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January 28, 2009

Mr. Girish Desai
Environmental Engineer 2
New York State Department of Environmental Conservation
Building 40 - SUNY
Stonybrook, New York 11790-2356

Re: Response to NYSDEC Comments
Former Watchcase Factory
15 Church Street, Sag Harbor, New York
Index No. W1-1130-08-12
Site No. 1-52-139

Dear Mr. Desai:

On behalf of Sag Development Partners, LLC, Roux Associates, Inc. has prepared this letter summarizing their Responses to Comments on the Draft Site Management Plan and Pre-Excavation Soil Characterization Sampling Work Plan. The NYSDEC comments were received from via letter to Craig Wood, dated January 12, 2009 (first set of comments), via email on January 20, 2009 (second set of comments), and via email on January 22, 2009 (third set of comments).

Responses to January 12 Comments on SMP

1. **Comment**: *As this SMP is a conceptual plan. Any work plans and design/construction plans that describe construction details for implementation of the Explanation of Significant Difference (ESD) and SMP should be submitted to the Department and the NYSDOH for review and approval.*

   Response: Agreed. Section 5.1 of the SMP was revised to expressly state that any additional work plans and design/construction plans that describe construction details for implementation of the ESD and SMP will be submitted to the NYSDEC and NYSDOH for review and approval.

2. **Comment**: *The SMP must address all remaining on and off-site requirements under the Record of Decision as modified by the ESD.*

   Response: Agreed. The SMP addresses all remaining on and off-site requirements under the Record of Decision as modified by the ESD.

3. **Comment:** *The SMP should include Pre-Excavation Soil Characterization Sampling Work Plan as an appendix.*

   Response: Agreed. The SMP includes a Pre-Excavation Soil Characterization Sampling Plan as Appendix F.

4. **Comment**: *If post confirmatory end point samples reveal the presence of contaminated soils after the completion of planned excavation, the remediation of remaining contaminated soils will be required by the Department.*

   Response: Agreed. It is understood that if post-excavation end-point samples reveal the presence of contaminated soils after the completion of planned excavation, such remaining contaminated soils will be remediated consistent with a work plan to be submitted to the NYSDEC for review and approval.

5. **Comment**: *All clean fill or topsoil imported from off-site will be sampled at a frequency of one sample per 500 yards for the first 1,000 yards, and one sample per 1,000 yards thereafter. The sample should be analyzed for TCL VOCs, SVOCs, pesticides, PCBs, TAL metals, and cyanide. The analyses of samples should be submitted to the Department for approval.*

   Response: Agreed. The SMP stipulates this protocol in Section 4.1 (p. 9).

6. **Comment**: *A stack test for site-related compounds is required for a sub slab depressurization system at the subject site. Test results will be used to determine whether or not air emission control is required in order to meet short-term or annual guideline concentrations. An Air Facility Registration will be required for the operation of the system.*

   Response: Agreed. Section 5.1.3 was modified to reference the required Air Facility Registration certificate for operation of the depressurization systems, and Section 7.2 was modified to describe startup and annual air sampling and analysis of the systems exhaust that will be conducted in accordance with the NYSDOH October 2006, Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York.

7. **Comment**: *Sag Development Partners (SDP) should determine the potential reuse of the proposed excavated soils. Based on the past releases of a listed waste (F-waste), SDP needs to request a contained-in determination prior to any potential reuse of excavated soils.*

   Response: Agreed. This protocol is described in Sections 4.1 and 4.3 of the SMP for all material that will be excavated and removed from the site. In addition, Section 4.3 of the SMP has been clarified to indicate that a contained-in determination must be requested from the NYSDEC prior to the off-site reuse of any excavated soils that contain chlorinated solvents.

8. **Comment**: *Section 5.1.1: Monitoring of vapor discharge from the depressurization systems will be required.*

   Response: Agreed. Monitoring of vapor discharge from the depressurization systems will be performed, as stated in Section 7.2.

9. **Comment**: *Section 6.1 CAMP: The CAMP is not clear about the location of the monitoring stations. It may be better to monitor continuously around the site during the excavation work. The winds in this coastal area can shift often.*

   Response: The CAMP has been revised to provide that there will continuous monitoring by up to four monitoring locations, including one upwind and one downwind, that will allow for instantaneous monitoring capabilities that will address shifting coastal winds. A revised figure will be included in the CAMP (to be provided electronically tomorrow).

