEPA Method TO-15, including the VOC of concern trichloroethene.

2.2 ENVIRONMENTAL ANALYTICAL TESTING PROGRAM

The environmental testing program is summarized in Table 2. The location for sample collection will be determined based upon the results of the field screening and engineering judgement. It is expected that NYSDEC will provide input to the sample selection process. The samples collected as part of the SI will be subject to analytical testing methodologies that follow NYSDEC Analytical Service Protocol (ASP) Category B deliverables and data validation. Further information regarding sampling and testing methodologies can be found in the Site-specific QAPjP.

2.3 SITE SURVEY

The Site survey will be done after completion of the fieldwork to locate soil excavation limits, soil probes, vadose zone sampling locations and monitoring wells. This will allow measurement of the actual exploration locations and elevations.

A licensed land surveyor will be subcontracted to do the survey. Vertical measurements will include the ground surface at each exploration location, top of casing and top of riser at monitoring wells. The top of riser will serve as the water level monitoring point. Vertical measurements will be made relative to the National Geodetic Vertical Datum (NGVD). Monitoring point measurements and top of protective casing measurements nd ground surface elevations will be accurate to within 0.01 foot. Horizontal measurements will be accurate to within 0.1 foot.

The base map for the Site will include pertinent Site features included in the investigation.

TABLES

Table 1
Site Investigation
Estimated Site Investigation Field Days
312 Maple Street
Endicott, New York
Site No. B00168-7

Item	Units	Estimated Number of Units
IRM - Source Removal	Days	3
Proposed Monitoring Well Installation and Existing Well Assessment	Days	2
Monitoring Well Sampling	Days	1
Drywell Subsurface Investigation	Days	2
Surface and Subsurface Investigation	Days	2
Subslab, Indoor Air Sampling and Vadose Zone Sampling	Days	2

Notes:

1) All exploration locations are assumed to be completed at Level D personal protection.

2) Assume work can be completed between the hours of 7 am to 7 pm.

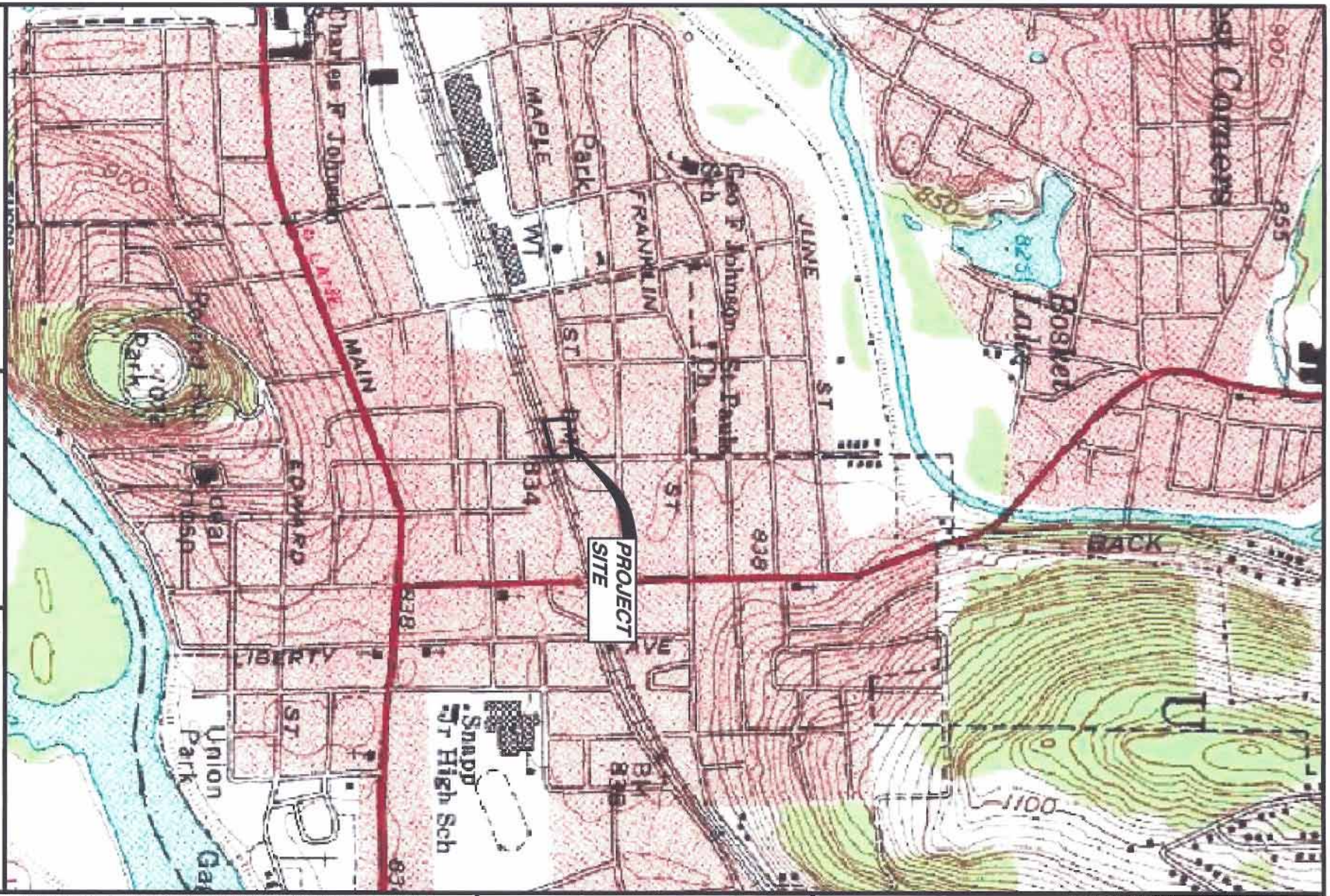
3) Assume areas for work can be completed at locations based upon GZA preference in coordination with NYSDEC.

Table 2
Site Investigation / Remedial Alternative Report
Proposed Analytical Testing Program Summary
312 Maple Street
Endicott, New York

Location	Matrix	TCL VOCs	TCL SVOCs	TAL Metals	TCL PCBs	Full TCLP and C/R/I	TOC
IRM Confirmatory Samples							
Various[1]	Soil	12	12	12	12	0	0
Total		12	12	12	12	0	0
Waste Characterization							
Composite Sample	Soil	5	3	3	2	2	0
Dry Well Investigation							
Dry Well #1	Soil	8	8	8	8	0	0
Dry Well	Air[2]	2	0	0	0	0	0
Groundwater	Water	2	2	2	2	0	0
QA/QC Samples	Soil	4	4	4	4	0	0
Total		16	14	14	14	0	0
Surface and Subsurface Investigation							
Various[1]	Soil	11	11	4	0	0	10
QA/QC Samples	Soil	4	4	4	0	0	0
Total		15	15	8	0	0	10
Indoor Air/Sub Slab/Vadose Zone Air Sampling							
Ambient Air	Air[2]	4	0	0	0	0	0
Sub Slab Air	Air[2]	3	0	0	0	0	0
Vadose Zone	Air[2]	8	0	0	0	0	0
QA/QC Samples	Soil	3	0	0	0	0	0
Total		18	0	0	0	0	0
Groundwater Samples							
Monitoring Wells	Groundwater	5	5	5	5	0	0
QA/QC Samples	Groundwater	4	4	4	4	0	0
Trip[3]	Water	1	0	0	0	0	0
Total		10	9	9	9	0	0

Notes:
1) Actual sample location to be selected based on field observation.
   QA/QC Samples include blind duplicate, matrix spike, matrix spike duplicate and rinsate samples
   TCL VOCs - Target Compound List Volatile Organic Compounds.
   TCL SVOCs - Target Compound List Semi-volatile Organic Compounds.
   TAL Metals - Target Analyte List Metals.
   TCL Pesticides - Target Compound List Pesticides.
   TCL PCBs - Target Compound List Polychlorinated Biphenyls.
   TOC is total organic carbon
   TCLP - Toxic Characteristic Leaching Procedure
2) Air samples tested for VOCs via EPA Method TO-15
3) Trip - Trip Blank sample

FIGURES



NOTE:
BASE MAP ADAPTED FROM U.S.G.S. TOPOGRAPHIC MAPS DOWNLOADED FROM TERRASERVER.MICROSOFT.COM

BROOME COUNTY DEPARTMENT OF PLANNING AND ECONOMIC DEVELOPMENT

312 MAPLE STREET
VILLAGE OF ENDICOTT, NEW YORK

FIELD ACTIVITIES PLAN

LOCUS PLAN

SCALE IN FEET
0 500 1000 2000

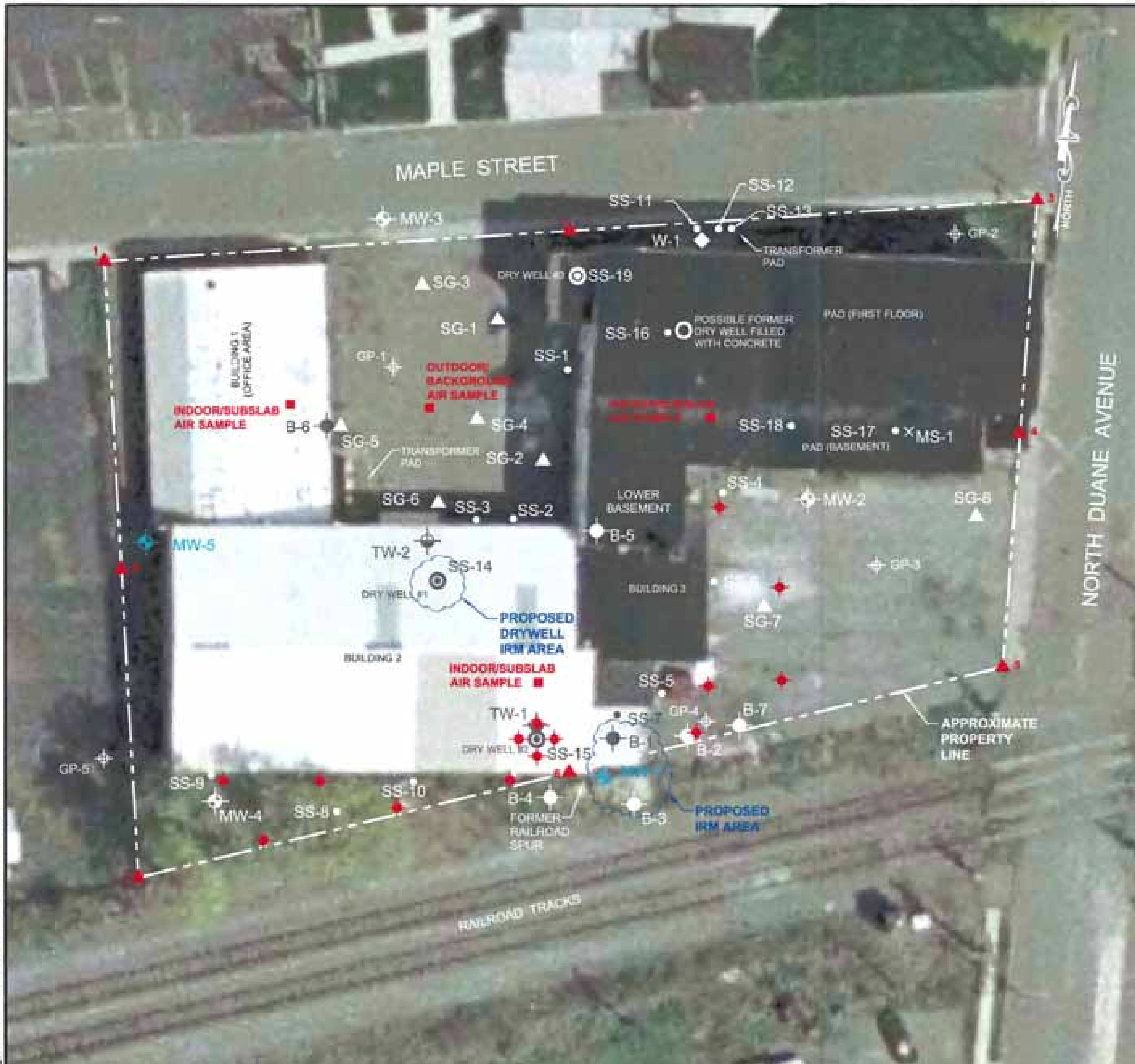
DRAWN BY: **DEW**

DATE: **SEPTEMBER 2005**

GZA GeoEnvironmental of New York

PROJECT No. **21.0056127.00**

FIGURE No. **1**



LEGEND:

Symbol	Description
INDOOR/SUBSLAB AIR SAMPLE ■	APPROXIMATE LOCATION AND DESIGNATION OF PROPOSED AIR SAMPLE
✦	APPROXIMATE LOCATION OF PROPOSED SOIL PROBE
7▲	APPROXIMATE LOCATION AND DESIGNATION OF PROPOSED VADOSE ZONE SOIL GAS POINT
MW-5	APPROXIMATE LOCATION AND DESIGNATION OF PROPOSED MONITORING WELL
B-1	APPROXIMATE LOCATION AND DESIGNATION OF PREVIOUS SUPPLEMENTAL TEST BORING
TW-1	APPROXIMATE LOCATION AND DESIGNATION OF PREVIOUS SUPPLEMENTAL TEMPORARY MONITORING WELL
GP-1	APPROXIMATE LOCATION AND DESIGNATION OF GEOPROBE LOCATION PERFORMED BY OTHERS WITH GROUNDWATER TEST RESULTS
MW-3	APPROXIMATE LOCATION AND DESIGNATION OF EXISTING MONITORING WELL
• SS-1	APPROXIMATE LOCATION AND DESIGNATION OF PREVIOUS SURFACE SOIL/SLUDGE SAMPLE
▲ SG-1	APPROXIMATE LOCATION AND DESIGNATION OF PREVIOUS SOIL GAS SAMPLING POINT
◆ W-1	APPROXIMATE LOCATION AND DESIGNATION OF PREVIOUS WIPE SAMPLE
× MS-1	APPROXIMATE LOCATION AND DESIGNATION OF PREVIOUS MEMBRANE SAMPLE

NOTES:

1. BASE MAP ADAPTED FROM A 2002 AERIAL PHOTOGRAPH DOWNLOADED FROM http://www.nysgis.state.ny.us/gateway/mg/interactive_main.html AND FIELD OBSERVATIONS.

2. THE SIZE AND LOCATION OF EXISTING SITE FEATURES SHOULD BE CONSIDERED APPROXIMATE.

DRAWN BY: DEW

DATE: SEPTEMBER 2005

GZA GeoEnvironmental of New York

APPROXIMATE SCALE IN FEET

0 15 30 60

BROOME COUNTY DEPARTMENT OF PLANNING AND ECONOMIC DEVELOPMENT

312 MAPLE STREET

VILLAGE OF ENDICOTT, NEW YORK

FIELD ACTIVITIES PLAN

SITE PLAN

PROJECT No. 21.0056127.00

FIGURE No. 2

ATTACHEMENT B

QUALITY ASSURANCE PROJECT PLAN

SITE INVESTIGATION/REMEDIAL ALTERNATIVE REPORT
312 MAPLE STREET
ENDICOTT, NEW YORK
SITE NO. B00168-7

SITE INVESTIGATION/REMEDIAL ALTERNATIVE REPORT
QUALITY ASSURANCE PROJECT PLAN
312 MAPLE ROAD
ENDICOTT, NEW YORK
SITE No. B00168-7

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1.0 INTRODUCTION

1.1 PURPOSE AND OBJECTIVE

The purpose of this Quality Assurance Project Plan (QAPjP) is to document planned investigative activities and establish the criteria for performing these activities at a pre-determined quality, and to review and summarize such work performed by others at the 312 Maple Street Site in Endicott, New York (See Figure 1). The work will be completed by GZA GeoEnvironmental of New York (GZA) under a New York State Department of Environmental Conservation (NYSDEC) Environmental Restoration Project (ERP) agreement with Broome County.

1.2 PROJECT BACKGROUND

The Site is located at 312 Maple Street in Endicott, New York on the southwest corer of Maple Street and North Duane Avenue. Surrounding property is mixed residential/commercial. Northern Suffolk railroad tracks border the Site to the south. The Site is currently occupied by a manufacturer of wood cabinetry. Previous owners/operators include shoe companies, coal companies, electronic assemblers and a metal finishing job shop.

The Site is about 0.93 acres in size and includes three adjoining Site buildings (Buildings 1, 2, and 3 as shown on Figure 2). Building 1 is a single story masonry structure. Building 2 is a steel framed and sided structure with a concrete slab-on-grade floor. Building 3 is a masonry and wood framed two story building with a basement.

Based on previous studies performed by GZA, two source areas were originally identified at the site. The first is a zone of unsaturated soils contaminated with trichloroethene (TCE) located southeast of Building 2 (see attached Site Plan). The second is three dry wells located inside Buildings 2 and 3. Subsequent meetings and conversations with NYSDEC defined the surface soils east of Building 3 and south of Building 2 as areas of concern that may also require additional investigation/remediation. The groundwater at the site is contaminated with TCE but is not considered to be a source area.

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Surface Soils: Surface soils were sampled and identified to contain potentially elevated metals, primarily arsenic, in the area south and east of Building 3; and polycyclic aromatic hydrocarbons (PAHs), in the area south of Building 2. The metals and PAHs are considered typical in industrial settings. These areas of potential concern were identified during GZA's initial environmental investigations.

1.3 PROJECT DESCRIPTION

This QAPjP is the quality control basis for the scope of work completed as part of this ERP. The major tasks comprising the ERP are:

- Work Plan Development (Field Activity Plan, Health and Safety Plan, Citizens Participation Plan and Quality Assurance Project Plan).
- Site Investigation (SI) and an Interim Remedial Measure (IRM) to address source areas of Site contamination.
- Remedial Alternatives Report (RAR).

1.4 PROJECT MANAGEMENT AND ORGANIZATION

1.4.1 Personnel

The general responsibilities of key project personnel are listed below.

Project Advisor	Ernest R. Hanna, P.E., Program Manager will have responsibility for overall program management and coordination of subcontractors to complete the work.
Project Manager	Mr. Daniel Troy, P.E., Project Manager, will have responsibility for overall project management and coordination with NYSDEC and Broome County Department of Planning and Economic Development and of implementing and coordinating the Site Investigation project activities.
Field Team	Mr. John Beninati will have overall responsibility for on-Site implementation of the Site Investigation project activities.

QA Officer — Mr. Ernest R. Hanna, P.E., will serve as Quality Assurance Officer, and will be responsible for laboratory and data validation subcontractor procurement and assignment, as well as data usability reports.

H & S Officer — Mr. Todd Schara will be responsible for the preparation of the project health and safety plan, and tracking of its implementation.

1.4.2 Specific Tasks and Services

GZA has obtained subcontractor specialists for services relating to drilling and monitoring well installation, laboratory/analytical services, data validation services, field surveying, and waste transportation and disposal. The planned subcontractors for utilization for the 312 Maple Street in Endicott, New York are:

Laboratory Analysis - Mitkem Laboratory (MBE)

Data Validation - Data Validation Services (WBE)

Drilling Services - GeoLogic Services of New York. (WBE)

Surveying - Shumaker Consulting Engineering & Land Surveying, P.C. (WBE)

IRM Activities - LVI Services

2.0 SITE INVESTIGATION PROCEDURES AND RATIONALE

The 312 Maple Street Site is a suspected source of TCE detected in the soil and groundwater. The field work proposed by GZA is focused on removing a source of contaminated soil and supplementing data from previous investigations to obtain a better understanding of Site specific conditions. Environmental sampling and other field activities will be performed in general accordance with the appropriate techniques presented in the following guidance documents.

Draft DER-10, Technical Guidance for Site Investigations and Remediation, NYSDEC, Division of Environmental Remediation, December 2002.

Guidance for Evaluating Soil Vapor Intrusion in the State of New York, NYSDOH, Draft, February 2005,

Table 1 contains a list of the various media to be sampled and the expected number of samples for each matrix.

Field activities are described in the following sections.

2.1 AIR SURVEILLANCE AND MONITORING

Air surveillance screening of volatile compounds for health and safety concerns will be performed with a portable organic vapor meter (OVM), equipped with a photoionization detector (PID). Monitoring will be done during invasive activities such as excavations, oil probes, drilling, monitoring well installation, well development, and sampling. Additional details are presented in the Site specific Health and Safety Plan.

2.2 GROUNDWATER SAMPLING

Groundwater sampling of existing monitoring wells includes initial recording of data, purging of the well, and collection of the sample. The text below addresses these items, as well as filtration of water samples for metals. Installation of monitoring wells is discussed in Section 2.10. Groundwater sampling of monitoring wells installed as part of this work will also be completed in general accordance with this section.

2.2.1 Initial Data Recording

Groundwater sampling begins by locating the well to be sampled and recording the appropriate field data, as summarized below:

- Observations of the well (conditions of cap, collar, casing, etc.) and the ambient conditions (weather; surrounding area; date and time; sampling crew members and observers if any. See also Section 5.1 for information to be recorded in the field notebook.).
- Unlocking the well cover, assessing ambient air, upwind air, and air directly at the top of the well.
- Taking a water level measurement, noting the reference point from which the measurement is made (typically a notch on the inner casing).
- Sounding the bottom of the well and agitating/loosening accumulated silt/sediment (this assumes sounding indicates minimal sediment accumulation and no need for well development).
- Calculate the volume of standing water present within the well.

2.2.2 Well Purging/Evacuation

After the initial observations are recorded, the well is then purged of at least three volumes of standing water. Purging will be accomplished by bailing or pumping to remove water from the wells. Prior to removal of the first volume of water, and after each subsequent volume of water removed, field parameters (pH, turbidity, temperature and specific conductance) will be measured and recorded to document the presence of representative water in the well (i.e., equilibration to steady readings), or as an indicator that conditions have not reached a steady state. Prior to sample collection, the variability of field testing results between successive well volumes should not vary by more than 10% for turbidity and specific conductance, $\pm$0.2 units for

pH, and $\pm$0.5 °C for temperature, with a minimum of three well volumes purged, and an upper limit of five volumes. The turbidity objective is less than 50 nephelometric turbidity units (NTU); if other parameters are stable but turbidity is still greater than 50 NTU, purging will continue until 50 NTU is achieved, or five well volumes are evacuated (whichever comes first).

In the event that recharge is slow, the purging process will continue until the well is purged to dry-like conditions. After the water level has returned to its pre-purge level (or within a maximum of two hours, if the well has recharged sufficiently to allow sampling), samples will be collected from the middle of the screened portion of the well for overburden wells. If the water level is slow to recharge and does not reach to its pre-purge level within two hours, then samples can be collected after sufficient water has recharged, and the degree of recharge indicated in field notes with time and depth to water noted.

2.2.3 Groundwater Sampling

Bailers or low flow samplers will be used for sample collection. Bailers will be equipped with a check-valve and will be dedicated, disposable high density polyethylene (HDPE). Bailers will be clean upon arrival at the Site; therefore Site decontamination will not be necessary. Bailers will be lowered gently with minimal water agitation into the well with dedicated polyethylene or polypropylene line.

Sample Collection

The first bailer sample volume of water will be collected for volatile organics or other light weight/volatile compound analyses. A portion of the first sample will also be retained for field measurements of pH, temperature, conductivity, and turbidity.

Two or three (depending on laboratory-specific requirements) 40-ml glass vials (with Teflon septa) will be used to collect samples for volatile organic analysis (VOA). The vials will be filled by gently pouring water into the vial until overflowing and a convex meniscus is formed. The vial will then be capped, inverted and inspected for air pockets/bubbles that may be present on the inside surfaces of the vial. If any bubbles or aggregate of bubbles are observed, then a new sample will be obtained either using a new vial or the same vial.