10. **Comment**: *The SMP should specify if odor suppressant foam and water will be readily available on site to keep the dust down during construction.*

    Response: Agreed. The CAMP states this in Section 1.4. In addition, the SMP has been modified at Section 4.5 to clarify that odor suppressant foam will be readily available on site and will be used to suppress odor, as needed, during construction, in addition to water spraying for dust control.

11. **Comment**: *Section 7.1.1 Soil Vapor: The NYSDOH recommends that SDP only collect samples during dry periods (no rain within a least 24 hrs).*

    Response: Language has been added to Section 7.1.1 of the SMP to clarify that soil vapor samples will be collected in accordance with the applicable guidance set forth in NYSDOH's October 2006, Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York.

12. **Comment**: *Section 7.1.2 Groundwater sampling: SCDHS would like to be notified a least 1 week before sampling of the wells occurs. SCDHS may wish to split the samples or observe.*

    Response: Language has been added to Section 7.1.2 to provide that the SCDHS will be notified at least one week before groundwater well sampling occurs. SCDHS will be provided the opportunity to observe such sampling and, if requested, to collect split samples.

13. **Comment**: *Subslab Depressurization System venting: The subslab depressurization systems for each structure (existing factory building and new construction) will be venting to the roof. Is there potential for one building's vented air to enter air intakes for the other building? The SMP should follow the NYSDOH guidance on SSDS system specific recommendations when installing exhaust vent ports [refer to section*

4.2.2.c.] to avoid installing a vent line in close proximity to an air intake for the residential units.

Response: Agreed. Language has been added to Section 5.1 to clarify that design and construction of the depressurization systems, including exhaust of vent ports, will be in accordance with applicable NYSDOH October 2006, Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York. This will prevent installing a vent line in close proximity to air intake for the residential units.

14. **Comment**: *Section 8 Notification and Reporting: Amy Juchatz of the Suffolk County Department of Environment and Energy (SCDEE) is given as the contact for the County. However, in the Community air Monitoring Plan (CAMP) it is mentioned that the Suffolk county Department of Health Services (SCDHS) will be notified. The NYSDOH recommend including both the SCDHS and SCDEE as points of contact for the CAMP. If an exposure concern results, the SCDEE should be the first point of contact, followed by the SCDHS and then the NYSDOH and NYSDEC. The local county government is closest to this site and would be best able to address initial concerns from the community with a dust plume or odor issue. Please make both documents consistent.*

    Response: Agreed. Section 8 of the SMP and Section 1.5 of the CAMP have each been modified to provide that both SCDHS and SCDEE will be notified of CAMP monitoring results that raise public exposure concerns.

15. **Comment**: *Provide a schedule for semiannual soil vapor/groundwater monitoring. The monitoring should start in the spring of 2009.*

    Response: The semi-annual soil vapor/groundwater monitoring will start in the spring of 2009. The schedules for soil vapor and groundwater monitoring are set forth in Sections 7.1.1 and 7.1.2, respectively, of the SMP.

16. **Comment**: *A Professional Engineer must stamp and sign SMP.*

    Response: Agreed. The attached SMP has been stamped and signed by a Professional Engineer licensed in the State of New York.

<u>Responses to January 12 Comments on
Pre-Excavation Soil Characterization Sampling Work Plan</u>:

1. **Comment**: *Handling of investigation derived wastes: All cuttings generated from the construction of boreholes should be contained in the NYSDOT approved 55-gallon drums. Following the review of the waste characterization analytical data and after receiving approval from the Department, the cuttings will be transported off-site for treatment/or disposal at a permitted facility.*

Response: Agreed. The Pre-Excavation Soil Characterization Sampling Work Plan has been modified on p. 3 to add this new requirement that investigation-derived wastes be drummed in NYSDOT-approved 55-gallon drums and disposed off-site.

2. **Comment**: *Provide analytical methods for the analysis.*

   Response: Agreed. The Pre-Excavation Soil Characterization Sampling Work Plan has been modified on p. 4 to stipulate the analytical methods to be used for the different constituents to be sampled.

3. **Comment**: *A surficial soil sample should be collected.*

   Response: As discussed previously with the Department, all surficial soils at the site will be either excavated and disposed off-site or excavated and reused on-site, consistent with the SMP. Since none of this material will remain in place, additional surficial soil samples are not warranted.

4. **Comment**: *For potential reuse of the excavated soils off-site, approval of the Division of Solid and Hazardous Material of the Department will be required.*

   Response: Agreed. As noted in the third paragraph of Section 4.1 of the SMP, off-site reuse of excavated soils will be contingent upon receipt of a beneficial use determination from NYSDEC, unless otherwise approved by NYSDEC.

5. **Comment**: *The results of all waste characterization soil samples and the contained in determination should be provided to the Department for review and approval.*

   Response: Agreed. This is already stated in the Pre-Excavation Soil Characterization Sampling Work Plan.

6. **Comment**: *The post-excavation sampling plan will be submitted to the Department for review and approval based on the results of the pre-excavation soil sampling.*

   Response: Agreed. As requested previously by the Department, the last sentence of the Pre-Excavation Soil Characterization Sampling Work Plan, stating that an appropriate post-excavation sampling plan will be developed and submitted for NYSDEC review based on the results of the pre-excavation soil sampling, was also added in the last paragraph of Section 4.1 of the SMP.

7. **Comment**: *A Data Usability Summary Report (DUSR) should be prepared for all analytical data generated during the implementation of the work plan following the department guidance for DUSRs.*

   Response: Agreed. The Pre-Excavation Soil Characterization Sampling Work Plan has been revised, on p. 5, to add this new requirement of DUSR for all analytical data generated during the implementation of the Plan.

8. **Comment**: *Samples should be submitted to the NYSDOH ELAP certified laboratory for analysis.*

   Response: Agreed. The Pre-Excavation Soil Characterization Sampling Work Plan has been revised on p. 4 to clarify that soil samples will be transported to NYSDOH ELAP certified laboratory for analysis.

9. **Comment**: *Geophysical techniques should be utilized to screen each of the on-site locations where intrusive work will be conducted for the presence of utilities and other subsurface objects.*

   Response: Agreed. The Pre-Excavation Soil Characterization Sampling Work Plan has been revised on p. 2 to fully describe utility screening techniques.

Responses to January 12 Comments on CAMP

1. **Comment**: *Section 1.2 of the CAMP: Perhaps to clarify SCDEE's question on the "characteristically hazardous for metals" CAMP should specify where there is lead (Pb) above the soil standards. The 50 ug/m3 comes from OSHA's PEL for workers [averaged over an 8 hr period] -the lead standard for ambient air has recently been decreased from 1.5 ug/m3 averaged over a calendar quarter to 0.15 ug/m3 since the CAMP was revised. As such, SAG should re-evaluate their numbers used and determine if there is a lower number for peak that could impact that standard, or if the 100 ug/m3 particulate number is already low enough to meet the National Ambient Air Quality Standard for the period of time expected to disturb soils in these areas. If there is a lower trigger level for where the NAAQS could be exceeded, then the current trigger levels may need to be modified. This site is within an urban residential and commercial environment, with public sidewalks adjacent to elevated concentrations in the soils where excavation activities may occur.*

   Response: The current National Ambient Air Quality Standard established by USEPA for particulate matter (PM10) for a 24-hour average is 150 micrograms per cubic meter ($\mu g/m^3$); this is consistent with the CAMP action level to stop work and re-evaluate operations. The revised ambient air quality standard for lead over a rolling 3-month average is 0.15 $\mu g/m^3$ as of October 15, 2008. This lead standard is applicable to long-term exposure continuous from industrial emissions operations and thus is not applicable to temporary earth moving construction activity that will take place in any particular area for only a few days. Consequently, conversion of a rolling 3-month average industry emission standard to a construction site with real-time particulate monitoring is not appropriate. The derivation of the 50 $\mu g/m^3$ level from OSHA's permissible exposure level (PEL) lead criteria for workers averaged over an 8-hour period is more applicable for the CAMP, and is protective for the periods of time that workers or the public could possibly be exposed during construction. Section 1.2 of the CAMP has been modified to clarify that the 50 $\mu g/m^3$ action level will be used as trigger to employ dust suppression measures for areas with lead soil

concentrations exceeding applicable standards. Areas with lead in soils exceeding these criteria will be determined following pre-excavation soil characterization.

2. **Comment**: *If there are results that show TCLP exceedances, the NYSDOH should be contacted and provided those results to evaluate if site specific CAMP actions are needed to be protective of public health. A map should be provided with any sampling data to assess the potential for the public to be exposed from site disturbances [as some areas are adjacent to walkways, specific actions may be needed for monitoring]*.

   Response: Agreed. Section 1.5 of the CAMP has been modified to state that a map showing TCLP exceedances will be prepared on the basis of the pre-excavation soil characterization and provided to the NYSDEC.