Subsequently sampled water will be collected for the remaining inorganic parameters as specified in the Field Activities Plan (FAP), and field parameter testing. The remaining sample bottles will be filled sequentially in the following order.

- Semi-volatile organic compounds (SVOCs)
- Polychlorinated Biphenyls (PCBs)
- Total (unfiltered) metals.

Sample bottles are discussed in more detail in Section 3.2. [Note: If filtered samples are to be analyzed, both a filtered and unfiltered sample shall be collected.]

2.3 IRM EXCAVATION

A track mounted or rubber wheeled backhoe, with a reach of approximately 12 feet, will be used to complete the soil excavations. The soils will be removed in approximate 12 inch layers, allowing observations to be made and samples to be collected and screened with an organic vapor meter. The test pit will not be excavated below the groundwater table. The backhoe bucket will be decontaminated (as described in Section 2.9.3) between test pit locations and prior to leaving the Site. Soil removed from the excavation will be placed on plastic sheeting or directly into a dump truck or dumpster for of-site disposal. Excavations will be backfilled with clean imported fill material.

2.4 TEST BORINGS/SOIL PROBES

The drill rig/soil probe rig, tools, augers, etc. will be decontaminated between holes at an on-Site temporary decontamination pad constructed in an area acceptable to NYSDEC and Atlantic Express. Decontamination will be accomplished using steam cleaning or high pressure wash equipment. Split spoon sampling devices will be cleaned manually with non-phosphate detergent wash and potable water followed by a potable water rinse or a second steam cleaning followed by a distilled/deionized water rinse. All equipment will be cleaned prior to leaving the Site.

Test borings will be advanced into the overburden using a rotary drill rig and 4-1/4 inch inside diameter (I.D.) hollow stem augers (HSA). Drilling fluids will not be used. Samples from ahead of the HSA will be obtained by driving a 1-3/8 inch I.D. by 24 inch long split spoon sampler 24 inches with a 140 pound hammer falling 30 inches, in general accordance with ASTM D1586 (Standard Penetration Test). Upon completion, borings will be backfilled with excess soil unless a well is to be installed.

Soil probes will be advanced into the overburden and soil samples collected using a truck or track mounted probe unit equipped with a two inch O.D. by 4 foot long sampler. The probe unit will include a hydraulic push/hammer that will be used to advance the sampler. No drilling fluids will be used during soil probe work.

Soil samples will be classified by GZA in the field by visual examination in accordance with the Burmister soil classification. Selected samples will be retained for soil index properties testing (grain size distribution and Atterberg limits) to confirm field classification. A log of each boring will be prepared with appropriate stratification lines, blow counts, sample identification, sample depth interval, recovery and date.

2.5 MONITORING WELL INSTALLATION

Monitoring wells will be constructed of 2 inch I.D. flush coupled Schedule 40, polyvinyl chloride (PVC) riser and screen. The actual installation depth of the screen will be selected based upon the intended purpose of the well (the zone to be monitored), observation of subsurface materials and headspace screening test results. The screen will consist of a maximum 10 foot long section. The actual length of the well screen may vary depending upon subsurface conditions

encountered. Attempts will be made to limit the well screen to the zone being monitored. A schematic of the well construction detail is provided as Figure 3.

Well materials will have the following specifications:

- Well screens shall be 0.01 inch factory slotted.
- Filter material shall have a D-30 (i.e., the soil particle size at which 30 percent of the soil particles are finer) of about 0.2 mm.

Following determination of the monitoring zone and placement of the assembled screen and riser, the borehole will be backfilled. Generally, this will include the placement of a sand filter around the well screen such that the sand extends a minimum of 1 foot above the top of the screen. A minimum 3 foot layer of bentonite pellets will be placed above the sand filter and allowed to hydrate. A mixture of cement/bentonite water extending to about 3 feet below the ground surface will be placed above the bentonite seal. The monitoring well will be completed by placing a locking steel casing or flush mount cover (4-inch diameter) over the riser. Concrete will be then placed in the borehole around the protective casing and sloped away from the casing.

Materials used in well installation will be stockpiled in an on-Site storage area (unless there is a possibility for vandalism) or brought on-Site for use as necessary. These items will be brought to the Site clean and in like-new condition and kept clean and in satisfactory condition for potential use. Well materials (screen and riser pipe), regardless of their condition when brought to the Site will be cleaned on-Site prior to use. The cleaning procedure is described in Section 2.9.4. Following cleaning, well materials will be wrapped in clean plastic sheeting for transportation to the well location. Site personnel handling well equipment after cleaning are required to wear clean gloves.

2.6 SOIL SAMPLING

Soil samples, with the exception of those for VOA, will be homogenized using a "coning and quartering" procedure. The soil will be removed from the sampling equipment and transferred to a clean surface (metal foil, steel pan, bowl, etc.) and, with the exception of VOA samples, mixed to provide a more homogeneous sample to the lab. The soil will be scraped from the sides, corners, and bottom of the clean surface, rolled to the middle, and thoroughly mixed until the material appears homogenous. An aliquot of this pile will then be transferred to the required sample containers, slightly tamped-down, filled to near the top of the container, and sealed with the appropriate cap. Any soil or sediment on the threads of the container will be wiped off prior to placing the cap on the sample container.

VOA samples will not be mixed but will be placed directly from the sampling equipment into the VOA vial sample container (a 4 oz. wide mouth jar), limiting head space by compacting the soil into the container. Samples for VOA will be placed into the appropriate container as soon as possible (ideally within 15 seconds of collection) prior to making field measurements or sample homogenization.

Excavation sidewall samples collected from IRM excavations will be collected from the backhoe bucket and transferred to the sample containers supplied by the laboratory using dedicated stainless steel spoons. Care will be taken to collect soil that has not come in contact with the backhoe bucket.

Soil collected from soil probe samplers or split-spoon sampler will be obtained by opening the split barrel, split spoon sampler (borings) or acetate tube (soil probes), slicing the core (if intact) vertically down the middle with a sharp knife or similar blade, and scooping sufficient sample from the long axis of the split core with a decontaminated stainless steel spoon or spatula. If the core is not intact, then upon opening the barrel the contents can be scooped directly with the spoon or spatula. Samples for VOA will be collected and transferred to sample containers as soo s possible after opening and slicing the sample. If the core is not homogeneous, representative portions of each type of material within the sampler will be collected. There may also be situations where it will be appropriate to grab-sample specific zones due to textural variations, the presence of apparent staining, or "hot spot" preliminary screening results.

Soil screening will be performed in two ways: by holding the probe of the PID directly over the sample and, by headspace screening with the PID.

The PID will be calibrated daily, in accordance to manufacturer's requirements using a standard gas. Prior to screening, the soil samples will be allowed to equilibrate to ambient temperature. For headspace screening, a hole will be made in the lid of the sample jar and about 30 ml of sample air will be withdrawn from the headspace using a gas tight syringe. The test sample will be immediately injected into the PID and the peak response will be recorded. A response of less than 1 part per million (ppm) using this method is not considered significant and will be reported as not detected. A syringe blank will be run between test samples to check that extraneous contamination was not carried over.

2.7 SOIL GAS SAMPLING

The soil gas equipment (tubing, probes, etc.) will be cleaned prior to delivery to the Site. Soil gas probes and other associated equipment will not require cleaning or decontamination at the Site. New soil gas probes and high density polyethylene (HDPE) tubing will be used at each sample location and discarded between locations.

Soil gas, indoor air and vadose zone air samples including the required quality control/ quality assurance (QA/QC) measures will be collected via the methodology identified in the NYSDOH Soil Vapor Intrusion Guidance (currently in Draft form).

2.8 HYDRAULIC ASSESSMENT

Hydraulic assessment includes the completion of hydraulic conductivity tests and measurement of water levels in both existing and installed monitoring wells.

Hydraulic conductivity testing will be done using either variable head methods or single well pump test methods if the wells are found to recover rapidly. Variable head tests will be completed using a stainless steel slug to displace water within the well or by removing water from the well with a bailer. The recovery of the initial water level is measured with respect to time. Single well pump tests will be completed by pumping the well at a constant rate and measuring the response of the water level within the well with respect to time. Data obtained using these test procedures will be evaluated using procedures presented in "The Bouwer and Rice Slug Test - An Update", Bouwer, H., Groundwater Journal, Vol. 27, No. 3, May-June 1989.

Water level measurements will include measuring the depth of water within the wells/well points from a monitoring point of known elevation established at the top of the well riser. The depth to water will be measured relative to the monitoring point. The water elevations will then be calculated based on the known elevation and measured depth to water. Wells will be allowed to equilibrate a minimum of 24 hours after purging or testing prior to measuring the water level.

2.9 EQUIPMENT DECONTAMINATION

To avoid cross contamination, sampling equipment (defined as any piece of equipment which may contact a sample) will be decontaminated according to the following procedures outlined below.

2.9.1 Non-Dedicated Reusable Equipment

Non-dedicated reusable equipment such as split spoons, stainless steel mixing bowls; pumps used for groundwater evacuation (and sampling, if applicable) etc. will require field decontamination. Acids and solvents will not be used in the field decontamination of such equipment. Decontamination typically involves scrubbing/washing with a laboratory grade detergent (e.g. alconox) to remove visible contamination, followed by potable (tap) water and analyte-free water rinses. Tap water may be used from any treated municipal water system; the use of an untreated potable water supply is not an acceptable substitute. Equipment should be allowed to dry prior to use. Steam cleaning or high pressure hot water cleaning may be used in the initial removal of gross, visible contamination Tubing will not be re-used (new tubing will be used for each application).

2.9.2 Disposable Sampling Equipment

Disposable sampling equipment includes disposable bailers; tubing associated with groundwater sampling/purging pumps; etc. Such equipment will not be field-decontaminated; equipment other than bailers may be rinsed with laboratory-provided analyte-free water prior to use. Disposable spoons or spatulas purchased from non-environmental equipment vendors (such as restaurant supply houses) will be decontaminated by scrubbing/washing with a laboratory grade detergent followed by potable water and analyte-free water rinse; or by using steam or high pressure hot water rinse, followed by analyte free water rinse. The equipment will be allowed to air dry prior to use.

2.9.3 Heavy Equipment

Certain heavy equipment such as backhoe buckets, drilling augers, etc. may be used to obtain samples. Such equipment will be subject to high pressure hot water or steam cleaning between uses. A member of the sampling team will visually inspect the equipment to check that visible contamination has been removed by this procedure prior to sampling. The backhoe bucket and drilling augers will be cleaned between test pits/test borings; decontamination between samples at a single test boring will not be done. Samples submitted for analysis should not include material which has been in contact with the backhoe bucket/drilling augers.

2.9.4 Monitoring Well Construction Materials

Well construction materials including well screens, well riser and end caps/tailpieces will be cleaned prior to installation by steam cleaning or high pressure hot water rinse.

2.10 STORAGE AND DISPOSAL OF INVESTIGATION-DERIVED WASTE

The sampling methods and equipment have been selected to limit both the need for decontamination and the volume of waste material to be generated. Investigation-derived material (e.g., drill cuttings and purge water) generated during this project shall be presumed to be non-hazardous waste and will be disposed at the boring or well from which the material was derived. Excess auger cuttings will be drummed and stored on-Site for future disposal unless the PID readings are less than 1 ppm. If less than 1 ppm, the material will be placed at a location agreeable to Broome County and NYSDEC. If the water is grossly contaminated (e.g., presence of strong vapors or product), it will be drummed. The volume of material to be disposed from drums is unknown, and is not included in the Work Plan budget. Subsequent to generation of drummed waste materials and analytical testing, GZA will discuss disposition of drummed materials.

Personal protective equipment and disposable sampling equipment will be placed in plastic garbage bags for disposal as a non-hazardous waste.

Decontamination Fluids

Wash water and rinse water, including detergent, may be generated during Site work. Tap and analyte-free water used for rinsing will be allowed to percolate back into the ground, or will be disposed into the municipal sanitary sewer.

2.11 SURVEY

A licensed land surveyor will be subcontracted to measure the vertical and horizontal locations of the IRM excavation, new and existing monitoring wells and borings, soil probes and soil gas sampling locations. GZA will also identify other Site features, structures, etc. where horizontal and/or vertical measurements are required. These locations will be flagged by GZA. Vertical measurements will include the ground surface at investigation locations, plus, top of

casing and top of riser at monitoring well locations. The top of riser will serve as the water level monitoring point. Vertical measurements will be made relative to the National Geodetic Vertical Datum. Monitoring point measurements and top of protective casing measurements will be accurate to within 0.01 foot. Horizontal measurements and ground surface elevations will be accurate to within 0.1 foot.

3.0 SAMPLE HANDLING

3.1 SAMPLE IDENTIFICATION/LABELING

Samples will be assigned a unique identification using the sample location or other sample-specific identifier. Sample identification will be limited to seven alphanumeric characters to be consistent with the limitations of the laboratory tracking/reporting software. The general sample identification format follows.

SL-XX-YY

Where:

SL = Location identifier (2 or 3 characters, as below)
- SP = Soil Probe (SP) with numeric character indicating boring number from which the sample was obtained.
- TB = Test Boring (TB) with numeric character indicating auger boring number from which the sample was obtained.
- SG = Soil gas or vadose zone gas sample
- MW = Groundwater Monitoring Well
- EB = Equipment (Field Rinsate) Blank
- TB = Trip Blank
- EX = Excavation (IRM)

XX = Numerical location identifier (2 or 3 characters). This will ordinarily be a number corresponding to the soil probe, well, etc. location or may indicate the wall (EA=East) or bottom (BT) of excavations.

YY = Numerical sample identifier (2 or 3 characters). This will ordinarily be an arbitrary, sequential number and will correspond to sample location information and numbering. However, for soil borings it will identify from which split spoon the sample was obtained (e.g., S1, S2, etc; the number will be the same as indicated on the boring log).

Quality Control (QC) field duplicate samples will be submitted blind to the laboratory; a fictitious sample ID will be created using the same system as the original. The sample identifications (of the original sample and its field duplicate) will be marked in the field book and on the copy of the chain-of-custody kept by the sampler and copied to the project manager. Sample containers will be labeled in the field prior to the collection of samples. Affixed to each sampling container will be a non-removable label on which the following information will be recorded with permanent water-proof ink.

- Site name, location, and job number;
- Sample identification code;
- Date and time;
- Sampler's name;
- Preservative;
- Type of sample (e.g., water, soil, air); and,
- Requested analyses.

3.2 SAMPLE, BOTTLES, PRESERVATION, AND HOLDING TIME

Table 2 specifies the analytical method, matrix, holding time, containers, and preservatives for the various analysis to be completed as part of the IRM and SI. Sample bottle requirements, preservation, and holding times are discussed further below.

3.2.1 Sample Bottles

The selection of sample containers used to collect samples is based on the criteria of sample matrix, analytical method, potential contaminants of concern, reactivity of container material with the sample, QA/QC requirements and regulatory protocol requirements. Sample bottles will be provided by the analytical laboratory and will conform to the requirements of USEPA's Specifications and Guidance for Contaminant-Free Sample Containers.

3.2.2 Sample Preservation

Samples will be preserved as indicated below and summarized on Table 2.

Soil Samples
Analytical (all analysis) - cooled to 4 °C; no chemical preservatives added.
Geotechnical - no preservation required .

Aqueous Samples:

Volatile Organics (VOCs) - cooled to 4 °C; no chemical preservatives added.
Semi-volatile organics - cooled to 4 °C; no chemical preservatives added.
PCBs/Pesticides - cooled to 4 °C; no chemical preservatives added.
Metals - HNO_3 to pH ≤ 2; cool to 4 °C.

Ambient Air, Sub-Slab Gas, Vadose Zone Gas Samples:

VOCs – no cooling, nor chemical preservatives added.

Chemical preservatives will be added to the sample bottles (prior to sample collection) by the analytical laboratory. The pH of samples will be spot-checked in the field and additional preservative will be added as needed. Sample preservation is checked upon sample receipt by the laboratory; this information is reported to GZA's Quality Assurance Officer (QAO) within two business days of sample receipt. If it appears that the level of chemical preservation added is not adequate, laboratory preservative preparation and addition will be modified or additional preservative will be added in the field by the sampling team.

3.2.3 Holding Times

Holding times are judged from the verified time of sample receipt (VTSR) by the laboratory; samples will be shipped from the field to arrive at the lab no later than 48 hours from the time of sample collection. Holding time requirements will be those specified in the NYSDEC ASP; it should be noted that for some analyses, these holding times are more stringent than the holding time for the corresponding USEPA method.

Although trip blanks are prepared in the analytical laboratory and shipped to the Site prior to the collection of environmental samples, for the purposes of determining holding time conformance, trip blanks will be considered to have been generated on the same day as the environmental samples with which they are shipped and delivered. Procurement of bottles and blanks will be scheduled to prevent trip blanks from being stored for excessive periods prior to their return to the laboratory; the goal is that trip blanks should be held for no longer than one week prior to use.

3.3 CHAIN OF CUSTODY AND SHIPPING

A chain-of-custody form will trace the path of sample containers from the project site to the laboratory. A sample Chain of Custody is included in Attachment B1, Field Forms. Sample/bottle tracking sheets or the chain-of-custody will be used to track the containers from the laboratory to the containers' destination. The project manager will notify the laboratory of upcoming field sampling events and the subsequent transfer of samples. This notification will include information concerning the number and type of samples, and the anticipated date of arrival. Insulated sample shipping containers (typically coolers) will be provided by the laboratory for shipping samples. All sample bottles within each shipping container will be

individually labeled with an adhesive identification label provided by the laboratory. Project personnel receiving the sample containers from the laboratory will check each cooler for the condition and integrity of the bottles prior to field work.

Once the sample containers are filled, they will be immediately placed in the cooler with ice (in Ziploc plastic bags to prevent leaking) or synthetic ice packs to maintain the samples at 4 °C. The field sampler will indicate the sample designation/location number in the space provided on the chain-of-custody form for each sample. The chain of custody forms will be signed and placed in a sealed plastic Ziploc bag in the cooler. The completed shipping container will be closed for transport with nylon strapping, or a similar shipping tape, and two paper seals will be affixed to the lid. The seals must be broken to open the cooler and will indicate tampering if the seals are broken before receipt at the laboratory. A label may be affixed identifying the cooler as containing "Environmental Samples" and the cooler will be shipped by an overnight delivery service to the laboratory. When the laboratory receives the coolers, the custody seals will be checked and lab personnel will sign the chain-of-custody form.

4.0 DATA QUALITY REQUIREMENTS

4.1 ANALYTICAL METHODS

Analyses for volatile and semi-volatile organic compounds, and inorganics (metals) will utilize NYSDEC Analytical Services Protocol (ASP) Superfund Contract Laboratory Program (CLP) methods:

CLP Volatile Organics	NYSDEC Method 95-1
CLP Semi-volatile Organics	NYSDEC Method 95-2
CLP PCBs/Pesticides	NYSDEC Method 95-3
CLP Metals	NYSDEC CLP-M Metals Methods[1]
Total Organic Carbon	SW846 Method 9060

[1] Analysis for arsenic, lead, selenium, and thallium will be by atomic absorption methods (CLP-M methods 206, 239, 270, and 279, respectively; or trace ICP if contract required detection limits (CRDLs) can be achieved. Analysis for mercury will be by CLP-M Method 245.1 or 245.2 (aqueous samples) or 245.5 (soil/sediment samples). Analysis for other TAL metals will be done by inductively coupled plasma (ICP), Method 200.7, CLP-M or by trace ICP.

Analytical methods used during this project are presented in the NYSDEC Analytical Services Protocol (ASP), October, 1995. Specific methods and references for each parameter are shown above. It is the laboratory's responsibility to be familiar with this document and procedures and deliverables within it pertaining to ERP work.

For the 312 Maple Street SI/RAR, a single laboratory (Mitkem) will be utilized for the soil and groundwater analysis. Centek Laboratories will be utilized for the collection and analysis of air samples. Both laboratories are certified by the NYSDOH Environmental Laboratory Approval Program and to be in good standing for all the ASP/CLP parameter groups.

4.2 QUALITY ASSURANCE OBJECTIVES

Data quality objectives (DQOs) for measurement data in terms of sensitivity and the PARCC parameters (precision, accuracy, representativeness, comparability, and completeness) are established so that the data collected are sufficient and of adequate quality for their intended uses. Data collected and analyzed in conformance with the DQO process described in this QAPjP will be used in assessing the uncertainty associated with decisions related to this Site.

4.2.1 Sensitivity

The sensitivity or detection limit desired for each analysis or compound is established by NYSDEC as part of the Analytical Services Protocol (ASP) Superfund Contract Laboratory Program (CLP). It is understood that such limits are dependent upon matrix interferences.

Volatile Organics (ASP method 95-1). The Contract Required Quantitation Limits (CRQLs) for all analytes is 10 µg/L (10 µg/kg for soil). The reporting limit for non-detected analytes is the CRQL. Based on laboratory method detection limit (MDL) studies, detected analytes will be reported down to 1 ug/L; analytes reported at concentrations below the CRQL will be flagged "J" (estimated) by the laboratory.

Volatile Organics (ASP method TO-15). The Contract Required Quantitation Limits (CRQLs) for air samples is 1 $\mu g/m^3$ or less to allow for comparison of the results to background levels. The reporting limit for non-detected analytes is the CRQL. Based on laboratory method detection limit (MDL) studies, detected analytes will be reported down to 0.1 $\mu g/m^3$; analytes reported at concentrations below the CRQL will be flagged "J" (estimated) by the laboratory.

Semi-volatile Organics (ASP method 95-2). The CRQLs for semi-volatile organic analytes is 10 µg/L (330 µg/kg for soil) for most analytes. (The CRQLs are 25 µg/L [aqueous] and 800 µg/kg [soil] for a few semi-volatiles.) The reporting limit for non-detected analytes is the CRQL. Detected semi-volatile analytes will be reported down to about one-tenth of the CRQL; analytes reported at concentrations below the CRQL will be flagged "J" (estimated) by the laboratory.

PCBs/Pesticides (ASP Method 95-3). The CRQLs for pesticides range from 0.05 ug/L to 0.5 ug/L, except for toxaphene. Toxaphene has a CRQL of 5.0 ug/L Corresponding soil CRQLs are 1.7 ug/kg to 17 ug/kg (170 ug/kg for toxaphene). CRQLs for PCBs are 1 ug/L (33 ug/kg for soil) except for Aroclor 1221, for which the CRQL is 2 ug/L (67 ug/kg soil). The reporting limit for detected and non-detected results is the CRQL.

Inorganics (Metals). The CRDLs for inorganics are analyte-specific. The laboratory is required to perform an instrument detection limit (IDL) study quarterly; the reporting limit for non-detected metals is the IDL. Metals concentrations between the IDL and the CRDL are flagged "J" by the laboratory.

4.2.2 Precision

The laboratory objective for precision is to equal or exceed the precision demonstrated for the applied analytical methods on similar samples. Precision is evaluated by the analyses of laboratory and field duplicates. Laboratory duplicate analyses will be performed once for every twenty samples for metals as specified in the NYSDEC ASP-CLP.

Relative Percent Difference (RPD) criteria, prescribed by the NYSDEC, and those determined from laboratory performance data, are used to evaluate precision between duplicates. A matrix spike duplicate will be performed once for every twenty samples for volatile organics.

Precision measures the reproducibility of measurements under a given set of conditions. Specifically, it is a quantitative measure of the variability of a group of measurements compared to their average value. Precision is usually stated in terms of standard deviation but other estimates such as the coefficient of variation, relative standard deviation, range (maximum value minus minimum value), and relative range are common, and may be used pending review of the data.

The overall precision of measurement data is a mixture of sampling and analytical factors. Analytical precision is easier to control and quantify than sampling precision; there are more historical data related to individual method performance and the "universe" is not limited to the samples received in the laboratory. In contrast, sampling precision is unique to each site or project.

Overall system (sampling plus analytical) precision will be determined by analysis of field duplicate samples. Analytical results from laboratory duplicate samples will provide data on measurement (analytical) precision.

Precision will be determined from field duplicates, as well as laboratory matrix duplicate samples for metals analyses, and matrix spikes and matrix spike duplicates for organic analyses; it will be expressed as the relative percent difference (% RPD):

$$\% \text{ RPD} = 100 \times 2(X_1 - X_2) / (X_1 + X_2)$$

where:

X_1 and X_2 are reported concentrations for each duplicate sample and subtracted differences represent absolute values.

Criteria for evaluation of laboratory duplicates are specified in the applicable methods. The objective for field duplicate precision is $\leq$ 50% RPD for all matrices.

4.2.3 Accuracy

The laboratory objective for accuracy is to equal or exceed the accuracy demonstrated for the applied analytical method on similar samples. Percent recovery criteria, published by the NYSDEC as part of the ASP, and those determined from laboratory performance data, are used to evaluate accuracy in matrix (sample) spike and blank spike quality control samples. A matrix spike and blank spike will be performed once for every sample delivery group (SDG) as specified in the ASP-CLP. This will apply to inorganics and volatile and semi-volatile organics analyses. Other method-specific laboratory QC samples (such as laboratory control samples for metals, and continuing calibration standards) may also be used in the assessment of analytical accuracy. Sample (matrix) spike recovery is calculated as:

$$\%R = (SSR-SR)/SA \times 100,$$

where

SSR = Spiked Sample Result
SR = Sample Result, and
SA = Spike Added

Accuracy measures the bias in a measurement system. It is difficult to measure accuracy for the entire data collection activity. Accuracy will be assessed through use of known QC samples.

Accuracy values can be presented in a variety of ways. Accuracy is most commonly presented as percent bias or percent recovery. Percent bias is a standardized average error, that is, the average error divided by the actual or spiked concentration and converted to a percentage. Percent bias is unitless and allows accuracy of analytical procedures to be compared.

Percent recovery provides the same information as percent bias. Routine organic analytical protocol requires a surrogate spike in each sample. Surrogate recovery will be defined as:

$$\% \text{ Recovery} = (R/S) \times 100$$

where

S = surrogate spike concentration
R = reported surrogate concentration

Recovery criteria for laboratory spikes and other laboratory QC samples through which accuracy may be evaluated are established in the applicable analytical method.

4.2.4 Representativeness

The representativeness of data is only as good as the representativeness of the samples collected. Sampling and handling procedures, and laboratory practices are designed to provide a standard set of performance-driven criteria to provide data of the same quality as other analyses of similar matrices using the same methods under similar conditions. Representativeness will be determined by a comparison of the quality controls for these samples against data from similar samples analyzed at the same time.

4.2.5 Comparability

Comparability of analytical data among laboratories becomes more accurate and reliable when all labs follow the same procedure and share information for program enhancement. Some of these procedures include:

- Instrument standards traceable to National Institute of Standards and Technology (NIST), the U.S. Environmental Protection Agency (EPA), or the New York State Departments of Health or Environmental Conservation;
- Using standard methodologies;
- Reporting results for similar matrices in consistent units;
- Applying appropriate levels of quality control within the context of the laboratory quality assurance program; and,
- Participation in inter-laboratory studies to document laboratory performance.

By using traceable standards and standard methods, the analytical results can be compared to other labs operating similarly. The QA Program documents internal performance. Periodic laboratory proficiency studies are instituted as a means of monitoring intra-laboratory performance.

4.2.6 Completeness

The goal of completeness is to generate the maximum amount possible of valid data. The highest degree of completeness would be to find all deliverables flawless, valid and acceptable. The lowest level of completeness is excessive failure to meet established acceptance criteria and consequent rejection of data. Due to the relatively large number of data points to be generated during the SI/RAR process, the completeness goal is 95% useable data. It is acknowledged that this goal may not be fully achievable; for example, individual analytes (e.g., 2-hexanone) may be rejected within an otherwise acceptable analysis. The impact of rejected or unusable data will be made on a case-by-case basis. If the SI/RAR can be completed without the missing datum or data, no further action would be necessary. However, loss of critical data may require resampling or reanalysis.

4.3 FIELD QUALITY ASSURANCE

Blank water generated for use during this project must be "demonstrated analyte-free". The criteria for analyte-free water is based on the EPA assigned values for the Contract Required Detection Limits (CRDLs) and CRQLs. If the levels of detection needed on a specific site are lower than the CLP CRDLs/CRQLs, then those levels are used to define the criteria for analyte-free water.

Volatile organics	< 10 µg/l
Semi-volatile organics	< 10 µg/l or 25 µg/l (analyte specific)
PCBs/Pesticides	<CRQL (analyte specific)
Inorganics	< CRDL

However, specifically for the common laboratory contaminants (acetone and 2-butanone) the allowable limits are five times the respective CRQLs. For methylene chloride, the limit is 2.5 times the CRQL.

The analytical testing required for the water to be demonstrated as analyte free must be performed prior to the start of sample collection; thus, blank water will be supplied by the laboratory.

4.3.1 Equipment (Rinsate) Blanks

Equipment blanks consist of demonstrated, analyte-free water that show if sampling equipment has the potential for contaminant carryover to give a false impression of contamination in an environmental sample. When blank water is used to rinse a piece of sampling equipment (before it is used to sample), the rinsate is collected and analyzed to see if sampling could be biased by contamination from the equipment.

Field Equipment (Rinsate) blanks for bailers: For initial sampling, as well as at subsequent rounds of sampling when bailers are reused, at least one of the bailers used per decontamination batch, will be used to generate equipment (rinsate) blanks during groundwater sampling. Disposable bailers will be obtained from a single vendor for this project. One rinsate blank will be collected for the groundwater sampling event.

One rinsate blank will be collected for every 20 probe samples collected or one per week whichever is more frequent. The rinsate blanks will be collected from the probe soil sampler and probe groundwater sampling equipment.

4.3.2 Field Duplicate Samples

Field duplicate samples are used to assess the variability of a matrix at a specific sampling point and to assess the reproducibility of the sampling method. For soil samples, these samples are separate aliquots of the same sample; prior to dividing the sample into "sample" and "duplicate" aliquots, the samples are homogenized (except for the VOC aliquots, which are not homogenized). Aqueous field duplicate samples are second samples collected from the same

location, at the same time, in the same manner as the first, and placed into a separate container (technically, these are co-located samples). Each duplicate sample will be analyzed for the same parameters as the original sample collected that day. The blind field duplicate Relative Percent Difference (RPD) objective will be ±50% percent RPD for all matrices. Field duplicates will be collected at a frequency of 1 per 20 environmental samples for both matrices (aqueous and non-aqueous) and test parameters.

4.3.3 Split Samples

Split samples are used for performance audits or inter-laboratory comparability of data. A split sample will be defined as at least two separate sub-samples taken from a single original sample which has been thoroughly mixed or homogenized prior to the formation of the split samples. The exception to this is samples for volatile organics analysis which will not be homogenized. Collection of split samples is not planned.

4.3.4 Trip Blanks

The purpose of a VOC trip blank (using demonstrated analyte-free water) is to place a mechanism of control on sample bottle preparation and blank water quality, and sample handling. The trip blank travels from the lab to the site with the empty sample bottles and back from the site with the collected samples. There will be a minimum of one trip blank per shipment containing aqueous samples for volatile organic compounds (VOCs) analysis. Trip blanks will be collected only when aqueous volatile organics are being sampled and shipped; except that a trip blank is not required when the only aqueous samples in a shipment are QC samples (rinsate blanks).

4.4 FIELD TESTING QC

Field testing of groundwater will be performed during purging of wells prior to sampling for laboratory samples. Field QC checks of control limits for pH, specific conductance (conductivity) and turbidity are detailed below. The calibration frequencies discussed below are the minimum. Field personnel can and should check calibration more frequently in adverse conditions, if anomalous readings are obtained, or subjective observations of instrument performance suggest the possibility of erroneous readings.

4.4.1 pH

The pH meter is calibrated twice daily (prior to initial use and midday), using two standards bracketing the range of interest (generally 4.0 and 7.0). If the pH QC control sample (a pH buffer, which may be the same or different than those used to initially calibrate the instrument) exceeds ± 0.1 pH units from the true value, the source of the error will be determined and the instrument recalibrated. If a continuing calibration check with pH 7.0 buffer is off by ± 0.1 pH units, the instrument will be recalibrated. Expired buffer solutions will not be used. A field pH Calibration Form is included in Attachment B-1.

Note that gel-type probes take longer to equilibrate (up to 15 minutes at near-freezing temperatures); this must be taken into account in calibrating the instrument and reading samples and standards.

4.4.2 Specific Conductivity

A vendor-provided conductivity standard will be used to check the calibration of the conductivity meter twice daily (prior to initial use and midday). Specific conductance QC samples will be on the order of 0.01 or 0.1 molar potassium chloride solutions in accordance with manufacturer's recommendations. A Field Specific Conductance Calibration Form is included in Appendix A.

4.4.3 Turbidity

The turbidity meter should be calibrated using a standard as close as possible to 50 NTU (the critical value for determining effectiveness of well development and evacuation). The turbidimeter will be calibrated/checked twice daily. The turbidity QC sample will be a commercially prepared polymer standard (Advanced Polymer System, Inc., or similar). A Field Turbidity Calibration Form is included in Attachment B-1.

4.4.4 Temperature

Temperature probes associated with instruments (such as the YSI SCT-33 conductivity and temperature meter) are not subject to field calibration, but the calibration should be checked to monitor instrument performance. It is recommended that the instrument's temperature reading be checked against a NBS-traceable thermometer concurrently with checking the conductivity calibration. The instrument manual will be referenced for corrective actions if accurate readings cannot be obtained. A Temperature Calibration Form is included in Appendix A.

4.5 LABORATORY QUALITY ASSURANCE

4.5.1 Method Blanks

A method blank is laboratory water on which every step of the method is performed and analyzed along with the samples. They are used to assess the background variability of the method and to assess the introduction of contamination to the samples by the method, technique, or instruments as the sample is prepared and analyzed in the laboratory. Method blanks will be analyzed at a frequency of one for every 20 samples analyzed or as otherwise specified in the analytical protocol.

4.5.2 Laboratory Duplicates

Laboratory duplicates are sub-samples taken from a single aliquot of sample after the sample has been thoroughly mixed or homogenized (with the exception of volatile organics), to assess the precision or reproducibility of the analytical method on a sample of a particular matrix. Laboratory duplicates will be performed on spiked samples as a Matrix Spike and a Matrix Spike Duplicate (MS/MSD) for volatile and semi-volatile organics, and as a Matrix Spike and Matrix Duplicate for metals.

4.5.3 Spiked Samples

Two types of spiked samples will be prepared and analyzed as quality controls: Matrix Spikes and Matrix Spike Duplicates (MS/MSD) are analyzed to evaluate instrument and method performance and performance on samples of similar matrix. MS/MSD will be analyzed at a frequency of one (pair) for every 20 samples. For metals, a matrix spike and matrix duplicate are analyzed for each set of 20 samples. In addition, matrix spike blanks (MSBs) will also be run by the lab as part of its NYSDEC CLP.

5.0 DATA DOCUMENTATION

5.1 FIELD NOTEBOOK

Field notebooks will be initiated at the start of on-site work. Each subcontractor in the field will have a notebook dedicated to record pertinent activities. In addition to any forms that will be filled out summarizing field work (and become part of the project file), legible photocopies of pertinent notebook pages will be submitted by the contractors with their finished written report or product. The field notebook will include the following daily information for site activities.

- Date;
- Meteorological conditions (temperature, wind, precipitation);
- Site conditions (e.g., dry, damp, dusty, etc.);
- Identification of crew members (GZA and subcontractor present) and other personnel (e.g., agency or site owner) present;
- Description of field activities;
- Location(s) where work is performed;
- Problems encountered and corrective actions taken;
- Records of field measurements, samples collected or descriptions recorded; and,
- Notice of modifications to the scope of work.

During drilling operations, the supervising field engineer/geologist will add the following information:

- Soil probe rig type;
- Documentation of materials used;
- Downtime;
- Time work is performed at an elevated or lowered level of respiratory protection;
- Description of soil or rock strata; and,
- Diagram of well or piezometer construction.

During sampling of wells and surface water, field samplers will add the following:

- Sampling point locations and test results such as pH, conductance, etc.
- Information about sample collection
- Chain of custody information, and
- Field equipment calibration.

During remedial excavations, field personnel will document excavation quantity, sampling measurements and soil disposal.

5.2 FIELD REPORTING FORMS

Field reporting forms (or their equivalent) to be utilized in this investigation are presented in Attachment B1. These include:

- Soil Probe & Piezometer Installation Log;
- Monitoring Well Field Measurements Log;
- Existing Well Assessment Form;
- Hydraulic Conductivity Test Form;
- Sample Collection Log;
- Chain of Custody Form;
- pH Calibration Log;
- Specific Conductance Calibration Log;
- Turbidity Calibration Log; and,
- Temperature Calibration Log.

These forms, when completed, will become part of the project file.

6.0 EQUIPMENT CALIBRATION AND MAINTENANCE

6.1 STANDARD WATER AND AIR QUALITY FIELD EQUIPMENT

Field equipment used during the collection of environmental samples include: turbidimeter (turbidity per EPA Method 180.1), pH meter (pH per EPA Method 150.1), conductivity meter (specific conductance per EPA Method 120.1), thermometer, and photoionization detector. See also Section 4.4 of this QAPjP for additional discussion.

Calibration and standardization for the field water quality tests will be in conformance with the manufacturers recommendations.

The pH meter will be recalibrated (two points) at least two times daily and it will be checked with pH 7.0 buffer every five samples, two hours, or every time it has been turned off for more than two hours and then turned on, whichever occurs first.

The calibration of the specific conductance meter will be checked twice daily (at the beginning and in the middle of the work day).

Temperature will be measured with an NBS/NIST traceable thermometer, or with a platinum electrode, factory calibrated and coupled to the conductivity meter, or similar meter.

The HNu-PI 101 (or equivalent organic vapor analyzer) use for soil screening and health and safety air monitoring will be calibrated following the manufacturer's instructions, at the beginning of the day, whenever the instrument is shut off for more than two hours, and at the field technician's discretion.

6.2 LABORATORY EQUIPMENT

Laboratory equipment will be calibrated according to the requirements of the 1995 Revised NYSDEC ASP, Superfund Contract Laboratory Program for each parameter or group of similar parameters, and maintained following professional judgment and the manufacturer's specifications.

7.0 CORRECTIVE ACTIONS

If instrument performance or data fall outside acceptable limits, then corrective actions will be taken. These actions may include recalibration or standardization of instruments, acquiring new standards, replacing equipment, repairing equipment, and reanalyzing samples or redoing sections of work.

Subcontractors providing analytical services should perform their own internal laboratory audits and calibration procedures with data review conducted at a frequency so that errors and problems are detected early, thus avoiding the prospect of redoing large segments of work.

Situations related to this project requiring corrective action will be documented and made part of the project file. For each measurement system identified requiring corrective action, the responsible individual for initiating the corrective action and also the individual responsible for approving the corrective action, if necessary, will be identified.

As part of its total quality management program, GZA makes the results of laboratory audits and data validation reports available to the analytical laboratories. The laboratories are therefore made aware of non-critical items and areas where improvement may be made in subsequent NYSDEC ASP work.

8.0 DATA REDUCTION, VALIDATION, AND REPORTING

The guidance followed to perform quality data validation, and the methods and procedures outlined herein pertain to initiating and performing data validation, as well as reviewing data validation performed by others (if applicable). An outline of the data validation process is presented here, followed by a description of data validation review summaries.

8.1 LABORATORY DATA REPORTING AND REDUCTION

The laboratory will meet the applicable documentation, data reduction, and reporting protocols as specified in the 1995 revision of the NYSDEC ASP CLP. Laboratory data reports for non-CLP data will conform to NYSDEC Category B deliverable requirements. With full CLP documentation, deliverables will include, but not be limited to:

Organics	**Inorganics**
Chains of Custody	Chains of Custody
Blanks	Holding Times
Holding Times	Blanks
Internal Standards	Furnace AA QC

Laboratory Duplicates	CRDL Standards
Tentatively Identified Compounds	ICP Serial Dilutions
GC/MS Instrument Performance Check	Laboratory Control Samples
System Monitoring Compound Recovery	Laboratory Duplicates
Matrix Spike & Matrix Spike Duplicates	ICP Interference Check
GC/MS Tuning	Spiked Sample
Surrogate Recoveries	Recovery

Copies of the laboratory's generic Quality Assurance Plan (QAP), and the audit performed by Copies of the laboratory's generic Quality Assurance Plan (QAP) will be on file at GZA. The laboratory's QAP will indicate the standard methods and practices for obtaining and assessing data, and how data are reduced from the analytical instruments to a finished report, indicating levels of review along the way.

In addition to the hard copy of the data report, the laboratory will be asked to provide the sample data in spreadsheet form on computer diskette. The diskette will be generated to the extent possible directly from the laboratory's electronic files or information management system to minimize possible transcription errors resulting from the manual transcription of data.

8.2 DATA VALIDATION DATA USABILITY SUMMARY REPORT

CLP data will be validated by a standby subcontractor. Data validation will be performed by following guidelines established in the US EPA Region 2 SOP No. HW-6, "CLP Organics Data Review" (Revision No. 8, January 1992); and SOP No. HW-2, "Evaluation of Metals Data for the Contract Laboratory Program (CLP)" (based on SOW 3/90; January 1992). These documents are check lists which are designed to formally and rigorously assess the quality and completeness of CLP data packages. The use of these USEPA SOPs will be adapted to conform to the specific requirements of the NYSDEC ASP (e.g., NYSDEC/ASP holding times; matrix spike blank requirements). Where necessary and appropriate, supplemental validation criteria may be derived from the EPA Functional Guidelines (USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review, Publication 9240.1-05, EPA-540/R-94/012, February, 1993; and USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review, Publication 9240.1-05-01; EPA-540/R-94/013, PB94-963502, February, 1994).

Validation reports will consist of text results of the review and marked up copies of Form I (results with qualifiers applied by the validator). Validation will consist of target and non-target compounds with corresponding method blank data, spike and surrogate recoveries, sample data, and a final note of validation decision or qualification, along with any pertinent footnote references. Qualifiers applied to the data will be documented in the report text.

There may be some analyses for which there is no established USEPA or NYSDEC data validation protocol. In such cases, validation will be based on the EPA Region II SOPs and EPA Functional Guidelines as much as possible, as well as the laboratory's adherence to the technical requirements of the method, and the professional judgment of the validator. The degree of rigor in such validation will correspond to the nature of the data and the significance of the data and its

intended use. Unless otherwise requested, non-CLP data (e.g., total organic carbon) is not subject to validation.

8.3 DATA USABILITY

Subsequent to review of the items evaluated in the subcontractor data validator reports and accompanying tables, GZA's QA staff then prepares a brief data usability summary. The data usability summary, which will be provided as part of the RAR, encompasses both quantitative and qualitative aspects, although the qualitative element is the most significant.

The quantitative aspect is a summary of the data quality as expressed by qualifiers applied to the data; the percent rejected, qualified (i.e., estimated), missing, and fully acceptable data are reported. As appropriate, this quantitative summary is broken down by matrix, laboratory, or analytical fraction or method.

The qualitative element of the data usability summary is the QA officer's translation and summary of the validation reports into a discussion useful to data users. The qualitative aspect will discuss the significance of the qualifications applied to the data, especially in terms of those most relevant to the intended use of the data. The usability report will also indicate whether there is a suspected bias (high or low) in qualified data, and will also provide a subjective overall assessment of the data quality. If similar analyses are performed by more than one method, a discussion of the extent of agreement among the various methods will be included, as well as discussion of any discrepancies among the data sets. The QAO will also indicate if there is a technical basis for selecting one data type over another for multiple measurements which are not in agreement.

Non-CLP data which has not been validated and field data used for the SI will be discussed in the data usability summary.

8.4 FIELD DATA

Field chemistry data collected during air monitoring, soil screening (e.g., HNu readings), and water monitoring (i.e., pH, turbidity, specific conductance, and temperature) will be presented in tabular form with any necessary supporting text. Unless activities resulted in significant unexpected results, field data comments can be added as footnotes to the tables.

9.0 PERFORMANCE AND SYSTEM AUDITS

As part of the laboratory subcontractor procurement process under the Broome County ERP, the laboratory assigned to this project has been verified to be certified by the NYSDOH Environmental Laboratory Approval Program for the analytical protocols to be used. Therefore, no audit of the laboratory(s) during the RI will be performed unless warranted by a problem(s) that cannot be resolved by any other means, or at the discretion of GZA and NYSDEC.

10.0 QUALITY ASSURANCE REPORTS TO MANAGEMENT

Monthly project status reporting to the NYSDEC will include aspects of quality control that were pertinent during the month's activities. Problems revealed during review of the month's activities will be documented and addressed. These reports will include a description of completed and on-going activities and an indication how each task is progressing relative to the project schedule.

The project manager, through task managers, will be responsible for verifying that records and files related to this project are stored appropriately and are retrievable.

The laboratory will submit memoranda or correspondence related to quality control of this project's samples as part of its deliverables package.

TABLES

Table 1
Site Investigation / Remedial Alternative Report
Proposed Analytical Testing Program Summary
312 Maple Street
Endicott, New York

Location	Matrix	TCL VOCs	TCL SVOCs	TAL Metals	TCL PCBs	Full TCLP and C/R/I	TOC
IRM Confirmatory Samples							
Various[1]	Soil	12	12	12	12	0	0
Total		12	12	12	12	0	0
Waste Characterization							
Composite Sample	Soil	5	3	3	2	2	0
Dry Well Investigation							
Dry Well #1	Soil	8	8	8	8	0	0
Dry Well	Air[2]	2	0	0	0	0	0
Groundwater	Water	2	2	2	2	0	0
QA/QC Samples	Soil	4	4	4	4	0	0
Total		16	14	14	14	0	0
Surface and Subsurface Investigation							
Various[1]	Soil	11	11	4	0	0	10
QA/QC Samples	Soil	4	4	4	0	0	0
Total		15	15	8	0	0	10
Indoor Air/Sub Slab/Vadose Zone Air Sampling							
Ambient Air	Air[2]	4	0	0	0	0	0
Sub Slab Air	Air[2]	3	0	0	0	0	0
Vadose Zone	Air[2]	8	0	0	0	0	0
QA/QC Samples	Soil	3	0	0	0	0	0
Total		18	0	0	0	0	0
Groundwater Samples							
Monitoring Wells	Groundwater	5	5	5	5	0	0
QA/QC Samples	Groundwater	4	4	4	4	0	0
Trip[3]	Water	1	0	0	0	0	0
Total		10	9	9	9	0	0

Notes:
1) Actual sample location to be selected based on field observation.
   QA/QC Samples include blind duplicate, matrix spike, matrix spike duplicate and rinsate samples
   TCL VOCs - Target Compound List Volatile Organic Compounds.
   TCL SVOCs - Target Compound List Semi-volatile Organic Compounds.
   TAL Metals - Target Analyte List Metals.
   TCL Pesticides - Target Compound List Pesticides.
   TCL PCBs - Target Compound List Polychlorinated Biphenyls.
   TOC is total organic carbon
   TCLP - Toxic Characteristic Leaching Procedure
2) Air samples tested for VOCs via EPA Method TO-15
3) Trip - Trip Blank sample

Table 2
312 Maple Street Site
Quality Assurance Project Plan
Summary of Container, Preservation and Holding Time Requirements

Analysis	Method	Holding Time (days)		Containers		Preservative
		To Extraction	To Analyze	Number	Type	
Soil Samples						
TCL Volatiles	NYSDEC Method 95-1 (a)		7	1	L	Cool
TCL Semivolatiles	NYSDEC 95-2 (a)	5	40	1	J[1]	Cool
Cyanide	US EPA Method 335.2		12	1	J[1]	Cool
PCBs/Pesticides	NYSDEC 95-3 (a)	5	40	1	J[1]	Cool
TOC	SW 846 Method 9060 (b)		28	1	J[1]	Cool
TAL Metals	NYSDEC Metals Methods (a)		26/6 mo {c}	1	J[1]	Cool
Grain Size/Atterberg Limits	ASTM D422/4318			1	K	None
Aqueous Samples						
TCL Volatiles	NYSDEC Method 95-1 (a)		7	2	G	Cool
TCL Semivolatiles	NYSDEC 95-2 (a)	5	40	2	H	Cool
TAL Metals	NYSDEC Metals Methods (a)		26/6 mo {c}	1	I	HNO3
Cyanide	US EPA Method 335		12	1	I	NaOH
PCBs/Pesticides	NYSDEC 95-3 (a)	5	40	2	H	Cool

Notes:

Analytical Methods

(a) NYSDEC Analytical Services Protocol (ASP), October, 1995.