Responses to January 20 Comments on the
Pre-Excavation Soil Characterization Sampling Work Plan

1. **Comment:** *The language on page 2 is not acceptable. Geophysical techniques should be utilized to screen each of the on-site locations where intrusive work will be conducted for the presence of utilities and other subsurface objects and this task must be conducted and it is not at the discretion of supervising field geologist or engineer as stated on page 2.*

   Response: The first two sentences of the applicable paragraph have been modified to provide for this testing unless determined not to be necessary by the NYSDEC.

2. **Comment:** *Response to Comment 3: If surficial soils are excavated and re-used onsite, the manner these soils will be re-used would need to be known for exposure concerns. Excavation of these materials would necessitate implementation of a CAMP; the proximity of occupied structures within twenty feet of the excavation may necessitate site-specific CAMP actions. Data on the type and concentrations of potential contaminants may be needed to assess fugitive dust/vapor/odor concerns with these actions. If any surficial soils are left in place and present a direct contact exposure, then sampling may be recommended; although current plans indicate no current surficial soils will remain undisturbed.*

   Response: Agreed, and the text has been modified to indicate that a representative surficial soil sample from the top 0 to 2 inches will be collected and analyzed from any areas where surficial soil is to be left in place. In the event surficial soil is proposed to be left in place at discontinuous locations, one or more additional samples may be required.

Responses to January 20 Comments on the SMP

1. **Comment:** *Response to Comment 6: The system design and testing protocol is addressed in the ASTM E-2121 document [for existing buildings] and in EPA 402-R-94-009 document [for new construction] for radon mitigation. These documents are referenced in our October 2006 Guidance document; the NYSDOH guidance does not specifically address air stack testing needs so the language may need to be revised to clarify this response.*

   The NYSDOH guidance refers to post-mitigation testing of air quality as an inhalation exposure assessment, not at the stack [exit effluent] as the response reads. The post-mitigation testing recommendations are included in Section 4.3 of the October 2006 guidance document.

   Response: The text of Section 7.2 of the SMP has been modified to be consistent with the comment to reference the ASTM and EPA documents for effluent air sampling and for post-mitigation sampling to address the recommendations in Section 4.3 of the NYSDOH October 2006, Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York (Guidance Document).

2. **Comment:** *Response to Comment 11: Section 2.7 of the Guidance Document provides for concerns associated with soil vapor sampling and weather conditions. In unpaved areas where soil vapor sampling is to be conducted, it is particularly of concern if there has been a wetting front in the unsaturated soil matrix as it may impact the data results. Please ensure the items noted in this section, particularly on page 21 of the guidance document, are responded to in the soil vapor sampling result presentation.*

   Response: Section 7.1 of the SMP has been modified to indicate that the items noted in Section 2.7 of the NYSDOH Guidance Document will be addressed in the presentation of the soil vapor sampling results.

3. **Comment:** *Response to comment #15: A schedule is not provided for the groundwater and soil vapor sampling in sections 7.1.1 and 7.1.2.*

   Response: The text of Sections 7.1.1 and 7.1.2 has been modified to state that the first round of soil vapor/groundwater monitoring will commence on or before May 15, 2009.

4. **Comment:** *Page 5, para 1 last sentence should be revised to state that " the following work plans and design/construction plans that describe construction details for implementation of the ESD and SMP will be submitted to the NYSDEC and the NYSDOH for review and approval."*

Response: Section 5.1 of the SMP has been modified consistent with this comment.

5. **Comment:** *Response to comment # 5: The revisions on page 10 and 11 are not adequate.*

   Response: The language has been changed to be consistent with the Department's Comment 5 in its January 12, 2009 comments.

6. **Comment:** *8. Please add that the excavated soil and wastewater will be tested, properly handled to protect the health and safety of workers and the nearby community, and will be properly managed in a manner acceptable to the Department.*

   Response: Agreed; Section 4.0 has been modified to add this language.

Responses to January 20 Comments on the CAMP

1. **Comment:** *Roux did add SCDEE to the CAMP but only in section 8. Section 1.1 and 1.2 also refer to the distribution of data so to be consistent, it should be acknowledged that SCDEE will also be provided the data mentioned in these sections. Please notify the SCDEE in the event of a dust plume or odor issue during CAMP activities. Amy Juchatz has new mailing address and phone number. Please revise Amy's contact information.*

   Amy Juchatz, MPH
   Office of Cancer Awareness & Environmental Assessment
   Suffolk County Department of Environment & Energy
   H. Lee Dennison Building – 2nd Floor
   Post Office Box 6100
   Hauppauge, New York 11788

   Response: Sections 1.1 and 1.2 of the CAMP have been revised to indicate that the data will also be provided to SCDEE. Section 6.1 of the SMP has been revised to indicate that SCDEE will be notified in the event of a dust plume or odor issue during CAMP activities. Ms. Juchatz' new contact information has been added to Section 8.0 of the SMP.