(b) Test Methods for Evaluating Solid Waste, November, 1986, SW-846, Third Edition.

Holding Times

{a} Holding Times presented in calendar days unless otherwise specified. Holding times are calculated from verified time of receipt at the laboratory. Samples must be received by the laboratory within 48 hours of sampling.

{b} Where two holding times are presented, separated by "/", the shorter holding time applies only to certain analytes included on the list.

{c} Holding time for mercury is 26 days; all other inorganics, 6 months.

Container Types

G - 40 ml glass, Teflon septum cap liner

H - 1000 ml glass, Teflon cap liner

I - 500 ml, polyethylene, Teflon cap liner

J - 8 oz. wide mouth glass, Teflon cap liner

K - 32 oz. wide mouth glass, plastic or metal cap

L - 4 oz. amber, Teflon cap liner

Preservatives

Cool - Cool to 4 degrees Celsius

HNO3 - Nitric Acid to <2 pH

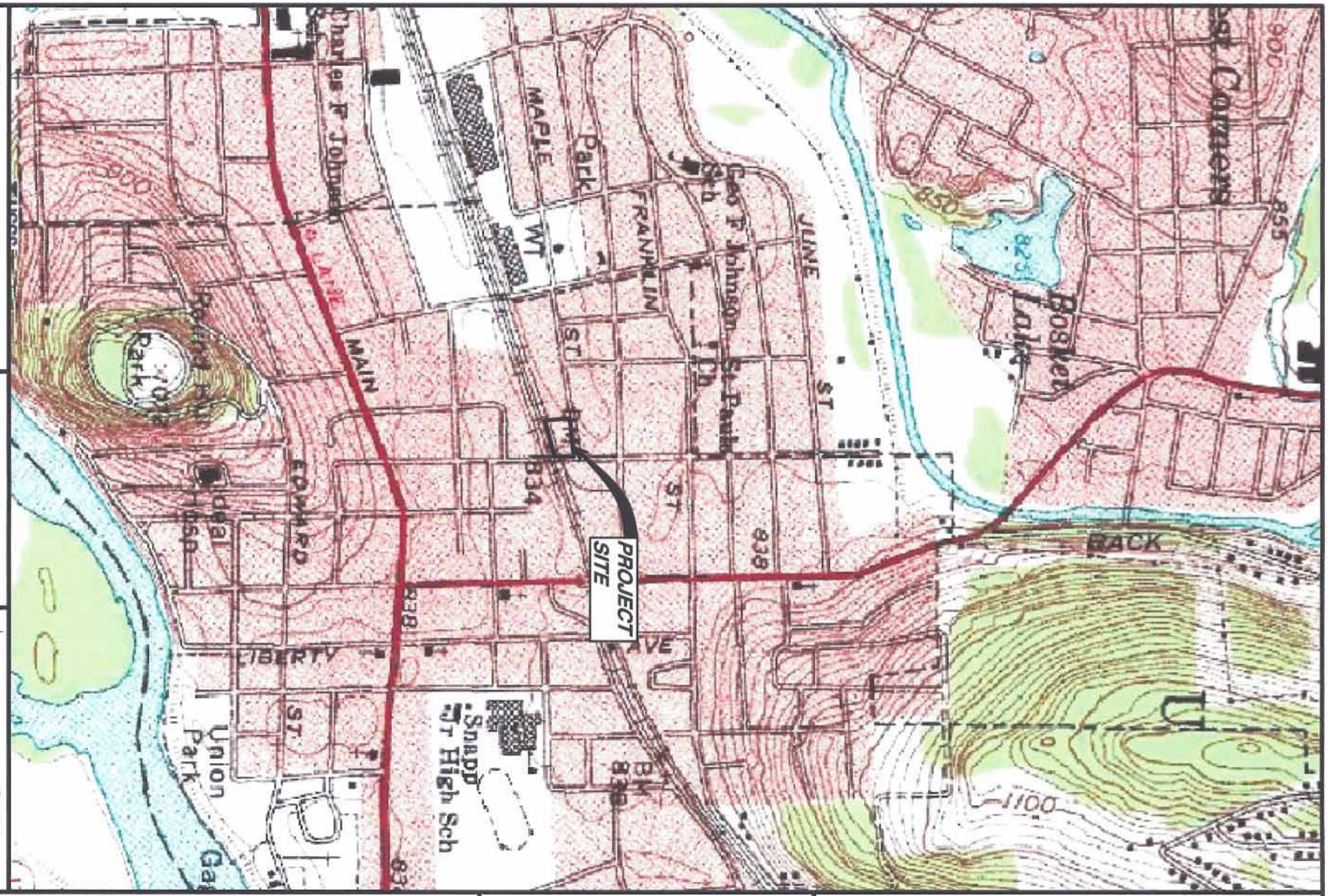
NaOH - Sodium Hydroxide to >12pH

HCl - Hydrochloric acid to pH<2

1) Only two containers are required when collecting samples for all of the indicated analytes.

FIGURES

NOTE:
BASE MAP ADAPTED FROM U.S.G.S. TOPOGRAPHIC MAPS DOWNLOADED FROM TERRASERVER.MICROSOFT.COM



BROOME COUNTY DEPARTMENT OF PLANNING AND ECONOMIC DEVELOPMENT

312 MAPLE STREET
VILLAGE OF ENDICOTT, NEW YORK

QUALITY ASSURANCE PROJECT PLAN

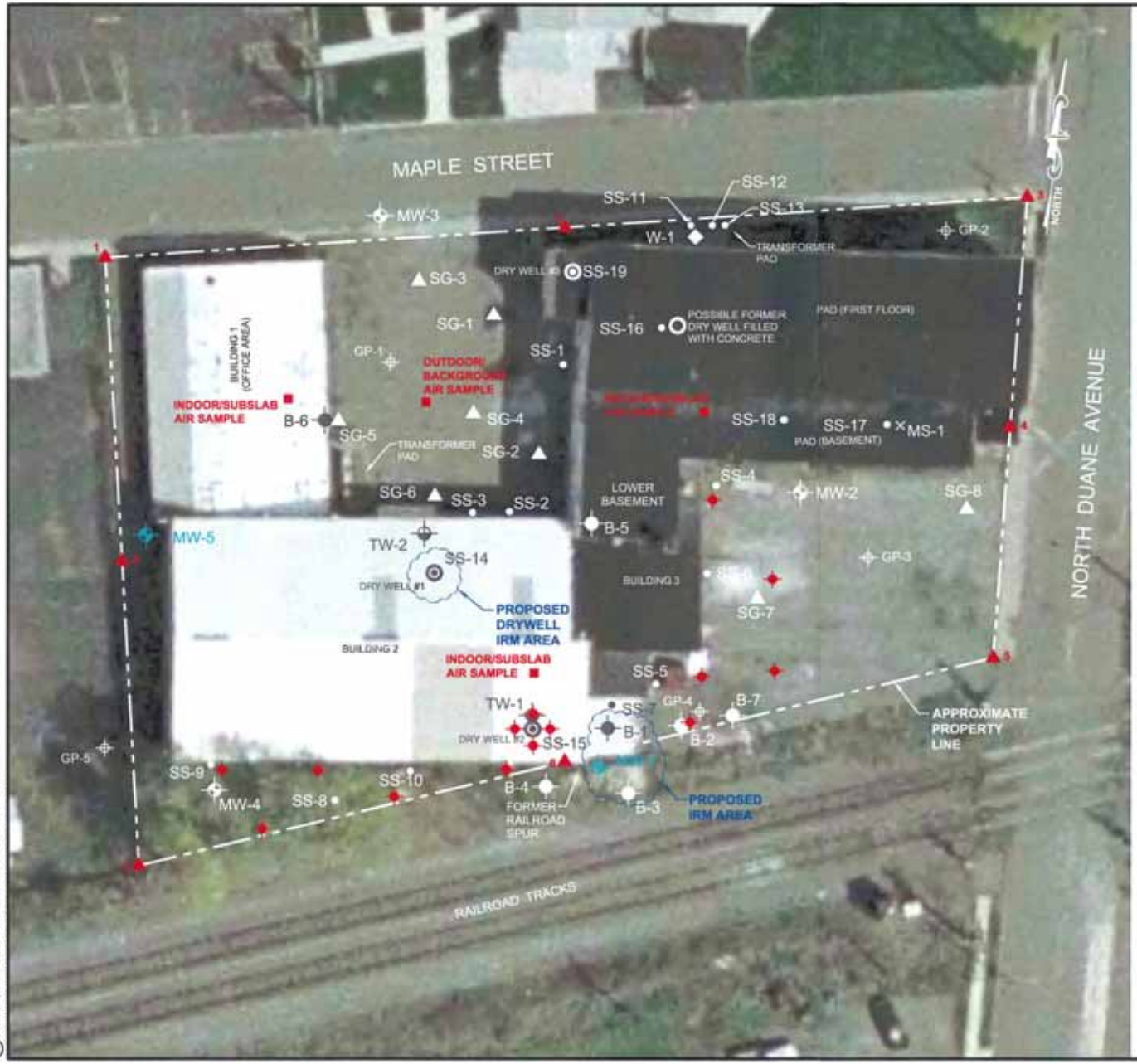
LOCUS PLAN

SCALE IN FEET
0 500 1000 2000

DRAWN BY: **DEW**
DATE: **SEPTEMBER 2005**

GZA GeoEnvironmental of New York

PROJECT No. **21.0056127.00**
FIGURE No. **1**



LEGEND:

- INDOOR/SUBSLAB AIR SAMPLE ■ — APPROXIMATE LOCATION AND DESIGNATION OF PROPOSED AIR SAMPLE
- ✦ — APPROXIMATE LOCATION OF PROPOSED SOIL PROBE
- 7▲ — APPROXIMATE LOCATION AND DESIGNATION OF PROPOSED VADOSE ZONE SOIL GAS POINT
- MW-5 — APPROXIMATE LOCATION AND DESIGNATION OF PROPOSED MONITORING WELL
- B-1 — APPROXIMATE LOCATION AND DESIGNATION OF PREVIOUS SUPPLEMENTAL TEST BORING
- TW-1 — APPROXIMATE LOCATION AND DESIGNATION OF PREVIOUS SUPPLEMENTAL TEMPORARY MONITORING WELL
- GP-1 — APPROXIMATE LOCATION AND DESIGNATION OF GEOPROBE LOCATION PERFORMED BY OTHERS WITH GROUNDWATER TEST RESULTS
- MW-3 — APPROXIMATE LOCATION AND DESIGNATION OF EXISTING MONITORING WELL
- • SS-1 — APPROXIMATE LOCATION AND DESIGNATION OF PREVIOUS SURFACE SOIL/SLUDGE SAMPLE
- ▲ SG-1 — APPROXIMATE LOCATION AND DESIGNATION OF PREVIOUS SOIL GAS SAMPLING POINT
- ◆ W-1 — APPROXIMATE LOCATION AND DESIGNATION OF PREVIOUS WIPE SAMPLE
- × MS-1 — APPROXIMATE LOCATION AND DESIGNATION OF PREVIOUS MEMBRANE SAMPLE

NOTES:

1. BASE MAP ADAPTED FROM A 2002 AERIAL PHOTOGRAPH DOWNLOADED FROM http://www.nysgis.state.ny.us/gateway/mg/interactive_main.html AND FIELD OBSERVATIONS.

2. THE SIZE AND LOCATION OF EXISTING SITE FEATURES SHOULD BE CONSIDERED APPROXIMATE.

DRAWN BY: DEW
DATE: SEPTEMBER 2005

GZA GeoEnvironmental of New York

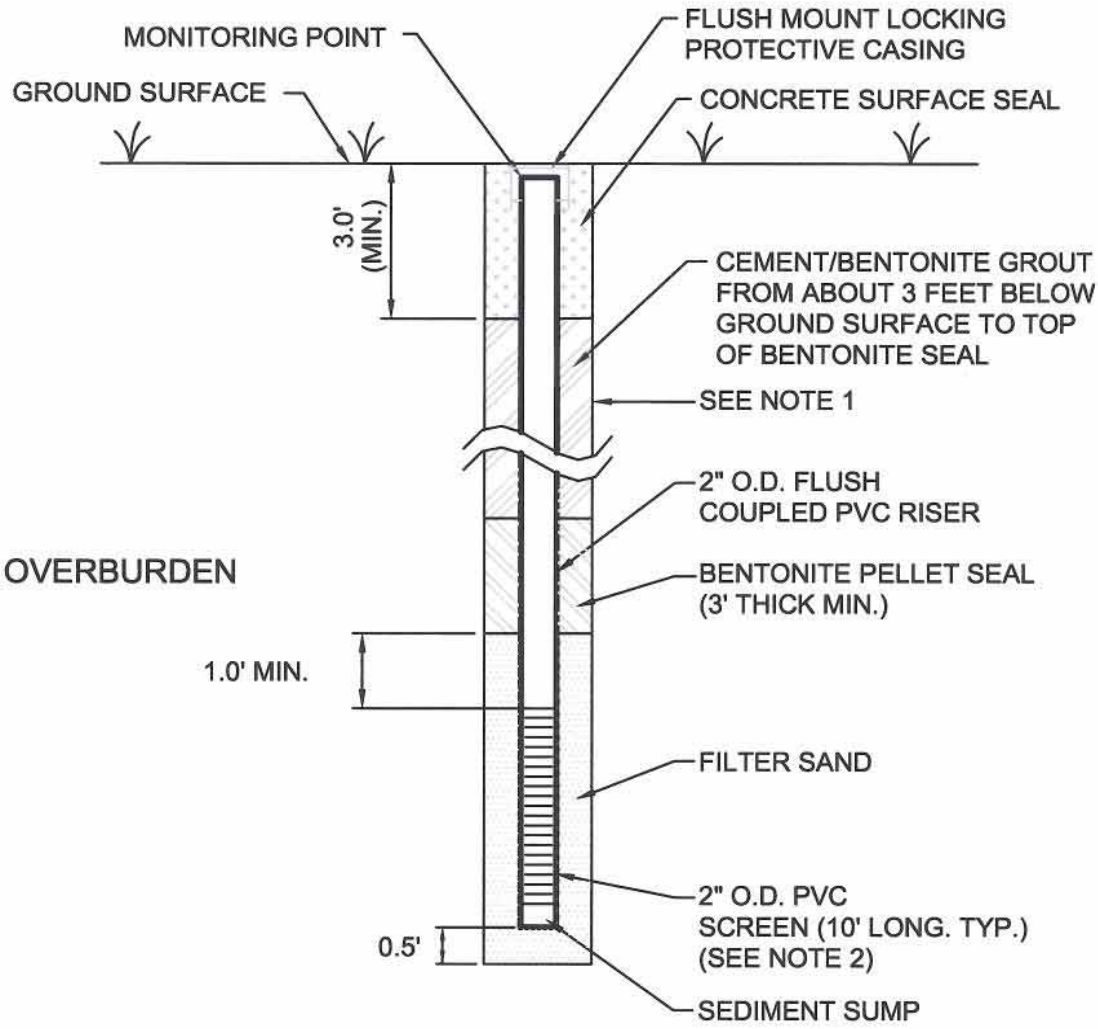
APPROXIMATE SCALE IN FEET
0 15 30 60

BROOME COUNTY DEPARTMENT OF PLANNING AND ECONOMIC DEVELOPMENT
312 MAPLE STREET
VILLAGE OF ENDICOTT, NEW YORK

QUALITY ASSURANCE PROJECT PLAN
SITE PLAN

PROJECT No.
21.0056127.00

FIGURE No.
2



NOTES:

1. OVERBURDEN DRILLED WITH 4-1/4 INCH HOLLOW STEM AUGERS ON A ROTARY RIG.

2. WELL SCREEN SHALL BE 0.01 INCH FACTORY SLOTTED.

DRAWN BY: DEW

DATE: SEPTEMBER 2005

GZA GeoEnvironmental of New York

SCALE IN FEET

NOT TO SCALE

BROOME COUNTY DEPARTMENT OF PLANNING AND ECONOMIC DEVELOPMENT

312 MAPLE STREET

VILLAGE OF ENDICOTT, NEW YORK

QUALITY ASSURANCE PROJECT PLAN

PROPOSED MONITORING WELL INSTALLATION DIAGRAM

PROJECT No.

21.0056127.00

FIGURE No.

3

ATTACHMENT B1

FIELD FORMS

File: Page

Preliminary Site Assessment
Sample Collection Log
[Site]
[Location]

Sample Identification		Miscellaneous	
Sample Location		Weather Conditions	
Sample Type		Chain-of-Custody Completed (yes/no)	
Sample Code		Sample Containers Labeled (yes/no)	
Date		Shipping Containers Sealed (yes/no)	
Time		Trip Blank Identification	
GZA Representatives:		Field Blank Identification	

General

Sample Collection Equipment

Decontamination Procedure

Sample Collection Procedure

Field Measurement Equipment Used and Calibration Information

pH
Specific Conductance
Temperature
Turbidity
Other Equipment

Requested Testing

Container	Preservative	TCL VOCs	TCL Semi-VOCs	TCL PCBs	TCL Pesticides	TAL Metals	Hardness	TOC											

Summary of Field Measurements

Depth to Water	Cumulative Volume Purged	pH (Standard Units)	Specific Conductance (uMhos/cm)	Temperature (^{o}C)	Turbidity (NTU)	Other

Notes

GZA GeoEnvironmental of New York

GZA GEOENVIRONMENTAL OF NEW YORK
364 NAGEL DRIVE, BUFFALO, NEW YORK

ENGINEERS AND SCIENTISTS

PROJECT
[Site]
[Location]

BORING No.
SHEET 1 OF 1
FILE No.
CHECKED BY :

CONTRACTOR _____ BORING LOCATION _____
DRILLER _____ GROUND SURFACE ELEVATION _____ DATUM _____
START DATE _____ END DATE _____ GZA GEOENVIRONMENTAL REPRESENTATIVE

WATER LEVEL DATA

DATE	TIME	WATER	CASING	NOTES

TYPE OF DRILL RIG _____
CASING SIZE AND DIAMETER _____
OVERBURDEN SAMPLING METHOD _____
ROCK DRILLING METHOD _____

DEPTH	SAMPLE BLOWS (/6")	NO.	DEPTH (FT)	N-VALUE /RQD %	RECOVERY (%)	SAMPLE DESCRIPTION	EQUIPMENT DESCRIPTION		OVM (ppm)
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									

S - Split Spoon Sample
C - Rock Core Sample

NOTES:

General Notes:
1) Stratification lines represent approximate boundary between soil types, transitions may be gradual.
2) Water level readings have been made at times and under conditions stated, fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

File: Job No. Page: _____

Project Name

Summary of Field Groundwater Quality Measurements

Well Identification		Well Elevation		Well Construction	
Monitoring Well :		Ground Surface Elevation:		Riser/Screen Material:	
Installation Date:		Protective Casing Elevation:		Top of Intake Depth:	
Installed By:		Monitoring Point Elevation:		Bottom of Intake Depth:	
		Elevation Datum:			

Date	Time	Depth to Water	Cumulative Volume Purged	pH (Standard Units)	Specific Conductance (uMhos/cm)	Temperature (°C)	Turbidity (NTU)	Color	Notes

GZA GeoEnvironmental of New York

File: Page: _____

Project Name
Existing Well Assessment - _____

Historic Information

Boring Log Available (yes/no/attached):
Installation Log Available (yes/no/attached)

Summary

Monitoring Well :	_____	Ground Surface Elevation:	_____	Riser/Screen Material:	_____
Installation Date:	_____	Protective Casing Elevation:	_____	Top of Intake Depth:	_____
Installed By:	_____	Monitoring Point Elevation:	_____	Bottom of Intake Depth:	_____
		Elevation Datum:			

Previous Field measurement Information Available (yes/no/attached)

Ranges of Previous Field Measurements

Depth to Water (ft)	pH (Standard Units)	Specific Conductance (uMhos/cm)	Temperature (°C)	Turbidity (NTU)	Color

Notes:

Field Observations

Exterior Observations: _____

Interior Observations _____

Signs of Damage/Tampering:

Locked (yes/no)	Well Cap (yes/no)	Surface Seal Intact (yes/no)	PID Measurement:	Odors:

Well Development

Date	Time	Depth to Water	Cumulative Volume Purged	pH (Standard Units)	Specific Conductance (uMhos/cm)	Temperature (°C)	Turbidity (NTU)	Color	Notes

File: Page:

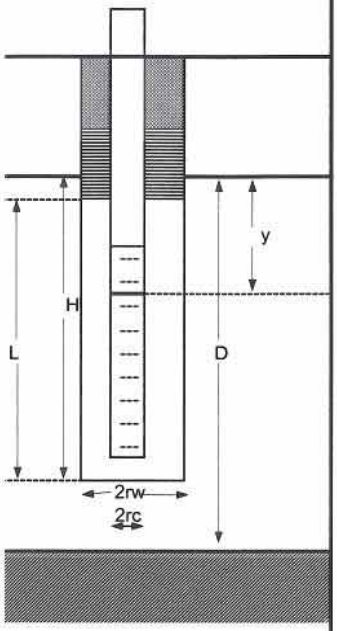
(Project)
Hydraulic Conductivity Test - _____

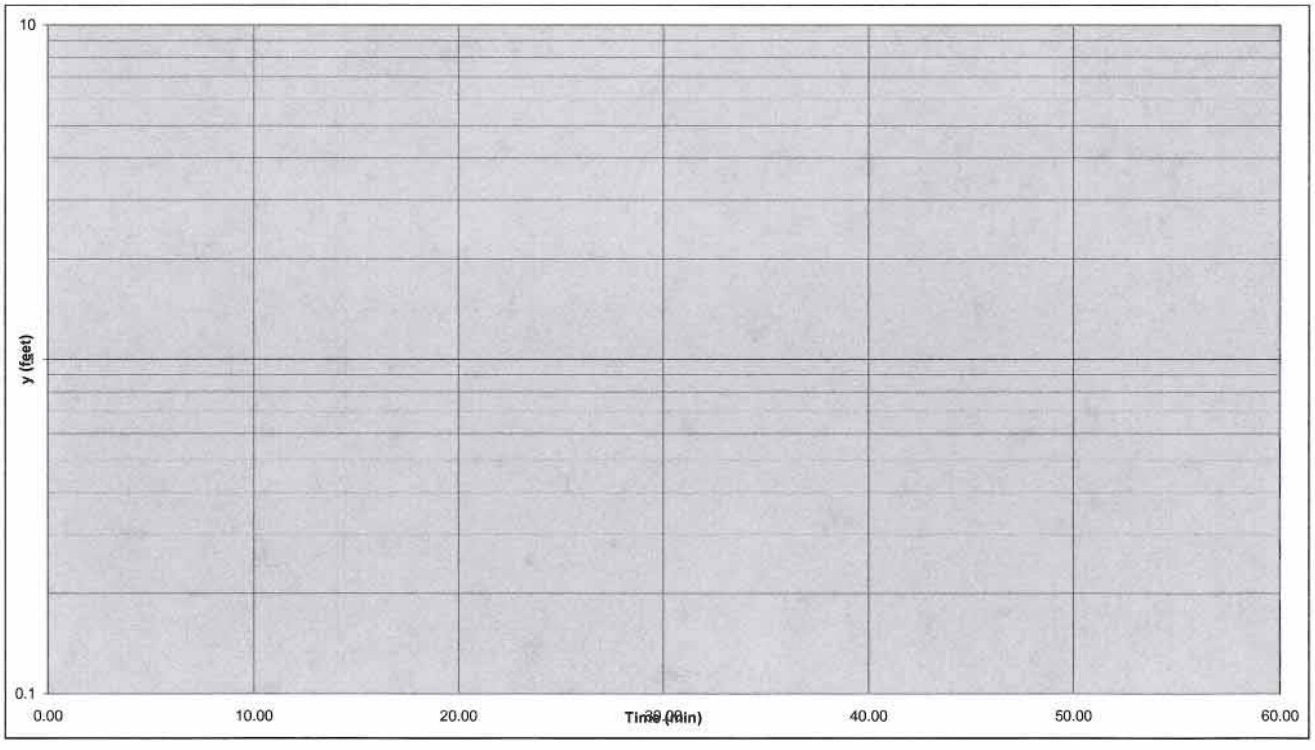
Well Identification		Test Information		Well Construction	
Monitoring Well :		GZA Representative:		Top of Intake Depth:	
Installation Date:		Test Date:		Bottom of Intake Depth:	
Installed By:		Weather Conditions:		Screened Zone:	
				Confined/Unconfined	

Test Data

Time (hr/min/sec)			Time (min)	Water Level (feet)	Drawdown = y (feet)

Well Configuration	
L (ft) =	
H (ft) =	
D (ft) =	
rw (ft) =	
rc (ft) =	





Thermometer Calibration Worksheet

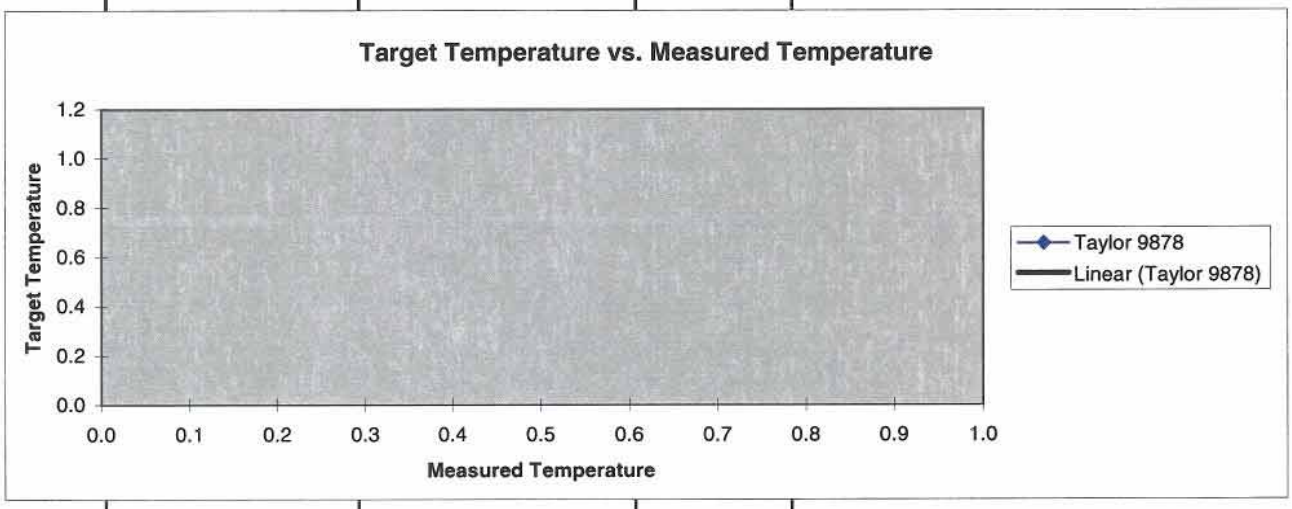
Project: **GZA File :**

Location: **Sample Collection Date:**

Thermometer Model:

Calibration (1)

Date	Target Temperature (C)	Observed Temperature (C)	Analyst's Initials	Remarks



Notes:

1) These calibrations were done in accordance with the NYSDOH's Environmental Laboratory Approval Program (ELAP manual, item 231 revised as of April 1, 1986)
2) Target temperature is the temperature of the National Bureau of Standards (NBS) traceable thermometer. The NBS thermometer was certified on July 11, 1985 and checked at the ice point on September 19, 1988.
3) The observed tempertature is the tempeature of the calibrated thermometer.
4) The correction factor of the calibrated thermometer is:

Corrected tamperature = 0.988 X Observed Temperature + 0.3774

Turbidity Meter Calibration Worksheet

Project:	**GZA File :**
Location:	**Sample Collection Date:**
Conductivity Meter Model:	

Calibration (1)

Date	Target Value (2) (uMhos/cm)	Actual Reading (uMhos/cm)	Analyst's Initials	Remarks

Notes:

1) Calbration done in accordance with manufacturers recommendations.
2) Target value of standards provided by manufacturer.

pH Meter Calibration Worksheet

Project:	**GZA File :**
Location:	**Sample Collection Date:**
pH Meter Model:	

Calibration (1)

Date	Temperature	Set Points (2) (pH units)	Target Value (3) (pH units)	Actual Reading (4) (pH units)	Analyst's Initials	Remarks

Notes:

1) These calibrations were done in accordance with the NYSDOH's Environmental Laboratory Approval Program (ELAP manual, item 231 revised as of April 1, 1986)

2) For a one point calibration, the set point is the pH of the standard buffer solution used to initially calibrate the meter. For a two point calibration, the set points are the pH of the standard buffers used to calibrate the slope of the pH meter.

3) For a one point calibration, the target values are the pH of the standard buffers used to check the slope of the pH meter. For a two point calibration, the target value is the pH of the standard buffer used to check the initial calibration.

4) The accepted accuracy for the readings using a one point calibration is +/- 0.2 pH units. The accepted accuracy for the actual reading using a two point calibration is +/- 0.05 pH units of the target value.

Conductivity Meter Calibration Worksheet

Project:	**GZA File :**
Location:	**Sample Collection Date:**
Conductivity Meter Model:	

Calibration (1)

Date	Temperature (C)	Target Value (2) (uMhos/cm)	Actual Reading (uMhos/cm)	Analyst's Initials	Remarks

Notes:

1) Calibrations done in accordance with manufacturers recommendations and is completed by adjusting the meter to a standard of known specific conductance. The standard is selected to be as close to the sample measurement as possible.
2) Target value is the specific conductance of the standard solution.

ATTACHEMENT C

HEALTH AND SAEETY PLAN

SITE INVESTIGATION/REMEDIAL ALTERNATIVE REPORT
312 MAPLE STREET
ENDICOTT, NEW YORK
SITE NO. B00168-7

SITE INVESTIGATION/REMEDIAL ALTERNATIVE REPORT
HEALTH AND SAFETY PLAN
312 MAPLE STREET
ENDICOTT, NY
SITE #B00168-7

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SITE INVESTIGATION/REMEDIAL ALTERNATIVE REPORT
HEALTH AND SAFETY PLAN
312 MAPLE STREET
ENDICOTT, NY
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HEALTH AND SAFETY PLAN
312 MAPLE STREET
ENDICOTT, NY
SITE #B00168-7

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1.0 INTRODUCTION

1.1 OVERVIEW

This Site-Specific Health and Safety Plan (HASP) has been developed by GZA GeoEnvironmental of New York (GZA) to establish the health and safety procedures required to protect on-site personnel, and off-site receptors from potential hazards resulting from activities within the specified scope at the 312 Maple Street Site in Endicott, New York (Site). The provisions of this plan apply to all GZA personnel who may be exposed to safety and/or health hazards related to activities described in Section 3.0 of this document. The procedures in this plan have been developed based on current knowledge regarding the hazards, which are known or anticipated for the operations to be conducted at this site.

The following sections (1.1.1 to 1.2) present a brief summary of information from the body of this HASP. This information is intended as a guide to assist the reader and is not intended to be all inclusive.

1.1.1 Project Scope

This project involves activities that include existing monitoring well sampling and assessment, soil excavation as pat of an interim remedial measure, completion of soil probes and test borings, monitoring well installation, groundwater sampling and soil gas/vadose zone survey. The exclusion zones for these activities are expected to be variable and temporary in accordance with planned daily activities. A more detailed description of work to be completed at the Site is included in the Field Activities Plan (FAP).

1.1.2 Site Hazards

The primary hazards anticipated at the site are the physical hazards associated with operation of mechanical equipment (e.g., drill rig, dumptrucks, backhoe, etc.), including noise exposure. However, since GZA personnel will not be involved with the actual operation of large mechanical equipment (i.e., drill rig and backhoe) or direct supervision of drilling crew and backhoe operator, exposure to these hazards by GZA personnel can be controlled by keeping a safe distance from heavy equipment.

Inhalation hazards may result from the presence of a variety of compounds including chlorinated solvents (trichloroethylene {TCE}, etc.) and those associated with petroleum products that may be present on site.

1.1.3 Levels of Protection

Non-intrusive activities described within the scope of this HASP will require Level D protection. Soil probes, test borings, soil excavations, soil gas/vadose zone survey and

environmental sampling will require Level D protection with potential upgrade to Level C based on air monitoring and observed site conditions.

1.2 PROJECT TEAM

The personnel responsible for the completion of this project and monitoring compliance with this HASP are:

Name	**Project Title/Assigned Role**	**Phone Numbers**	**Cell Phone Numbers**
Ernest R. Hanna	Principal-in-Charge	(716) 685-2300	(716) 570-2129
Daniel Troy	Task Leader	(716) 685-2300	(716) 570-6673
Daniel Troy	Field Team Leader/Site Safety Officer (SSO)	(716) 685-2300	(716) 570-6673
Mark Malchik	Corporate Health and Safety Director	(781) 278-3700	

Activities covered in this HASP must be conducted in compliance with this HASP and with applicable federal, state and local health and safety regulations, including 29 CFR 1910.120. Each GZA employee must sign a copy of the HASP Orientation Verification Form (included in Attachment C1) verifying that he or she has read it and understands its requirements. Personnel covered by this HASP who cannot or will not comply must be excluded from site activities.

This HASP may be used by GZA subcontractors for informational purposes when developing their own HASP. However, subcontractors are responsible for determining their HASPs adequacy and applicability to their on-site activities. GZA will request a copy of subcontractor HASPs but will not review or approve them.

2.0 SITE DESCRIPTION AND HISTORY

The Site is located at 312 Maple Street in Endicott, New York on the southwest corer of Maple Street and North Duane Avenue. Surrounding property is mixed residential/commercial. Northern Suffolk railroad tracks border the Site to the south. The Site is currently occupied by a manufacturer of wood cabinetry. Previous owners/operators include shoe companies, coal companies, electronic assemblers and a metal finishing job shop.

The Site is about 0.93 acres in size and includes three adjoining Site buildings (Buildings 1, 2, and 3 as shown on Figure 2). Building 1 is a single story masonry structure. Building 2 is a steel framed and sided structure with a concrete slab-on-grade floor. Building 3 is a masonry and wood framed two story building with a basement.

Based on previous studies performed by GZA, two source areas were originally identified at the site. The first is a zone of unsaturated soils contaminated with trichloroethene (TCE) located southeast of Building 2 (see attached Site Plan). The second is the three dry wells located inside Buildings 2 and 3. Subsequent meetings and conversations with NYSDEC defined the surface soils east of Building 3 and south of Building 2 as areas of concern that may also require additional investigation/remediation. The groundwater at the site is contaminated with TCE but is not considered to be a source area.

TCE Contaminated Unsaturated Soils: It is estimated that approximately 250 cubic yards (cy) of soil are contaminated based on our previous remedial investigations. However, the contamination could extend beyond these limits (i.e. the TCE could extend beneath the building). The TCE contaminated soil source area appears to be on both the 312 Maple Street Site and the adjoining Northern Suffolk Railroad property.

Three Dry Wells: Two dry wells are located in Building 2 and one drywell is located in Building 3. Each dry well is about three feet deep. The areal dimensions of the dry wells are unknown. The levels of volatile organic compounds (VOCs) detected in the soil samples from the bottom of the dry wells are generally low. Metals and other compounds (e.g., semi-volatile organic compounds) are also present.

Surface Soils: Surface soils were sampled and identified to contain potentially elevated metals, primarily arsenic, in the area south and east of Building 3; and polycyclic aromatic hydrocarbons (PAHs), in the area south of Building 2. The metals and PAHs

are considered typical in industrial settings. These areas of potential concern were identified during GZA's initial environmental investigations[1].

3.0 SCOPE OF WORK

Field activities during this investigation shall be comprised of the following activities which will result in the handling, excavation or boring of potentially contaminated materials. The field activities planned are briefly described below, additional details are included in the site specific work plan.

3.1 Existing Well Assessment

This assessment will be done to determine the condition of existing on-site wells for future monitoring. This task will include opening the well, measuring water levels, measuring the total depth and purging. The top of the well riser will be screened for the presence of VOCs and explosive gases upon initial opening of each well and the purge water will be screened during well development. This task will be done by GZA personnel.

3.2 Interim Remedial Measure

Based upon the results of GZA's previous investigations, approximately 250 cubic yards (or approximately 400 tons) of TCE contaminated soil is assumed to be located around MW-1 (assumed "source area"). Due to the concentrations of TCE detected in the previously analyzed soil samples, this material will likely be treated as a hazardous waste. The activities completed as part of the IRM will include excavation of impacted soil by backhoe. Soil excavation will also be completed by hand when the excavation is close to building foundations or other possible underground structures. Additionally, where allowable, soil will be removed from the on-Site dry wells located inside buildings 2 and 3. Excavated soil will be screened using an OVM and placed into trucks or stockpiled on plastic sheeting prior to loading into trucks for transportation to a facility permitted to accept the waste soil.

3.3 Soil Probes

The nature and extent of unsaturated subsurface soil contamination will be further assessed by completing additional soil probes at the site. The probes will be advanced by direct push methods into the overburden and soil samples will be collected using a truck or track

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[1] "Environmental Investigation, 312 Maple Street, Endicott, New York, GZA GeoEnvironmental of New York, June 11, 1999" and "Supplemental Environmental Site Investigation, 312 Maple Street, Endicott, New York, GZA GeoEnvironmental of New York, April 27, 1999"

mounted soilprobe unit equipped with a two-inch outside diameter (O.D.) by four-foot long sampler. The soil probe unit includes a hydraulic push/hammer that is used to advance the sampler. Probes will be advanced to the water table estimated to be at a depth of 15 to 17 feet. The soil samples will be screened during sampling by GZA personnel with an organic vapor meter. The soil probe unit will be operated by a subcontractor and GZA personnel will not be involved with the actual operation of probe equipment.

3.4 Test Borings and Monitoring Well Installation

A series of test borings will be advanced utilizing a drill rig to permit sampling of the soil materials and for the purpose of monitoring well installation. Borings will be advanced using hollow stem augers and rotary drilling methods. Samples will be collected using split spoon methods. The drill rig will be operated by a drilling subcontractor and GZA personnel will not be involved with the actual operation of drilling equipment.

As soil samples are collected from the borehole by the drilling crew, GZA will log the soil samples and retain the samples in jars. GZA personnel will stand away from the drilling equipment and will only approach to receive the sample once directed by the driller. The soil samples will be screened during sampling by GZA personnel with an organic vapor meter. Monitoring wells will be installed by a drilling subcontractor within boreholes to permit the collection of groundwater samples.

3.5 Groundwater Sampling

GZA will collect groundwater samples from newly installed and existing monitoring wells and submit them to an analytical laboratory for testing. GZA will screen the well casing for the presence of VOCs using an organic vapor meter (OVM) prior to sampling.

3.6 Soil Gas Survey

At the request of NYSDEC and NYSDOH, subslab and indoor air monitoring is needed for the three on-site buildings. One air sample will be collected from the ambient air inside each building in a location within the area of likely higher contamination and close to the remedial area if possible. An additional air sample will be collected from the air space beneath the floor of each of the three buildings, again close to an area of known contamination. The air samples will be collected under the floor slab through an approximate 1-inch diameter hole drilled in the floor. Dedicated plastic tubing will be placed into the hole and sealed. Additionally, vadose zone air sampling will be completed at the four corners of the property boundary and at the four mid-point locations between the property corners. The vadose zone air sampling will be completed with the aid of a direct push soil probe rig.

4.0 HAZARD ASSESSMENT

The following chemical, physical, and biological hazard assessment applies only to the activities within the specified scope of this HASP.

4.1 CHEMICAL HAZARDS

Based on the information provided to the author of this HASP, the chemical hazards anticipated on-Site are those associated with chlorinated solvents, PAHs and metals. The associated hazards may include the following.

4.1.1 Volatile Organic Compounds

Exposure to the vapors of many volatile organic compounds above their respective permissible exposure limits (PELs), as defined by the Occupational Safety and Health Administration (OSHA), may produce irritation of the mucous membranes of the upper respiratory tract, nose and mouth. Overexposure may also result in the depression of the central nervous system. Symptoms of such exposure include drowsiness, headache, fatigue and drunken-like behavior. Some volatile organic compounds are considered to be potential human carcinogens.

The vapor pressures of many of these compounds are high enough to generate significant quantities of airborne vapor. On sites where high concentrations of these compounds are present, this can result in a potential inhalation hazard to the field team during subsurface investigations. To reduce the potential for exposure to the vapors of the organic compounds of concern, respiratory protection may be required. Because this site is open and the anticipated quantities of contamination are small, overexposure potential is expected to be small.

Previous studies and historical information indicated that chlorinated solvents (PCE, TCE, vinyl chloride etc.) are present at the site. Petroleum products (which contain benzene, toluene, ethylbenzene and xylene) from possible USTs may also be present on site.

4.1.2 Petroleum Hydrocarbons

Petroleum hydrocarbons (PHCs) such as fuel oil are generally considered to be of low toxicity. Recommended airborne exposure limits have not been established for these vapors. However, inhalation of low concentrations of the vapor may cause mucous membrane irritation. Inhalation of high concentrations of the vapors may cause pulmonary edema. Repeated or prolonged direct skin contact with the oil may produce skin irritation as a result of defatting. Protective measures, such as in wearing of chemically resistant gloves, to minimize contact are addressed elsewhere in this plan. Because of relatively low vapor pressures associated with

PHCs, an inhalation hazard in outdoor environment is not likely.

4.1.3 Metal Compounds

Overexposure to metals has been associated with a variety of health hazards, both acute and chronic in nature, with chronic effects being most significant. Direct contact with dust of some metal compounds can result in contact or allergic dermatitis. The American Conference of Governmental Industrial Hygienists (ACGIH) has established inhalation exposure limits, expressed as Threshold Limit Values (TLVs), to which most workers can be exposed (on an 8-hour time-weighted average (TWA) basis) without adverse affect. To limit potential exposure visible clouds of dust should be controlled as required and workers and observers will remain upwind of intrusive activities.

Similarly, metals ingestion of quantities likely to result in any harmful effects are unlikely to occur within the scope of activities covered in this HASP. Incidental ingestion of minor amounts through hand-to-mouth contact can be avoided with good personal hygiene habits.

The most significant route of exposure is likely to be skin contact with the contaminated soils. Protective measures, such as the wearing of chemically resistant gloves, to minimize contact are addressed in Section 6.0 of this plan.

4.1.4 Polychlorinated Biphenyls

Prolonged skin contact with polychlorinated biphenyls (PCBs) may cause a condition know as chloracne. PCBs are considered to be suspect carcinogens and may also cause reproductive damage.

It should be noted that PCBs have extremely low vapor pressures. This makes it unlikely that any significant vapor concentration (i.e. exposures above the OSHA PEL) will be created in the ambient environment. This minimizes the potential for any health hazards to arise due to inhalation unless the source is heated or generates an airborn mist.

4.1.5 Pesticides

Pesticides can be grouped into three major categories; organophosphates, carbamate and chlorinated hydrocarbons. The actual PEL as set by OSHA, vary depending on the specific compound. Organophosphates, including Diazinon, Malathion and Parathion, are quickly absorbed into the body by inhalation, ingestion and direct skin contact. The symptoms of exposure include headache, fatigue, dizziness, blurred vision, sweating, cramps, nausea and vomiting. More severe symptoms can include tightness of the chest, muscle spasms, seizures and unconsciousness. It should also be noted that the Malathion and Parathion PELs both carry the *Skin* notation, indicating that these compounds adversely effect or penetrate the skin. OSHA specifies that skin exposure to

substances carrying this designation be prevented or reduced through the use of the appropriate personal protective equipment (PPE).

Chlorinated hydrocarbons such as Chlordane, DDT and Heptachlor can cause dizziness, nausea, abdominal pain and vomiting. The more severe symptoms include epileptic like seizures, rapid heart beat, coma and death. These compounds also carry the OSHA *Skin* notation.

4.1.6 Methane

Methane is an odorless, colorless, tasteless gas, and is a significant fire and explosion hazard. It also acts primarily as a simple asphyxiate when present in high concentrations. Methane has a lower explosive limit (LEL) of 5% and an upper explosive limit of 15%.

4.1.7 Hydrogen Sulfide

Hydrogen sulfide, characterized by its "rotten egg" odor, is produced by decomposition of organic matter. In many instances, hydrogen sulfide is found in the same area as methane gas. An important characteristic of hydrogen sulfide is its ability to cause a decrease in ones ability to detect its presence by smell. So although you may no longer smell it, it still may be present in harmful concentrations.

The symptoms of over exposure include headaches, dizziness, staggering and nausea. Severe over exposure can cause respiratory failure, coma and death. The OSHA PEL is 10 ppm.

4.1.8 Chemicals Subject to OSHA Hazard Communication

Chemicals brought on site such as solvents, reagents, decontamination solutions, or other hazardous chemicals must be accompanied by the required labels, Material Safety Data Sheets (MSDS), and employee training documentation (OSHA 1910.120). GZA will maintain these documents on site. For additional information refer to the GZA Hazard Communication Program contained in GZA's Health and Safety Program Manual.

4.2 PHYSICAL HAZARDS

Personnel on site should be provided with the information and training necessary to avoid accidental injury. This includes assuring that the site is maintained in such a way that slip, trip and fall hazards as well as cut, puncture and abrasion hazards such as nails, scrap metal, rusted containers and construction derbies are recognized and eliminated or controlled. Basic personal protective equipment must be available and its use enforced.

4.2.1 Construction Hazards, Drill Rigs, Backhoes

The use of drill rigs, backhoes and other heavy equipment represent potentially serious construction hazards. Whenever such equipment is used, personnel in the vicinity should be limited to those who must be there to complete their assigned duties. All personnel must avoid standing within the turning radius of the equipment or below any suspended load. Job sites must be kept as clean, orderly and sanitary as possible. When water is used, care must be taken to avoid creating muddy or slippery conditions. If slippery conditions are unavoidable, barriers and warning signs must be used to warn of these dangers.

Procedures that will be implemented o limit physical hazard impacts include the following. Never turn your back to operating machinery when in the machines operational area. Never wear loose clothing, jewelry, hair or other personal items around rotating equipment or other equipment that could catch or ensnare loose items. Always stand far enough away from operating machinery to prevent accidental contact which may result from mechanical or human error.