Responses to January 22 Comments on the SMP

1. **Comment:** *On page 25 of the SMP, Section 7.2, the last two sentences [Beginning with "Indoor air...] of the newly added language should be removed and replaced with the following: "The NYSDOH guidance on post-mitigation air sampling will be followed."*

   Response: Agreed. The requested change has been made to the SMP.

Responses to January 22 Comment on Revised CAMP

1. **Comment:** *Section 1.1 modifies the initial language discussing notifying SCDEE as well as SCDHS, NYSDEC and NYSDOH but not in the later portion of the same paragraph re: notification of exceedances within 24 hrs. SCDEE should be included in this sentence as well, as Amy is the county contact for exposure concerns. This information has been updated in Section 1.5 appropriately.*

   Response: Agreed. The requested change has been made to the SMP.

Sincerely,

ROUX ASSOCIATES, INC.

Nathan Epler, Ph.D.
Principal Hydrogeologist

Enclosure

cc: Bob Weber, Bulova Corporation
Mitchell Bernstein, Van Ness Feldman
Erik Gustafson, Shaw Environmental
Alf Naman, Sag Development Partners, LLC
Craig Wood, Sag Development Partners, LLC
John McMullen, Sag Development Partners, LLC
David Kronman, Sag Development Partners, LLC
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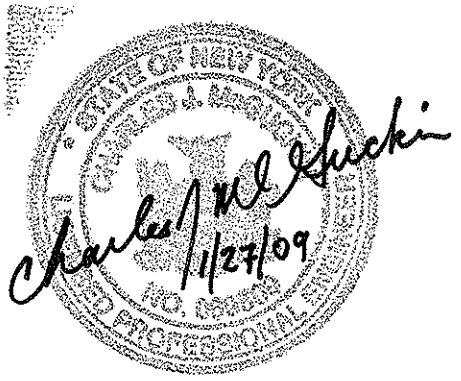
Christine Leas, Sive, Paget & Riesel, P.C.
Charlie McGuckin, Remedial Engineering, P.C.
Christopher Battista, Roux Associates, Inc.

January 27, 2009

SITE MANAGEMENT PLAN

Former Bulova Watch Case Factory
Sag Harbor, New York



Prepared for

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1.0 INTRODUCTION

This Site Management Plan (SMP) for the former Bulova Watch Case Factory (Site) located at 15 Church Street in the Village of Sag Harbor, New York was prepared by Roux Associates, Inc. (Roux Associates) and Remedial Engineering, P.C. (herein collectively referred to as Roux Associates) on behalf of Sag Development Partners, LLC (SDP), the present owner of the Site, and is submitted on behalf of SDP .

1.1 Site Background

The Site is a 2.3-acre parcel of property and currently contains a four-story brick building. The building is unoccupied and contains several courtyards. There are various other structures on the Site and an asphalt/concrete parking lot is located in the southern portion. The Site is bordered by Division Street to the east, Washington Street to the north, Church Street to the west, and Sage Street to the south (Figure 1). The factory building was built in 1881. The building was used as a watch factory from 1881 to 1936. Prior to 1881, the Site was used as a cotton mill. The Site was purchased by Bulova Corporation (Bulova) in 1936, and was used for the manufacture of watchcases from 1936 to 1981. Bulova owned the Site until 1987. The building is considered to be of significant local historical value. According to the June 14, 2007 Explanation of Significant Differences (the ESD), between 1936 and 1981, unknown quantities of 1,1,1 trichloroethane wastes, semivolatile organic compounds (SVOCs) and metals were released into the environment.

An environmental investigation was conducted in 1987 by Chesner Engineering, P.C. on behalf of the then-owner of the Site, Watch Case Factory Associates, in connection with Watch Case's intended redevelopment of the Site for residential use. Following the 1987 environmental investigation, the Site was classified as a Class 2 Inactive Hazardous Waste Disposal Site by the New York State Department of Environmental Conservation (NYSDEC) in January 1993 due to soil and groundwater contamination by volatile organic compounds (VOCs). An Order on Consent (Index No. W1-0674-94-01) (NYSDEC, 1994) was entered into by the NYSDEC and Bulova, as the respondent, in July 1994 requiring the development and implementation of an Interim Remedial Measure Program for the Site consisting of installation and operation of onsite air sparging and soil vapor extraction systems and ancillary equipment. A second Order on

Consent (NYSDEC, 1995) was entered into by the NYSDEC and Bulova in September 1995, requiring the development and implementation of a remedial program for the Site.