Safety switches on the drill rig shall be tested before beginning work.

Additionally, the following basic personal protective measures must be observed: Hard Hats must be worn to protect against bumps or falling objects. Safety glasses must be worn by all workers in the vicinity of drill rigs or other sources of flying objects. Goggles, face shields or other forms of eye protection must be worn when necessary to protect against chemicals or other hazards. Steel toed safety shoes or boots are also required. The shoes must be chemically resistant or protected with appropriately selected boots/coverings where necessary. Unless otherwise specified, normal work clothes must be worn. Gloves are also required whenever necessary to protect against hazardous contact, cuts, abrasions or other possible skin hazards.

4.2.2 Trenching and Excavation

OSHA requires that a competent person, who is trained to recognize the hazards associated with trenching and excavating activities and has authority to control these hazards within the limits established by OSHA Trenching and Excavation Standard (29 CFR 1926.650-652) be present at all times. Trenching and excavating will be done by a subcontractor. GZA personnel involved in these activities will be in accordance with GZA Trench and Excavation Safety and Health Guide contained in GZA's Health and Safety Program Manual. GZA will maintain a copy of this guide on-site.

4.2.2.1 Drums and Buried Drums

As a precautionary measure, personnel must assume that labeled and unlabelled drums encountered during field activities contain hazardous materials until their contents can be confirmed and characterized. Personnel should recognize that drums are frequently mislabeled, particularly drums that are reused.

Only trained and authorized personnel should be allowed to perform drum handling. Prior to any handling, drums must be visually inspected to gain as much information as possible about their contents. Trained field personnel must look for signs of deterioration such as corrosion, rust or leaks, and for signs that the drum is under pressure such as swelling or bulging. Drum type and drumhead configuration may provide the observer with information about the type of material inside, (i.e., a removable lid is primarily designed to contain solids, while the presence of a bung indicates liquid storage).

Although not usually anticipated, buried drums can be encountered when digging test pits. Therefore, the following provisions must be observed if drums are encountered. Machine excavation (i.e. backhoe) should cease immediately anytime a drum is encountered. The appropriate management personnel should be notified immediately. Personnel must not enter an excavation where drums have been uncovered, even for monitoring purposes, unless all provisions of OSHA's trenching and excavation standard have been met and the appropriate level of personal protective equipment is utilized. Sampling of unknown drums requires Level B protection. Buried drums must not be moved unless it can be accomplished in a safe manner and overpack drums are available. Contacting/disturbing drums is not included in the scope of work for this project.

4.2.3 Fire and Explosion

The possibility of flammable materials being encountered during field activities must be recognized. Therefore, the appropriate steps necessary to minimize fire and explosion must be observed. This includes situations where excessive organic vapors or free product are encountered. When this occurs, monitoring with a combustible gas indicator (CGI) and organic vapor meter, is required.

Excessive organic vapors can cause an explosion hazard. Therefore, whenever excessive organic vapors are detected using an organic vapor meter (OVM), monitoring should be done for the presence of explosive gases.

Fire, explosion and hazardous chemical release should be regarded as one of, if not the, most significant hazard associated with drilling operations and other intrusive work conducted at sites where possible reactive and/or toxic waste may be encountered. Accordingly, all sources of ignition must be fully controlled. Failure to control ignition sources could result in fire, explosion

and pose a serious threat to life and health. Fire extinguishers will be located near each intrusive activity.

4.2.4 Noise

Noise exposure can be affected by many factors including the number and types of noise sources (continuous vs intermittent or impact), and the proximity to noise intensifying structures such as walls or building which cause noise to bounce back or echo. The single most important factor affecting total noise exposure is distance from the source. The closer one is to the source the louder the noise. The operation of a drill rig, backhoe or other mechanical equipment can be sources of significant noise exposure. In order to reduce the exposure to this noise, personnel working in areas of excessive noise must use hearing protectors (ear plugs or ear muffs) in accordance with the GZA Hearing Conservation Program contained in the Health and Safety Program Manual. GZA will maintain a copy of this program component on-site. If hearing protection is worn, hand signals will be implemented as needed.

4.2.5 Heat and Cold Stress

Overexposure to temperature extremes can represent significant risks to personnel if simple precautions are not observed. Typical control measures designed to prevent heat stress include dressing properly, drinking plenty of the right fluids, and establishing an appropriate work/break regimen. Typical control measures designed to prevent cold stress also include dressing properly, and establishing an appropriate work/break regimen. The project manager must assure that the appropriate provisions of GZA's Heat and Cold Stress Control Program contained in the Health & Safety Program Manual are observed. GZA will maintain a copy of this program component on-site.

4.2.6 Electrical

OSHA regulations require that employees who may be exposed to electrical equipment be trained to recognize the associated hazards and the appropriate control methods. All extension cords used for portable tools or other equipment must be designed for hard or extra usage and be (three wire) grounded. All 120 volt, single-phase 15 and 20 ampere receptacle outlets on construction sites and other locations where moisture/water contact may occur must be equipped with ground-fault circuit interrupters (GFCI) units. GFCI units must be attached directly to or as close as possible to the receptacle. GFCI units located away from the receptacle will not protect any wiring between the receptacle and the GFCI unit. Only the wiring plugged into the GFCI unit and outward will be protected by the GFCI. All (temporary lighting) lamps for general illumination must be protected from accidental breakage. Metal case sockets must be grounded. Portable lighting in wet or conductive locations should be 12 volt or less. GZA does not anticipate the need for temporary lighting for this project. GZA assumes that all the work will be completed during the daylight hours.

4.2.7 Moving Vehicles, Traffic Safety

All vehicular traffic routes which could impact worker safety must be identified and communicated. Whenever necessary, barriers or other methods must be established to prevent injury from moving vehicles. This is particularly important when field activities are conducted in parking lots, driveways, ramps roadways or railroad tracks.

The uncontrolled presence of pedestrians on a drilling or excavation site can be hazardous to both pedestrians and site workers. Prior to the initiation of site activities, the site should be surveyed to determine if, when and where pedestrians may gain access. This includes walkways, parking lots, gates and doorways. Barriers or caution tape should be used to exclude all pedestrians. Exclusion of pedestrian traffic is intended to prevent injury to the pedestrian and eliminate distractions which could cause injury to GZA personnel or other site workers.

Active railroad tracks are located adjacent to the Site on the south near an area of proposed Site IRM activities. These railroad tracks, owned by Norfolk Southern consist of two lines. GZA personnel and GZA's subcontractors will not perform Site work within the boundaries of the railroad stone ballast and rail lines nor will heavy equipment be allowed to enter this segment of the Site. Work that is required to be completed adjacent to or within other portions of the railroad right-of-way will be completed from the Site property facing the railroad tracks. A "spotter" will accompany all personnel requiring entering the railroad right-of-way for the sole purpose of watching for on coming trains from both directions. GZA will also attempt to obtain schedules for railroad traffic for the purpose of limiting or ceasing site activities during the passage of trains. Site activities shall temporarily cease during the passage of railroad vehicles.

4.2.8 Overhead Utilities and Hazards

Overhead hazards can include low hanging structures which can cause injury due to bumping into them. Other overhead hazards include falling objects, suspended loads, swinging loads and rotating equipment. Hard-hats must be worn by personnel in areas were these types of physical hazards may be encountered. Barriers or other methods must also be used to exclude personnel from these areas were appropriate. Electrical wires are another significant overhead hazard. According to OSHA (29 CFR 1926.550), the minimum clearance which must be maintained from overhead electrical wires is 10 feet from an electrical source rated $\leq$ 50 kV. Sources rated > 50 kV require a minimum clearance of 10 feet plus 0.4 inches per kV above 50 kV.

4.2.9 Underground Utilities and Hazards

The identification of underground storage tanks, pipes, utilities and other underground hazards is critically important prior to drilling, excavating and other intrusive activities. In accordance with OSHA 29 CFR 1926.650, the estimated location of utility installations, such as sewer, telephone, electric, water lines and other underground installations that may reasonably be

expected to be encountered during excavation work, must be determined prior to opening an excavation. I New York State, the "Dig Safe" notification number is 1-800-962-7962. The same requirements apply to drilling operations. Where public utilities may exist, the utility agencies or operators must be contacted directly or through utility clearing services and the appropriate agencies. Where other underground hazards may exist, reasonable attempts must be made to identify their locations as well. Failure to identify underground hazards can lead to fire, explosion, flooding, electrocution or other life threatening accidents.

4.2.10 Confined Space

Confined space entry activities, such as entering sewer systems requires specialized procedures beyond the scope of this plan. Therefore, if circumstances require such activities, this plan must be modified accordingly.

4.3 BIOLOGICAL HAZARDS

All personnel on site should be provided with the information and training necessary to avoid accidental injury or illness which can result from exposure to biological hazards. This includes assuring that the site is carefully assessed so that the hazards associated with poisonous plants, insects or other sources of biological contamination (i.e., septic systems) are recognized and eliminated or controlled. In most cases this can be done by using proper PPE. Biological waste is typically contained/disposed of in red bags. If red bags or other potential biological waste (i.e. syringes) are encounter during site work the work task should be stopped and a trained person contacted to evaluate the potential presence of biological waste.

5.0 AIR MONITORING

Air Monitoring falls into three separate categories; real time monitoring, community air monitoring and personal exposure monitoring. Real time monitoring will be conducted within the exclusion zone (EZ). Community air monitoring will be done at the down wind perimeter of the EZ. Table 1 summarizes the type of environmental monitoring as well as appropriate response actions applicable to the Site. Additional details regarding air monitoring are presented below.

5.1 REAL TIME MONITORING

The real time monitoring required to determine the airborne concentrations of the representative compounds and the corresponding response action for the site, will be conducted using the instruments indicated in Table 1. Although the data provided by these instruments can be used to determine the appropriate control actions and personal protective equipment requirements, the data may be inappropriate for use in determining employee time weighted average exposures as required by OSHA.

Monitoring with the specified instruments will be conducted at a frequency necessary to adequately characterize airborne contamination levels for each area and each representative task in each area of the site. Initial monitoring will be most frequent and will be either continuous or at intervals of once every 15 minutes as directed by the Site Safety Officer (SSO). Monitoring shall be conducted in close proximity to the source material (auger spoil, excavated soil, etc.) during all intrusive activities described in this HASP; if instruments indicate the presence of target compounds in source area, the general breathing zone in the EZ should then be monitored to determine appropriate response action in accordance with the action levels specified in this section.

Equipment calibration must be performed in accordance with the manufacturer's instructions. Field checks using the appropriate reference standards must be made on site at the minimum frequency of twice per shift (pre- and post-sampling). A daily log of all instrument readings, as well as all field reference checks and calibration information, and corrective actions must be maintained.

5.1.1 Total Volatiles Organics

A photoionization detector (PID), equipped with a 10.2 ev lamp calibrated to a standard referenced to benzene in air, will be used to monitor the breathing zone of workers performing investigative activities to assess the potential presence of organic vapors. Additionally, specific target compounds (e.g., vinyl chloride and benzene) will be monitored for if the total VOC readings exceed 1 ppm above background. The level of protection may be upgraded and new action levels established by the SSO after the compound causing elevated organic vapor readings is determined using detector tubes.

5.1.2 Combustible Gas Indicator

Monitoring using a CGI, calibrated using pentane as a reference standard, may be required if unknown contamination is encountered. If combustible gas levels equal 10 % or greater of the LEL, operation should be shut down and the area evacuated until appropriate control measures have been established and verified safe for reentry. Steps necessary to minimize fire and explosion must be observed.

5.1.3 Dust Monitoring

GZA will monitor for dust based on visual observations. If dust clouds are observed GZA will request that dust control be used (i.e., wet down the material).

5.2 COMMUNITY AIR MONITORING

Real-time air monitoring, for volatile compound levels at the perimeter of the work area will be conducted as follows. Volatile organic compounds shall be monitored at the downwind perimeter of the work area at a minimum of once per hour. If total organic vapor levels exceed 5 ppm above background, work activities must be halted and monitoring continued under the provisions of a Vapor Emission Response Plan. All readings shall be recorded and will be available for State (NYSDEC & NYSDOH) personnel to review.

5.2.1 Vapor Emission Response Plan

If the ambient air concentration of organic vapors exceeds 5 ppm above background at the perimeter of the work area, activities will be halted and monitoring continued. If the organic vapor level decreases below 5 ppm above background, work activities can resume. If the organic vapor levels are greater the 5 ppm over background but less then 25 ppm over background at the perimeter of the work area, activities can resume provided that the organic vapor level 200 ft. downwind of the work area or half the distance to the nearest residential or commercial structure, whichever is less, is below 5 ppm over background.

If the organic vapor level is above 25 ppm at the perimeter of the work area, activities must be shutdown. When work shutdown occurs, downwind air monitoring as directed by the Safety Officer will be implemented.

5.2.2 Major Vapor Emissions

If any organic levels greater than 5 ppm over background are identified 200 feet downwind from the work area or half the distance to the nearest residential or commercial property, whichever is less, work activities must be halted.

If, following the cessation of the work activities, or as a the result of an emergency, organic levels persist above 5 ppm above background 200 feet downwind or half the distance to the nearest residential or commercial property from the work area, then the air quality must be monitored within 20 feet of the perimeter of the nearest residential or commercial structure(20 Foot Zone).

If efforts to abate the emission source are unsuccessful and levels above 5 ppm above background persist for more than 30 minutes in the 20 Foot Zone, then the Major Vapor Emission Response Plan shall automatically be placed into effect (See Section 5.2.3).

5.2.3 Major Vapor Emission Response Plan

Upon activation, the following activities will be undertaken.

1. All Emergency Response Contacts as listed in the Health and Safety Plan will go into effect (See Section 11.2).

2. The local police authorities will immediately be contacted by the Safety Officer and advised of the situation.

3. Frequent air monitoring will be conducted at 30 minute intervals within the 20 Foot Zone. If two successive readings below action levels are measured, air monitoring may be halted or modified by the Safety Officer.

5.3 PERSONAL EXPOSURE MONITORING

According to OSHA 1910.120 personal exposure monitoring for the purpose of determining individual time-weighted average exposures is required only during site cleanup or other remedial activities. This project does not involve site remediation or cleanup. Therefore, determinations regarding individual exposure potentials will be based on the work area monitoring described above. Separate personal air sampling will not be conducted.

6.0 PERSONAL PROTECTIVE EQUIPMENT (PPE)

PPE will be donned as described below for the activities covered by this HASP. Non-intrusive activities within the scope of this HASP will require Level D protection. All intrusive activities will be initiated in Level D with the potential for upgrade based on air monitoring and site conditions. Work at Level B protection is outside the scope of this HASP.

6.1 NON-INTRUSIVE ACTIVITIES

Non-intrusive activities, which include the private well assessment, geophysical survey and topographic survey, will require Level D protective equipment. This equipment is defined as:

- Hard hat;
- Chemically resistant rubber over boots (as required by the SSO) and steel-toed work boots;
- Work clothes;
- Hearing protection (if necessary); and,
- Eye protection - contact lenses may not be worn on site.

6.2 INTRUSIVE ACTIVITIES

Intrusive activities, which include soil excavation, soil probes, existing monitoring well redevelopment, soil gas/vadose zone survey, and monitoring well installation, will require Level D protective equipment. This equipment is defined as:

- Hard hat;
- Tyvek coveralls (as required by SSO);
- Chemically resistant rubber outer boots(as required by the SSO), and steel-toed work boots;
- Disposable latex gloves;
- Eye protection (if full-face respiratory protection is not worn); and,
- Hearing protection (see Section 4.2.4).

If required (based on air monitoring results or visual observation), Level C respiratory protection will be worn, consisting of MSA brand or equivalent full-face air purifying respirator with combination dust and organic vapor cartridges.

All personnel who will be required to don air purifying respirators must have been qualitatively or quantitatively fit-tested for the particular brand and size respirator he/she will be wearing on site within the last year.

Normal eyeglasses cannot be worn under full-face respirators because the temple bars interfere with the face seal. For workers requiring corrective face piece lenses, special spectacles designed for use with respirators must be available. Contact lenses may not be worn on site.

7.0 SITE CONTROL

To prevent both exposure of unprotected personnel and migration of contamination due to tracking by personnel or equipment, work areas along with personal protective equipment requirements will be clearly identified. GZA designates work areas or zones as suggested in the "Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities," NIOSH/OSHA/USCG/EPA, November, 1985. They recommend the area surrounding each of the work areas to be divided into three zones; the exclusion or "Hot" zone, contamination reduction zone (CRZ), and the support zone.

7.1 EXCLUSION ZONE

Due to the scattered locations of the activities covered within the scope of this HASP, the actual zones are expected to change frequently in accordance with daily activities. Therefore, all

exclusion zones (EZ) are expected to be temporary or dynamic. Site personnel will be advised of the locations of temporary work zones as part of the routine site safety meetings described in Section 9.0.

Each EZ will consist of the active work areas where site investigations are taking place. A 15-foot radius will be established as the typical perimeter of the zone; however, this may be increased as necessary in order to protect personnel from contact with vapors that may arise from these operations. The perimeter of the zone will be marked with traffic cones or brightly colored hazard tape. All personnel entering these areas must wear the prescribed level of protective equipment.

7.2 CONTAMINATION REDUCTION ZONE

Each contamination reduction zone (CRZ) will be a clearly marked corridor between the exclusion and support zones. The actual length and/or location of the corridor will also be temporary or dynamic in accordance with the locations of the exclusion zones. The CRZ is where personnel will begin the sequential decontamination process when exiting the EZ. To prevent cross contamination and for accountability purposes, all personnel must enter and leave the exclusion zone through the CRZ. A separate heavy equipment decontamination zone will also be established at the site.

7.3 SUPPORT ZONE

The support zone (SZ) will coincide with the project command post, and will consist of an area outside the exclusion zone and CRZ where support equipment will be staged. Eating, drinking and smoking will be allowed only in this area. Sanitary facilities will be located within the SZ. In addition, potable water and water and soap for hand washing will be available at the site, along with containers for solid waste for use by GZA and GZAs subcontractor personnel. The containers will be removed from the site by GZA for proper disposal. Hazardous, or potentially hazardous, materials will be drummed, labeled and stored with other drums of substances generated during this project for future disposal as required by the project specific work plan.

7.4 OTHER SITE CONTROL AND SAFETY MEASURES

The following measures are designed to augment the specific health and safety guidelines provided in this plan.

- The "buddy system" will be used at all times by all field personnel. No one is to perform field work alone. The standby team member must be intimately familiar with the procedures for initiating an emergency response.

- Avoidance of contamination is of the utmost importance. Whenever possible, avoid contact with contaminated (or potentially contaminated) surfaces or materials. Walk around (not through) puddles and discolored surfaces. Do not kneel on the ground or set equipment on the ground. Protect air monitoring equipment from water by bagging.

- Hands and face must be thoroughly washed upon leaving the work area and before eating, drinking or any other activities.

- Eating, drinking, chewing gum or tobacco, smoking or any practice that increases the probability of hand-to-mouth transfer and ingestion of materials is prohibited except in the support zone after proper decontamination.

- Beards or other facial hair that interfere with respirator fit are prohibited for anyone who is required to wear a respirator.

- The use of alcohol or drugs is prohibited during the conduct of field operations.

- All equipment must be decontaminated or properly discarded, as designated by the SSO, before leaving the site.

- Safety equipment (PPE) described in Section 6.0 will be required for all field personnel unless otherwise approved by the local/regional health and safety representative or the SSO.

7.5 SITE SECURITY

The GZA Site Manager is responsible for identifying the presence of all GZA and GZA subcontractor employees on site. A sign-in/sign-out log will be maintained for this purpose.

Equipment left on site during off hours must be locked, immobilized and/or otherwise secured to prevent theft or unauthorized use or access.

8.0 DECONTAMINATION

To the extent possible, the sampling methods and equipment have been selected to minimize both the need for decontamination and the volume of waste material to be generated. Decontamination procedures specific to each of the field activities are described in the QAPjP. Used personal protective equipment will be disposed as a solid waste.

8.1 PERSONNEL DECONTAMINATION

Personnel decontamination will be accomplished by following a systematic procedure of cleaning and removal personal protective clothing (PPE). Contaminated PPE such as boots and face shields will be rinsed free of gross contamination, scrubbed clean in a detergent solution and then rinsed clean. To facilitate this, a three-basin wash system may need to be set up on site. The wastewater will be transferred to drums, which will be labeled and left on site for disposal as required by the project specific work plan.

Respirators will be cleaned after each use with respirator wipe pads and will be stored in plastic bags after cleaning. Alternative chemical decontamination procedures, such as steam-cleaning or pressure washing field boots, may be used if available.

8.1.1 Decontamination Sequence

Steps required will depend on the level of protection worn in accordance with Section 6.0:

1. Remove and wipe clean hard hat.
2a. Rinse outer boots and outer gloves (if used) of gross contamination.
2b. Scrub boots and gloves clean.
2c. Rinse boots and gloves.
3. Remove outer protective boots .
4. Remove outer gloves.
5. Remove tyvek coveralls.
6. Remove respirator, wipe clean and store.
7. Remove inner gloves.

Boots that have been decontaminated can be worn into the support zone.

8.2 EQUIPMENT DECONTAMINATION

To the extent possible, measures should be taken to prevent contamination of sampling and monitoring equipment. Sampling devices become contaminated, but monitoring instruments, unless they are splashed, usually do not. Once contaminated, instruments are difficult to clean without damaging them. Delicate instruments which cannot be easily decontaminated should be protected while it is being used. It should be placed in a clear plastic bag, and the bag taped and secured around the instrument. Openings are made in the bag for sample intake and exhaust.

If solvents are used for decontamination of equipment all safety precautions specified on the manufacturer's warning label and MSDS must be observed (see Section 4.1.6 Chemicals Subject to OSHA Hazard Communication). Rinsate generated during the decontamination process will

be field screened using a portable organic vapor meter. If readings are less than 1 ppm the water will be discharged at a location agreeable to NYSDEC and Broome County. If the readings are greater than 1 ppm the material will be drummed and labeled

Drilling rigs, trucks, backhoes, and other heavy equipment are difficult to decontaminate. The method generally used is to wash them with water under high pressure or to scrub accessible parts with detergent/water solution under pressure. A decontamination pad will be constructed on-site by the excavation contractor and/or drillers for equipment decontamination.

In some cases, shovels, scoops and augers may require steam cleaning. Particular care must be given to those components in direct contact with contaminants. Personnel doing the decontamination must be adequately protected for the methods used since these can generate contaminated mists and aerosols.

9.0 MEDICAL MONITORING AND TRAINING REQUIREMENTS

9.1 MEDICAL

All personnel covered by this HASP must be active participants in GZA's Medical Monitoring Program or in a similar program which complies with 29 CFR 1910.120(f). Each individual must have completed an annual surveillance examination and/or an initial baseline examination within the last year prior to performing any work on this site covered by this HASP. Documentation of the examination must include a physicians statement indicating the employee is fit and capable of performing their duties.

GZA's medical monitoring program is administered by GZA's Director of Corporate Health and Safety in association with Health Resources Inc., 304 Cambridge Road, Woburn, Massachusetts 01801.

9.2 TRAINING

All personnel covered by this HASP must have completed the appropriate training requirements specified in 29 CFR 1910.120 Hazard Communication and 29 CFR 1910.120(e). Each individual must have completed an annual 8-hour refresher training course and/or initial 40-hour training course within the last year prior to performing any work on this site covered by this HASP. Also, at least one GZA employee must be on site during all GZA activities to act as the site manager and SSO. This individual must have documentation of completion of the specified 8-hour training course for managers and supervisors.

9.3 SUBCONTRACTORS

Subcontractors to GZA will be required to provide to the GZA Project (Site) Manager specific written documentation that each individual assigned to this project has completed the medical monitoring and training requirements specified above. This information must be provided prior to their performing any work on site.

9.4 Site Safety Meetings

Prior to the commencement of on-site investigative activities, a site safety meeting will be held to review the specific requirements of this HASP. Sign-off sheets will be collected at this meeting. Short safety refresher meetings will be conducted by the SSO weekly (at a minimum) or as needed throughout the duration of field activities. In addition, the SSO will ensure that site visitors have had the required training in accordance with 29 CFR 1910.120 and will provide pre-entry safety briefings.

10.0 HEALTH AND SAFETY AUDIT

The activities described in this HASP may be subject to audit by a representative of GZA's Corporate Health and Safety Department. The appropriate schedule for any such audit will be determined at a later date.

In addition to the possible need for a formal audit, daily safety and health inspections shall be conducted by the SSO to determine if operations are being performed in accordance with the HASP, applicable OSHA regulations and contract requirements.

11.0 EMERGENCY ACTION PLAN

11.1 GENERAL REQUIREMENTS

OSHA defines emergency response as any "response effort by employees from outside the immediate release area or by other designated responders (i.e., mutual-aid groups, local fire departments, etc.) to an occurrence which results, or is likely to result in an uncontrolled release of a hazardous substance." GZA personnel covered by this HASP may not participate in any emergency response where there are potential safety or health hazards (i.e., fire, explosion, or chemical exposure). GZA response actions will be limited to evacuation and medical/first aid as described within this section below.

The basic elements of an emergency evacuation plan include employee training, alarm systems, escape routes, escape procedures, critical operations or equipment, rescue and medical duty assignments, designation of responsible parties, emergency reporting procedures, and methods to account for all employees after evacuation.

11.1.1 Employee Information

General training regarding emergency evacuation procedures are included in the GZA initial and refresher training courses as described above in Section 9.2 of this HASP. Also as described above in Section 9.4, employees must be instructed in the specific aspects of emergency evacuation applicable to the site as part of the site safety meeting prior to the commencement of all on-site activities. On-site refresher or update training is required anytime escape routes or procedures are modified or personnel assignments are changed.

11.1.2 Emergency Signal and Alarm Systems

An emergency communication system must be in effect at the site. The most simple and effective emergency communication system in many situations will be direct verbal communications. Each site must be assessed at the time of initial site activity and periodically as the work progresses. Verbal communications must be supplemented anytime voices can not be clearly perceived above ambient noise levels (i.e., noise from heavy equipment, drilling rigs, etc.) and anytime a clear line-of-sight can not be easily maintained amongst all GZA personnel because of distance, terrain or other obstructions.

When verbal communications must be supplemented, emergency signals (using hand-held portable airhorns) must be implemented in accordance with GZA's Emergency Response and Site Evacuation procedures contained in the Health and Safety Program Manual. GZA will maintain a copy of this program component on-site.

11.2 EMERGENCY CONTACTS

Prior to the initiation of site activities, the SSO must contact the (appropriate) Fire Department and ambulance service to inform them of GZA's intent to solicit their services in the event of an emergency on site. In the event of an emergency, assistance may be requested using the following telephone numbers:

Police	911
Fire	911
Ambulance	911
Hospital	(607) 771-2263

Hospital Location (Binghamton General Hospital)

The hospital is located at Mitchell Avenue, Binghamton, New York. See Figure 2 (Map of Route to Hospital).

Other Emergency Contact Information

GZA GeoEnvironmental – Daniel Troy	(716)685-2300
Broome County Dept. Environmental Planning	(607)778-2414
NYSDEC – Daniel Fuller	(607)775-2545

11.3 INCIDENT REPORTING PROCEDURES

Any incident (other than minor first aid treatment) resulting in injury, illness or property damage requires an accident investigation and report. The investigation should be initiated as soon as emergency conditions are under control. The purpose of this investigation is not to attribute blame but to determine the pertinent facts so that repeat or similar occurrences can be avoided. A copy of GZA's Incident Investigation Form is included in Attachment C1.

The investigation should begin while details are still fresh in the mind of anyone involved. The person administering first aid may be able to start the fact gathering process if the injured are able to speak. Pertinent facts must be determined. Questions beginning with who, what, when, where, and how are usually most effective to discover ways to improve job performance in terms of efficiency and quality of work, as well as safety and health concerns.

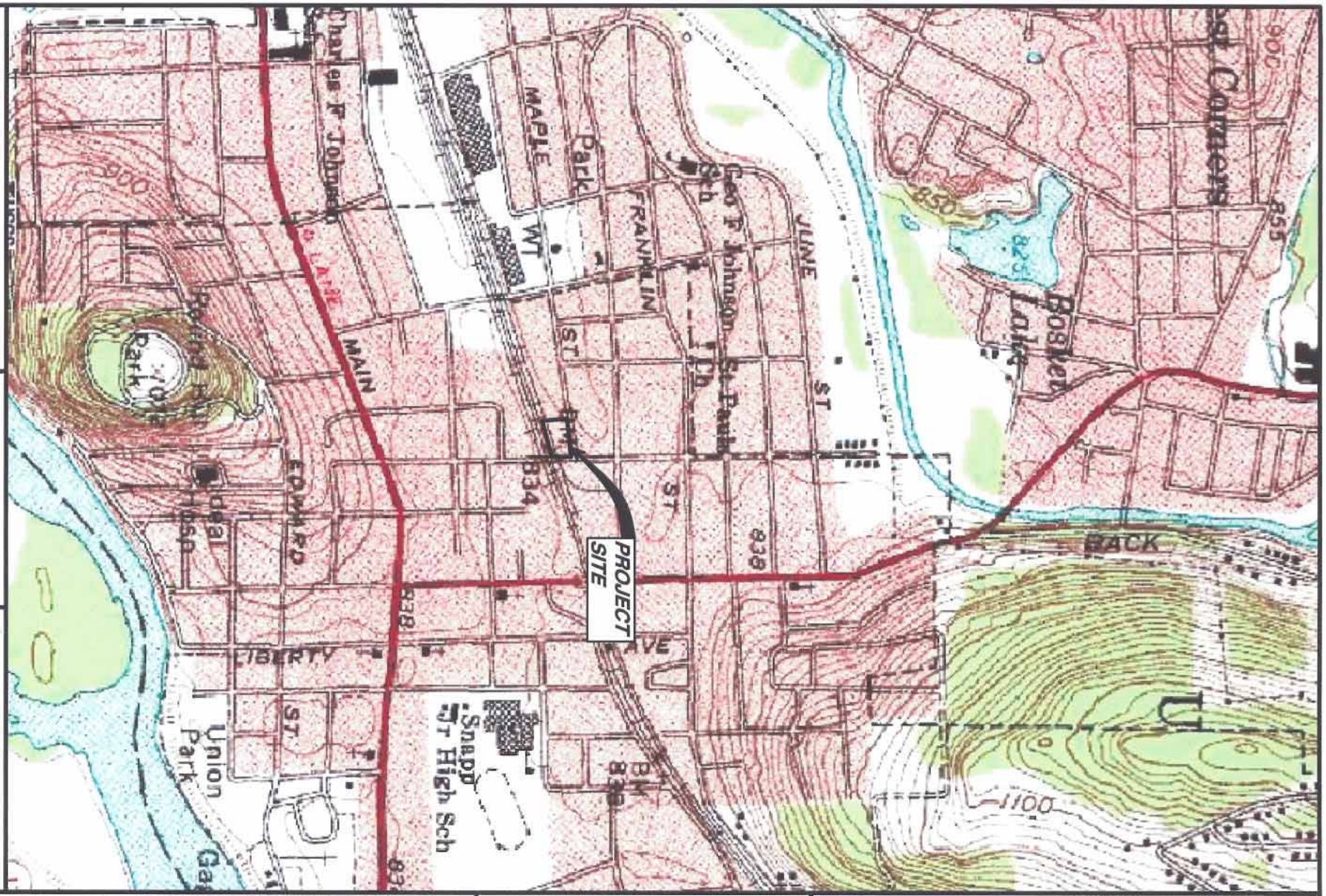
TABLES

TABLE 1
ACTION LEVELS
312 Maple Street Site

	Monitoring Type	Concentration	Instrument	Monitoring Location	Monitoring Frequency	Required Action
Real time Monitoring	Total VOCs	< 1 ppm	PID (10.2 ev)	EZ	At least every 15 minutes	Continue monitoring
Real time Monitoring	Total VOCs	> 1 ppm	PID (10.2 ev)	EZ	Continuous	Test for specific compounds with detector tubes (vinyl chloride and benzene). Set new action level after consulting with SSO.
Community Air Monitoring (intrusive activities only)	Total VOCs	< 5 ppm above background	PID (10.2 ev)	down wind of EZ	At least every 1 hour	Continue monitoring of EZ (potential source) and down wind perimeter of the EZ (work zone).
Community Air Monitoring (intrusive activities only)	Total VOCs	> 5 ppm above background	PID (10.2 ev)	down wind of EZ	Continuous	Stop work. If organic vapors levels are >5ppm over background but less than 25 ppm over background at the perimeter of the work area than work can resume provided the organic vapor level 200 feet down wind of the work area or half the distance to the nearest structure is < 5ppm. If the level is > 5 ppm 200 feet downwind, follow procedures outlined in section 5.2.2 (Major Vapor Emissions) of this plan.
Community Air Monitoring (intrusive activities only)	Total VOCs	> 25 ppm above background	PID (10.2 ev)	down wind of EZ	Continuous	Stop work. Follow air monitoring procedures outline in section 5.2.2 (Major Vapor Emissions) of this plan.
Real time Monitoring	Combustible Gas	<10% LEL	CGI	EZ	At least every 15 minutes	Eliminate all ignition sources
Real time Monitoring	Combustible Gas	>10% LEL	CGI	EZ	Continuous	Stop work and contact SSO. Evaluate cause of gas.
Visual	Dust	Visible amount	None	EZ/work area	Continuous	Stop work and reduce dust by wetting the area or changing operation.

EZ= Exclusion Zone (work zone).
LEL=Lower explosive limit.
VOCs=Volatile organic compounds.

FIGURES



NOTE:
BASE MAP ADAPTED FROM U.S.G.S. TOPOGRAPHIC MAPS DOWNLOADED FROM TERRASERVER.MICROSOFT.COM

NORTH

BROOME COUNTY DEPARTMENT OF PLANNING AND ECONOMIC DEVELOPMENT

312 MAPLE STREET
VILLAGE OF ENDICOTT, NEW YORK

HEALTH AND SAFETY PLAN

LOCUS PLAN

SCALE IN FEET

0 500 1000 2000

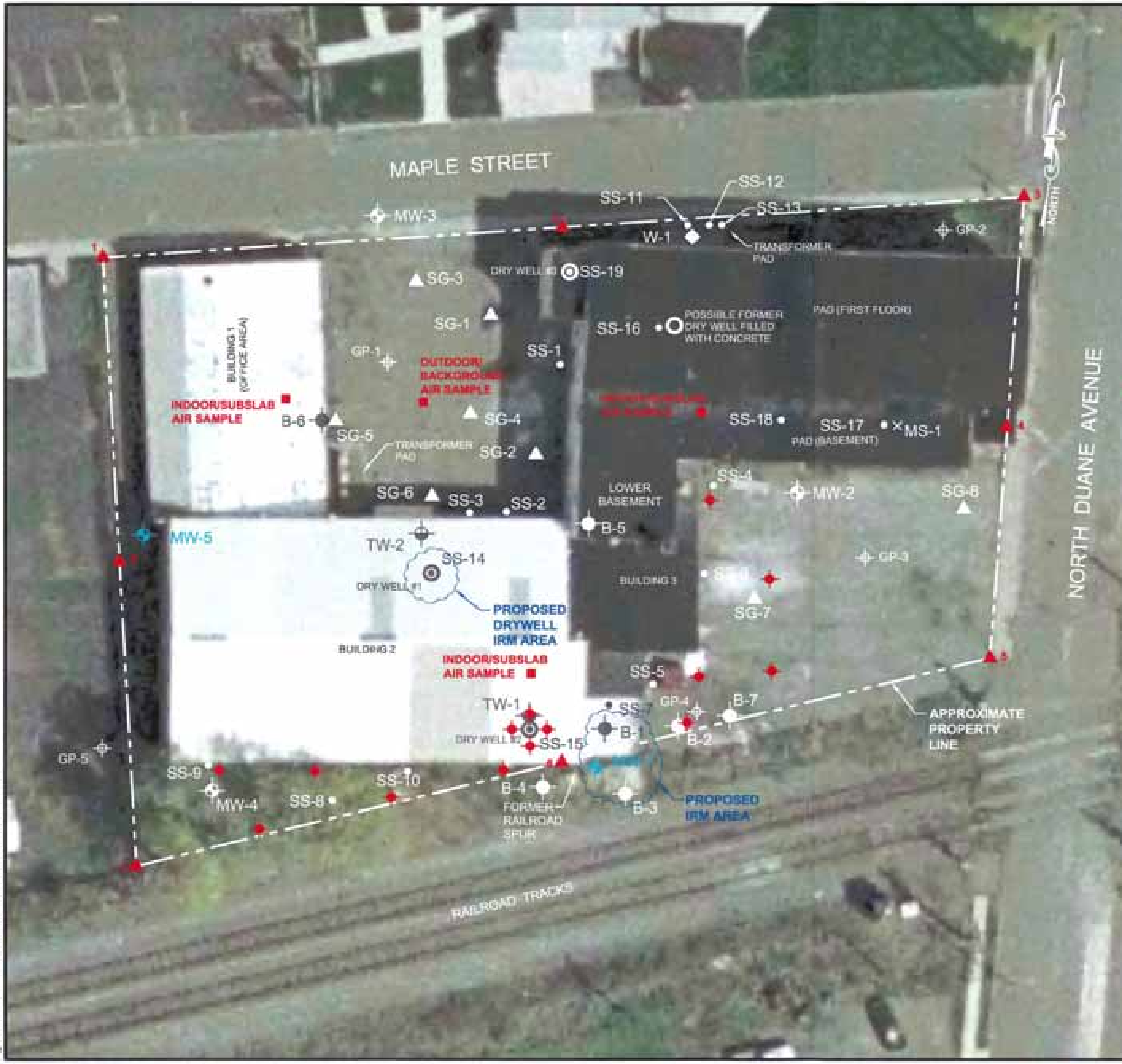
DRAWN BY: **DEW**

DATE: **SEPTEMBER 2005**

GZA GeoEnvironmental of New York

PROJECT No. **21.0056127.00**

FIGURE No. **1**



LEGEND:

Symbol	Description
INDOOR/SUBSLAB AIR SAMPLE ■	APPROXIMATE LOCATION AND DESIGNATION OF PROPOSED AIR SAMPLE
✦	APPROXIMATE LOCATION OF PROPOSED SOIL PROBE
7▲	APPROXIMATE LOCATION AND DESIGNATION OF PROPOSED VADOSE ZONE SOIL GAS POINT
MW-5	APPROXIMATE LOCATION AND DESIGNATION OF PROPOSED MONITORING WELL
B-1	APPROXIMATE LOCATION AND DESIGNATION OF PREVIOUS SUPPLEMENTAL TEST BORING
TW-1	APPROXIMATE LOCATION AND DESIGNATION OF PREVIOUS SUPPLEMENTAL TEMPORARY MONITORING WELL
GP-1	APPROXIMATE LOCATION AND DESIGNATION OF GEOPROBE LOCATION PERFORMED BY OTHERS WITH GROUNDWATER TEST RESULTS
MW-3	APPROXIMATE LOCATION AND DESIGNATION OF EXISTING MONITORING WELL
• SS-1	APPROXIMATE LOCATION AND DESIGNATION OF PREVIOUS SURFACE SOIL/SLUDGE SAMPLE
▲ SG-1	APPROXIMATE LOCATION AND DESIGNATION OF PREVIOUS SOIL GAS SAMPLING POINT
◆ W-1	APPROXIMATE LOCATION AND DESIGNATION OF PREVIOUS WIPE SAMPLE
× MS-1	APPROXIMATE LOCATION AND DESIGNATION OF PREVIOUS MEMBRANE SAMPLE

NOTES:

1. BASE MAP ADAPTED FROM A 2002 AERIAL PHOTOGRAPH DOWNLOADED FROM http://www.nysgis.state.ny.us/gateway/mg/interactive_main.html AND FIELD OBSERVATIONS.

2. THE SIZE AND LOCATION OF EXISTING SITE FEATURES SHOULD BE CONSIDERED APPROXIMATE.

DRAWN BY: DEW

DATE: SEPTEMBER 2005

GZA GeoEnvironmental of New York

APPROXIMATE SCALE IN FEET

0 15 30 60

BROOME COUNTY DEPARTMENT OF PLANNING AND ECONOMIC DEVELOPMENT

312 MAPLE STREET

VILLAGE OF ENDICOTT, NEW YORK

HEALTH AND SAFETY PLAN

SITE PLAN

PROJECT No. 21.0056127.00

FIGURE No. 2

FIGURE 3

Yahoo! Driving Directions FROM SITE TO HOSPITAL

Starting from: A 312 Maple St, Endicott, NY 13760-4023

Arriving at: B WILSON MEMORIAL MEDICAL CENTER 33 Harrison St, Johnson City, NY

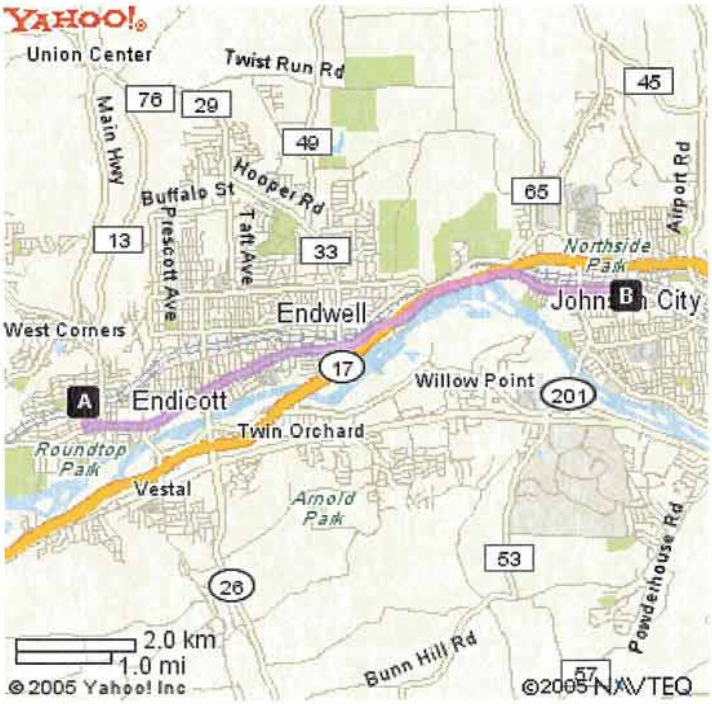
Distance: 6.4 miles **Approximate Travel Time:** 14 mins

Your Directions

1.	Start at **312 MAPLE ST, ENDICOTT** - go **< 0.1** mi
2.	Turn R on **DUANE AVE** - go **0.3** mi
3.	Turn L on **MAIN ST[RT-17C]** - go **3.3** mi
4.	Continue to follow **RT-17C** - go **2.8** mi
5.	Turn R on **HARRISON ST** - go **0.1** mi
6.	Arrive at **WILSON MEMORIAL MEDICAL CENTER**

When using any driving directions or map, it's a good idea to do a reality check and make sure the road still exists, watch out for construction, and follow all traffic safety precautions. This is only to be used as an aid in planning.

Your Full Route



Your Destination

Address:
WILSON MEMORIAL MEDICAL CENTER 33
Harrison St
Johnson City, NY

ATTACHENT C1

GZA HEALTH AND SAFETY BRIEFING/SITE ORIENTATION RECORD

SITE SIGN-IN SHEET

GZA INCIDENT INVESTIGATION FORM

GZA Health and Safety Briefing /Site Orientation Record

312 Maple Street
Endicott, New York

This is to verify that I, the undersigned, have been provided with a site (orientation) briefing regarding the safety and health considerations at the 312 Maple Street Site. I agree to abide by my employer's site-specific safety and health plan and other safety or health requirements applicable to the site.

Name (Print)	Signature	Company	Date

Site (orientation) briefing conducted by: _____ Date:_____

Site Sign In Sheet

312 Maple Street
Endicott, New York

Name (Print)	Signature	Company	Date	Time In	Time Out

Site (orientation) briefing conducted by: _____ Date:_____

GZA INCIDENT INVESTIGATION FORM

Employee's Name | GZA Company Name

Project Name | Project Location

Project Number

Building | Room | Other

Time Incident Occurred | Date

Supervisor's Name

Type of Case:

First Aid | Medical Treatment

Lost Time | Fatality | Property Damage

Occupational Illness

Describe the incident (What happened):

Describe the type of first aid or medical treatment provided:

Describe employee activity at time of incident:

Describe any tools or machinery involved:

Describe any personal protective equipment used by employee:

In your opinion, what the probable causes of the incident are:

In your opinion, how this incident could have been prevented:

Changes in process, procedure, or equipment that you would recommend:

How you would classify the apparent causes of this incident:

Human error	Equipment
Material	Personal Protective Equipment
Real Time	Other

Name and signature of person preparing this form:

Distribution:

Branch/Regional Office Manager:
Regional Health and Safety Coordinator:
Corporate Director of Health and Safety:
Other:

Note: If the space provided on this form is insufficient, provide additional information on separate paper and attach. The completed investigation report must be submitted to the Corporate Director of Health and Safety in Newton within five days.

ATTACHEMENT D

CITIZEN PARTICIPATION PLAN

SITE INVESTIGATION/REMEDIAL ALTERNATIVE REPORT
312 MAPLE STREET
ENDICOTT, NEW YORK
SITE NO. B00168-7

CITIZEN PARTICIPATION PLAN

for

312 Maple Street

Site Number: B-00168-7

312 Maple Street
Endicott
Broome County, New York

June 2, 2005

Prepared By:

Broome County Department of
Planning and Economic Development

Background

ENVIRONMENTAL RESTORATION PROJECT

This Citizen Participation Plan has been developed for 312 Maple Street under New York State's Environmental Restoration Projects Program.

Brownfields are abandoned, idled, or under-used properties where expansion or redevelopment is complicated by real or perceived environmental contamination. They typically are former industrial or commercial properties where operations may have resulted in environmental contamination. They often pose not only environmental, but legal and financial burdens on communities. Left vacant, contaminated sites can diminish the property value of surrounding sites and potentially threaten the economic viability of adjoining properties.

RESOURCES AVAILABLE FOR COMMUNITY REDEVELOPMENT

In an effort to spur the cleanup and redevelopment of brownfields, Governor Pataki proposed, and New Yorkers approved, a $200 million Environmental Restoration Fund as part of the $1.75 billion Clean Water/Clean Air Bond Act of 1996 (1996 Bond Act). Under the Program, the State provides grants to municipalities to reimburse up to 90 percent of eligible costs for site investigation and remediation activities. Only New York State municipalities are eligible. The term "municipality" includes counties, cities, towns and villages as well as local public authorities, public benefit corporations, school and supervisory districts and improvement districts. The term also includes a municipality acting in partnership with a community based organization.

Once remediated, the property may then be reused for commercial, industrial, residential or public use. In addition, the municipality and all successors in title, lessees, and lenders are released from remedial liability for hazardous substances that were on the property prior to the grant. The State indemnifies these same persons in the amount of any settlements/judgements obtained regarding an action relating to hazardous substances that were on the property prior to the grant.

SECTION 1: INTRODUCTION

Broome County and the New York State Department of Environmental Conservation (NYSDEC), in cooperation with the New York State Department of Health (NYSDOH), are committed to informing and involving the public during the process to develop the Site Investigation and Remedial Alternatives Report (SI/RAR) for 312 Maple Street. The site is the former location of a manufacturing facility and is located at 312 Maple Street in the Village of Endicott, Broome County, New York. A location map and site map are attached as part of Appendix 3. This Citizen Participation Plan (CPP) has been prepared by the Broome County Department of Planning and Economic Development specifically for this site. Definitions of some common terms used in the SI/RAR process are in Appendix 1.

The SI is a detailed study to determine how much contamination there is, how far it extends, and potential threats to public health and the environment. Using information developed during the SI, the RAR evaluates possible ways to clean up the site. NYSDEC describes its preferred remedy in a Proposed Remedial Action Plan. After public comment, the selection of a remedy is finalized in a Record of Decision.

This CPP seeks to ensure an open process for the interested and possibly affected public. This includes public officials at all levels, citizen interest groups, commercial interests, individuals in the area of the site, and the media. These parties can be a part of the decision-making process for this site, and need to be informed about on-site activities. It also identifies locations where these parties can obtain additional information about the remedial program for this site. Specific opportunities for public and community input into the decision-making process are indicated.

The CPP is a working document. It can be enhanced to accommodate major changes in either public opinion, or in the nature and scope of technical activities at the site. The activities listed below are not intended to be an all-inclusive list, but an outline of possible activities which may be conducted in coordination with the site investigation and remedial process.

This CPP includes the following information:

- A description of the site's history, indicating possible types of contamination known or suspected onsite;
- A description of the proposed Site Investigation/Remedial Alternatives Report (SI/RAR) activities;
- Listing of contacts representing the interested public agencies associated with this project;
- Identification of a local repository for information and reports generated during the course of completing the investigation activities; and
- Description of planned citizen participation activities.

SECTION 2: SITE LOCATION

The site is less than one acre in size and is located at the south west corner of Maple Street and North Duane Avenue in the Village of Endicott. Maps of the sites are included in Appendix 3. The southern lot line is bounded by the railroad tracks. North across Maple Street is American Legion Post 1700. The immediate vicinity of the site is commercial/industrial, with residential land uses nearby.

The site consists of three buildings. Building 1 is a single-story masonry structure; Building 2 is a steel-framed and sided structure with a concrete slab on grade as a floor. Building 3 is a masonry

and wood-framed two-story building with a basement. The buildings are currently used by a wood cabinet manufacturer. A site map is attached.

The site is at an approximate elevation of 830 feet and is generally flat. The Susquehanna River is approximately 0.7 miles to the south and Nanticoke Creek is approximately 0.8 miles to the west of the site.

The site overburden generally consists of fill material, sand and gravel, and clayey silt soil. The fill thickness at 312 Maple Street varies between 2 to 7.5 feet thick. Four monitoring wells (MW) are located onsite. The fill at MW-1 (southeastern portion of the site) consisted of apparent black coal ash intermixed with sand and is apparently associated with the adjacent former railroad spur. The fill identified in MW-2 and MW-4 appeared to consist mostly of sand and gravel intermixed with apparent coal ash. The fill at MW-3 (northern portion of the site) generally consisted of sand and gravel intermixed with brick chips and coal ash.

A sand and gravel deposit was encountered in previous borings. The deposits consisted primarily of sand and gravel with varying amounts of silt and clay. The thickness of this deposit was not fully penetrated during boring of MW-2, MW-3 or MW-4, therefore a thickness of the deposit at these borings was not obtained. The MW-1 boring encountered a clayey silt deposit at a depth of about 19 feet underlying the sand and gravel deposit. The clayey silt deposit was sampled to a depth of about 27 feet below ground surface, but the deposit was not fully penetrated.

The groundwater flow is difficult to characterize. Based on a previous round of water level measurements, there appears to be no significant hydraulic gradient. Groundwater elevations measured at four wells across the site are within 0.03 feet of each other making for a hydraulic gradient on the order of 0.0001. This is within the measuring accuracy of the equipment used, therefore, the groundwater elevation may be considered nearly flat.

Public water is available for all buildings in the neighborhood surrounding the 312 Maple Street site. This water comes from wells that are frequently sampled by the Village of Endicott, under the supervision of the Broome County Health Department. The water meets all New York State Health Department standards.

SECTION 3: SITE HISTORY

The chain-of-use for the subject property was derived from Sanborn maps, directories, and tax map records. The property was used by various shoe manufacturers, including Collingwood Shoe Co., Regal Shoe, E.J. Corp., Sanford Manufacturing, and National Shoe Products Co., from 1922 until the 1960's. From 1965 until the 1990's, the property was used by a succession of circuit board and computer manufacturing firms (including Robina Industries, LMS of North America, Chenango Industries and Envirocycle, Inc.). In 1993, the property was taken in a tax foreclosure by Broome County. There is currently a wood cabinet manufacturer occupying a portion of the property.

SECTION 4: KNOWN ENVIRONMENTAL CONCERNS

Based on previous studies performed on the site, there are two source areas identified. The first is a zone of unsaturated soils contaminated with trichloroethene (TCE) located southeast of Building 2. The second area is three dry wells located inside Buildings 2 and 3. A third area consisting of the surface soils east of Building 3 and south of Building 2 may require additional investigation/remediation. The groundwater at the site is contains TCE, but it is not considered to be a source area.

TCE Contaminated Unsaturated Soils: It is estimated that approximately 250 cubic yards (cy) of soil are contaminated based on previous remedial investigations. However, the contamination may extend beyond these limits (i.e. the TCE could extend beneath the building). The TCE contaminated soil source area appears to be on both the 312 Maple Street site and the adjoining rail property.

Three Dry Wells: Two dry wells are located in Building 2 and one drywell is located in Building 3. Each dry well is about three feet deep. The levels of volatile organic compounds (VOCs) detected in the soil samples from the bottom of the dry wells are generally low. Metals and other compounds (e.g. semi-volatile organic compounds) are also present.

Surface Soils: Surface soils were sampled and identified to contain potentially elevated metals, primarily arsenic, in the area south and east of Building 3; and polycyclic aromatic hydrocarbons (PAHs), in the area south of Building 2. The metals and PAHs are considered typical in industrial settings.

SECTION 5: PLANNED SITE INVESTIGATION

5.1 Scope of the Investigation

An Investigation Work Plan has been prepared which includes the following major tasks:

Task 1: Project Plans

Quality Assurance Project Plan
Health and Safety Plan

Task 2: Interim Remedial Measures

Waste Characterization
Exterior TCE Contaminated Soil Removal
Drywells No. 1 and No. 2 Closure

Task 3: Groundwater Sampling

Task 4: Dry Well Subsurface Investigation

Task 5: Subsurface Soil Investigation

Task 6: Subslab/Indoor Air and Vadose Zone Soil Gas

Subslab and Indoor Air Sampling
Vadose Zone Investigation

Task 7: Site Investigation/Remedial Alternatives Report

The proposed workplan provides additional details about the investigation. Copies can be reviewed at the repositories listed in Section 6 of this Citizen Participation Plan or online at:

www.gobroomecounty.com/planning/312maple/

This workplan will be completed by GZA GeoEnvironmental under contract to Broome County. The work will be funded primarily by New York State Environmental Restoration Funds with additional matching funds from Broome County and a grant from the US Environmental Protection Agency.

5.2 Project Schedule

The above activities are expected to begin at the site by early Summer 2005. Project plan, review, interim remedial measure and site investigation is expected to take approximately 12 weeks. A draft SI/RAR report should be submitted for Broome County, NYSDEC and the NYSDOH approximately 16 calendar weeks after the notice to proceed

SECTION 6: CITIZEN PARTICIPATION ACTIVITIES

It is the expressed intent of Broome County and the NYSDEC to provide information to the public in a timely, complete, and accurate manner. Towards this end, Broome County has compiled a list of individuals to whom the public can address specific requests for information. These contacts are both local and state public officials and are knowledgeable of the proposed investigative activities. This list of contacts is provided in Table 1, Section 6.1, below.

A local repository has been established at the Broome County Public Library, the Endicott Public Library, and the Broome County Department of Environmental Health, in addition to the ones established at the NYSDEC offices at 1679 NY Route 11, Kirkwood New York. Repositories of information are identified in Section 6.2 below. A copy of the documents relevant to the SI/RAR, including the SI/RAR Work Plan, will be placed in the repositories to allow interested citizens and groups to review these documents. To the extent possible, documents will also be posted online at the Broome County Department of Planning and Economic Development website located at:

www.gobroomecounty.com/planning/312maple/

A Fact Sheet detailing the availability of the SI/RAR Work Plan will be sent out to the residents and other interested parties on the mailing list. The mailing list is presented in the attached Appendix 2. This mailing will include information about the document repositories, the name and address of the Broome County representative, NYSDEC Project Manager and NYS Department of Health contact. Parties who express interest in being placed on or removed from the mailing list will be added or removed as requested.

The Fact Sheet will also serve as part of an invitation to a pre-remediation public meeting that will be held to discuss the objectives and the intended scope of work. This meeting will be announced by a NYSDEC press notice sent to the media identified in Table 3, Section 6.4 below, and those parties identified in the mailing list. It is anticipated that a second public meeting will be held after the completion of site investigation and remediation.

Once the SI/RAR Report has been accepted, the NYSDEC will issue a Proposed Remedial Action Plan (PRAP) for the site. This plan will use the information contained in the SI/RAR and evaluate several alternatives to address the contamination at the site. This plan will then propose a course of remedial action for the site.

A public meeting will then be held to present the SI/RAR and the PRAP to the public. This presentation will be followed by a formal question and answer period. The PRAP will also have a 45-day comment period, during which written comments and questions can be submitted.

After the comment period, a Record of Decision (ROD) will be issued by the NYSDEC identifying the remedy selected for the site, and the basis for this selection. As part of the ROD, a responsiveness summary will be prepared. This responsiveness summary will include all relevant and significant questions and comments received on the PRAP and the NYSDEC/NYSDOH responses to this input.

The ROD and the PRAP, and all NYSDEC-approved reports, plans, and fact sheets on this project will be placed in the document repositories for public review. These documents may be distributed more widely, such as to interested local groups, if warranted.

6.1 Public Agency Contacts

Broome County has identified individuals knowledgeable of the proposed remedial investigation activities. These individuals are identified in Table 1, below.

Table 1: Public Agency Contacts

Broome County Contacts		

County Project Manager Frank Evangelisti, Chief Planner	*Address* Department of Planning and Economic Development P.O. Box 1766 Binghamton, NY 13902	*Phone Number* (607) 778-2414
NYS Department of Environmental Conservation		
DEC Project Manager Daniel Fuller	*Address* 1679 NY Route 11 Kirkwood, NY 13795-9772	*Phone Number* (607) 775-2545
Regional Engineer Mary Jane Peachey	*Regional Engineer's Address* 615 Erie Boulevard West, Syracuse, NY 13204	*Phone Number* (315) 426-7400
New York State Department of Health		
NYSDOH Project Manager Justin Deming	*Address* NYSDOH 547 River Street Troy, NY 12180	*Phone Number* 1(800) 458-1158,
Broome County Department of Health		
County DOH Contact Robert Denz or Ronald Brink	*Address* 225 Front Street Binghamton, NY 13905	*Phone Number* (607) 778-2887

6.2 Document Repositories

The public is encouraged to review the documents related to the site which are available for public review at the following locations:

NYSDEC Region 7 Office 1679 NY Route 11 Kirkwood, NY 13795-9772 Attention: Daniel Fuller Phone: (607) 775-2545 Hours:	NYSDEC Central Office 625 Broadway Albany, NY 12233
Broome County Department of Environmental Health 225 Front Street Binghamton, NY 13905 Attn: Robert Denz or Ronald Brink Phone (607) 778-2887 Hours:	Broome County Public Library 185 Court Street Binghamton, NY 13901 Attention: Reference Desk Phone: (607) 778-6400 Hours: Mon. - Thurs. 9:00 am to 8:00 pm; Fri. and Sat. 9:00 am to 5:00 pm
George F. Johnson Memorial Library	To the extent possible, documents will also be available

1101 Park Street Endicott, NY 13760 Attention: Reference Desk Phone: (607) 757-5350 Hours: Mon. and Wed. 10:00 am to 6:00 pm; Tues. and Thurs. 2:00 pm to 9:00 pm; Fri. 10:00 am to 5:00 pm; Sat. Noon to 4:00 pm	online at: www.gobroomecounty.com/planning/312maple/

6.3 Mailing List

The attached mailing list includes owners of properties located within the immediate vicinity of the site. The mailing list of property owners is presented in Appendix 2. Broome County will produce and distribute Fact Sheets providing residents with timely information on project status, including notifications of upcoming activities on-site (e.g., fieldwork) or off-site (e.g., public availability sessions). Included in all Fact Sheets will be the list of individuals to be contacted by the public for additional information (see Table 1, above). In addition to property owners, Fact Sheets will be mailed to the elected officials/ representatives, environmental groups, and media listed in Tables 2 and 3 below.

Table 2: Elected Officials/Representatives and Environmental Groups

Elected Officials / Public Agency Representatives	
Maurice D. Hinchey, Member of Congress Office of Rep. Hinchey 100A Federal Building Binghamton, NY 13901	Hillary R. Clinton, US Senator James M. Hanley Federal Building 100 South Clinton Street P.O. Box 7378 Syracuse, NY 13261-7378
Thomas W. Libous, NYS Senator 1607 State Office Building 44 Hawley Street Binghamton, NY 13901	Charles E. Schumer, US Senator Federal Building 15 Henry Street, Room B6 Binghamton, NY 13901
Donna A. Lupardo, NYS Assemblymember Binghamton State Office Building 17th Floor Binghamton, NY 13901	Joan Hickey Pulse, Village of Endicott Mayor Endicott Village Office 1009 East Main St Endicott, NY 13760
Richard A. Materese, Broome County Legislator Broome County Legislature County Office Building P.O. Box 1766 Binghamton, NY 13902	John Bernardo, Town of Union Supervisor Union Town Hall 3111 East Main St Endwell, NY 13760
Environmental Groups	

Wanda Hudak, Chair WBESC Western Broome Environ. Stakeholders Coalition 945 Squires Ave Endicott, NY 13760 email: spgwhudak@aol.com	Anne Taft, President League of Women Voters of Broome & Tioga Counties P.O. Box 944 Vestal, NY 13851-0944
Betsy Prohonic, Community Outreach Coordinator - Western Broome Environ. Stakeholders Coalition Center for Environmental Health NYSDOH 547 River Street Troy, NY 12180	Alan Turnbull, Coordinator RAGE Organization 117 Cleveland Avenue Endicott, NY 13760
Scott Lauffer, Group Chair Susquehanna Group Sierra Club P.O. Box 572 Endicott, NY 13760	Betty L. Havel CARE 19 1/2 Arthur St Endicott, NY 13760

6.4 Media Announcements

Broome County and the NYSDEC will make every reasonable effort to ensure that upcoming public meetings are announced in several media, for the purpose of encouraging public participation and comment. Announcements will be initially submitted to visual and sound media for broadcast as "Public Service Announcements" at least 14 calendar days prior to the day of the public meeting.

The media locations identified in Table 3 represent the minimum media where announcements will be placed.

Table 3: Media

All media material will be sent via fax.

Radio	WSKG (607) 729-7328 WAAL/WHWK/WNBF (607) 772-9806 WGRG (607) 748-0061 WHRW (607) 777-4958 WKGB/WMRV/WMXW (607) 584-5900 WCDW (607) 772-2945 WCII (607) 797-4225
Television	WBNG-TV (607) 729-4022 WICZ-TV (607) 798-7950 WIVT-TV (607) 723-1034

	WETM-TV (607) 733-4739
Newspaper	Press-Sun Bulletin (607) 798-1113 Pennysaver (607) 687-2931 Pipe Dream (607) 777-2600 Reporter (607) 724-2311

Environmental Restoration Program
Glossary and Acronyms

This glossary defines terms associated with New York's citizen participation program, and important elements of the Brownfield program. Words in **bold** in the definitions are defined elsewhere in the glossary.

Administrative Record — Part of a site's **Record of Decision** which lists and defines documents used in the development of NYSDEC's decision about selection of a remedial action.

Availability Session — A scheduled gathering of program staff and members of the public in a casual setting, without a formal presentation or agenda but usually focusing on a specific aspect of a site's remedial process.

Citizen Participation — A program of planning and activities to encourage communication among people affected by or interested in Brownfield sites and the government agencies responsible for investigating and remediating them.

Citizen Participation Specialist

A staff member from an NYSDEC central office or regional office who has specialized training and experience to assist a **project manager** and other staff to plan, conduct and evaluate a site-specific citizen participation program.

Comment Period

A time period for the public to review and comment about various documents and DER actions. For example, a 45-day comment period is provided when DER issues a **Proposed Remedial Action Plan (PRAP).**

Contact List

Names, addresses and/or telephone numbers of individuals, groups, organizations, government officials and media affected by or interested in a particular Brownfield site. The size of a contact list and the categories included are influenced by population density, degree of interest in a site, the stage of the remedial process and other factors. It is an important tool needed to conduct outreach activities.

Division of Environmental Remediation

A major program unit within the New York State Department of Environmental Conservation created to manage the hazardous waste site remedial program, the Brownfield program, and the Voluntary Cleanup program. Staff include: engineers, geologists, chemists, attorneys, citizen participation specialists, environmental program specialists and support staff.

Document Repository

A file of documents pertaining to a site's remedial and citizen participation programs which is made available for public review. The file generally is maintained in a public building near the Brownfield site to provide access at times and a location convenient to the public.

Fact Sheet

A written discussion about part or all of a site's remedial process, prepared and provided by DER to the public. A fact sheet may focus on: a particular element of the site's remedial program; opportunities for public involvement; availability of a report or other information, or announcement of a **public meeting** or **comment period**. A fact sheet may be mailed to all or part of a site's **contact list**, distributed at meetings, placed in a **document repository** and/or sent on an "as requested" basis.

Interim Remedial Measure (IRM)

A discrete action which can be conducted at a site relatively quickly to reduce the risk to people's health and the environment from a well-defined contamination problem. An IRM can involve removing

contaminated soil and drums, providing alternative water supplies or securing a site to prevent access.

New York State Department of Health

Agency within the executive branch of New York State government which: performs health-related inspections at suspected contaminated sites; conducts health assessments to determine potential risk from environmental exposure; reviews Exposure Assessments prepared during the **Site Investigation/Remedial Alternatives Report**; conducts health-related community outreach around sites; and reviews remedial actions to assure that public health concerns are adequately addressed.

Operable Unit

A discrete part of an entire site that produces a release, threat of release, or pathway of exposure. An Operable Unit can receive specific investigation, and a particular remedy may be proposed. A **Record of Decision** is prepared for each Operable Unit.

Operation and Maintenance

A period in which remedial action may be conducted following construction at a site (for example, operation of a "pump and treat" system), or which is performed after a remedial action to assure its continued effectiveness and protection of people's health and the environment. Activities can include site inspections, well monitoring and other sampling.

Project Manager

An NYSDEC staff member within the **Division of Environmental Remediation** (usually an engineer, geologist or hydro geologist) responsible for the day-to-day administration of remedial activities at, and ultimate disposition of, an Environmental Restoration site. The Project Manager works with legal, health, **citizen participation** and other staff to accomplish site-related goals and objectives.

Proposed Remedial Action Plan (PRAP)

An analysis by DER of each alternative considered for the remediation of an Environmental Restoration site and a rationale for selection of the alternative it recommends. The PRAP is created based on information developed during the **Site Investigation/Remedial Alternatives Report**. The PRAP is reviewed by the public and other state agencies.

Public Meeting

A scheduled gathering of **Division of Environmental Remediation** staff with the affected/interested public to give and receive information, ask questions and discuss concerns about a site's remedial program. Staff from other NYSDEC divisions, legal and health staff, and staff from consultants and a responsible party often

also attend. A public meeting, unlike an **availability session**, generally features a formal presentation and a detailed agenda.

Record of Decision (ROD)

A document which provides definitive record of the cleanup alternative that will be used to remediate an Environmental Restoration site. The ROD is based on information and analyses developed during the **Site Investigation/Remedial Alternatives Report** and public comment.

Remedial Construction

The physical development, assembly and implementation of the remedial alternative selected to remediate a site. Construction follows the **Remedial Design** stage of a site's remedial program.

Remedial Design

The process following finalization of a **Record of Decision** in which plans and specifications are developed for the **Remedial Construction** of the alternative selected to remediate a site.

Site Investigation/ Remedial Alternatives Report (SI/RAR)

The SI fully defines and characterizes the type and extent of contamination at the site. The RAR, which may be conducted during or after the SI, uses information developed during the SI to develop alternative remedial actions to eliminate or reduce the threat of contamination to public health and the environment.

Responsiveness Summary

A written summary of major oral and written comments received by DER during a **comment period** about key elements of a site's remedial program, such as a **Proposed Remedial Action Plan**, and DER's response to those comments.

Property Owner Mailing List

Robt J Stanton
219 N Nanticoke Ave
Endicott NY 13760

Kathryn M Feeney
108 W Franklin St
Endicott NY 13760

Dominick Bevelacqua
114 W Franklin St
Endicott NY 13760

DEUTSCHE BANK NTL TS
1800 TAPO CANYON SV-1
SIMI VALLEY CA 93063

John O Cornick
126 W Franklin St
Endicott NY 13760

Dewitt C Brigham
217 N Nanticoke Ave
Endicott NY 13760

Giacinto Santacroce
308 W Franklin St
Endicott NY 13760

Robert Maney
314 W Franklin St
Endicott NY 13760

Gene & Rose R Birchard
320 Franklin St W
Endicott NY 13760

Martin Mancini
214 N Duane Ave
Endicott NY 13760

Julie A Potochniak
214 Dwight Ave
Endicott NY 13760

Living Vallone
215 New York Rte 38B
Endicott NY 13760

Crystal D Luce
213 Dwight Ave
Endicott NY 13760

Robt G Donald
Box 5609
Endicott NY 13763

Francis A Monico
213 Sliter Pl
Endicott NY 13760

Walter T Gasior
102 W Franklin St
Endicott NY 13760

Arleen L Johnston
110 W Franklin St
Endicott NY 13760

Rodney D Moore
1029 Imperial Woods Dr
Vestal NY13850

Louis E Marinello
122 W Franklin St
Endicott NY 13760

C Sackett
128 W Franklin St
Endicott NY 13760

Victor M Tennant
217 N Duane Ave
Endicott NY 13760

Steve Ricciardi
310 W Franklin St
Endicott NY 13760

Michael J Manfredo
17719 Community St
Lansing IL 60438

Jimmy R Terwilliger
300 N Duane Ave
Endicott NY 13760

Frederick E Lashway
215 N Nanticoke Ave
Endicott NY 13760

Mary C Striley
212 N Duane Ave
Endicott NY 13760

Kenneth C Degroat
213 Duane Ave N
Endicott NY 13760

Leroy H Rosencrance
119 Jennings St
Endicott NY 13760

John Stachyra
211 N Duane Ave
Endicott NY 13760

Steve Pauk
210 Dwight Ave
Endicott NY 13760

Sharon Roberts
106 Franklin St W
Endicott NY 13760

Kathleen L Monticello
112 W Franklin St
Endicott NY 13760

Lori Zigata
1000 Boswell Hill Rd
Endicott NY 13760

Edward J Harmon
124 W Franklin St
Endicott NY 13760

Jeremy T Terwilliger
216 N Duane Ave
Endicott NY 13760

Daniel J Pender
306 W Franklin St
Endicott NY 13760

Raymeta Chaffee
126 Birdsall St
Endicott NY 13760

Gene R Birchard
318 W Franklin St
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