Between 1993 and 1998, soil and groundwater remediation to address the VOC contamination was performed in several phases at the Site. Sumps and drywells were closed in 1993. Two air sparge/soil vapor extraction (AS/SVE) systems were constructed and began operation in 1994. Impacted soil was excavated from the interior courtyard in 1996. In March 1999, the two AS/SVE systems were deactivated with NYSDEC approval. From October 22 through November 9, 2001, additional soil was removed from the western portion of the interior courtyard using a vacuum truck. Deeper impacted soil was addressed by reactivating, reconfiguring, and operating one of the AS/SVE systems. The AS/SVE system was run in four major periods of operation and controlled shutdown for two years, commencing in March 2002 and ending in April 2004. The AS/SVE system was shut down in June 2005 with the NYSDEC's approval because contaminants in groundwater had reached asymptotic levels. The remedial activities are described in more detail in the Final Remedial Action Report prepared by Shaw Environmental & Infrastructure, Inc. (Shaw, formerly IT Corporation) on behalf of Bulova (Shaw, 2006).

In January 2006, the Site was purchased by SDP with the intention of redeveloping the Site for residential use in accordance with the prior zoning variance obtained by Watch Case to permit such use on the Site.

The NYSDEC and SDP entered into a Consent Order No. W1-1130-08-12 on December 31, 2008, effective January 10, 2009, for the development and implementation of a remedial program for the Site.

1.2 Objectives and Overview

The objective of this SMP is to set guidelines for the management of the Site during construction/excavation activities and for the management of any post-construction soil or onsite soil vapor issues with engineering controls. The future construction/excavation activities for Site re-development are expected to include, but may not be limited to:

- Utility installation;

- Demolition of existing structures that are not part of the re-development;
- Construction of up to 72 residential units in the existing four story building; and
- Construction of up to 26 new apartments, above and below-ground parking areas, pool, auxiliary structures, and landscaped areas.

The soil sampling and handling requirements for construction/excavation work at the Site will be incorporated into construction design plans. The Site will also be subject to an Environmental Easement requiring compliance with this SMP and identifying the post-construction engineering and institutional controls in this SMP. This SMP is a conceptual plan and actions under the SMP must be consistent with the ROD and ESD. The following preliminary design/construction plans were submitted to the Village of Sag Harbor Department of Buildings to obtain a building permit:

- A3.02 Townhouse Elevations;
- A4.30 Townhouse Wall Sections & Details;
- S3.00 Foundation Sections;
- S3.01 Foundation Sections;
- S3.02 Foundation Sections;
- SP-1 Drainage Plan; and
- SP-2 Entrance Grading Plan.

Design / construction plans that describe construction details for implementation of the ESD and SMP will be submitted to the NYSDEC and the NYSDOH for review and approval.

2.0 NATURE AND EXTENT OF CONTAMINATION

A summary of the nature and extent of VOC contamination at the Site is provided in this section. A more detailed discussion of the nature and extent of contamination can be found in the Final Remedial Action Report (Shaw, 2006). In June 1999, a soil vapor survey (IT Corporation, 1999) indicated the presence of VOC-impacted soil vapor beneath the interior courtyard area. A subsequent soil vapor survey performed in 2000 (IT Corporation, 2000) confirmed the results of the 1999 soil vapor survey. In 2001, a confirmatory soil boring program was completed within the interior courtyard area. Results of the investigation identified an area of the interior courtyard outside the radius of influence of the original AS/SVE systems, which had elevated levels of VOCs in soil and groundwater. The main constituents were chlorinated solvents (1,1,1-trichloroethane (1,1,1-TCA), trichloroethene (TCE) and tetrachloroethene (PCE)). Soils impacted with these VOCs were detected in both shallow-depth soils (2'-6' below grade surface [bgs]) and deeper-depth soils (8'-14' bgs). Results of this investigation were submitted in a report entitled *Interior Courtyard Confirmatory Soil Boring Assessment Report* (Shaw, 2001).

In October and November 2001, approximately 110 cubic yards of soil were removed from the western portion of the interior courtyard to a depth of 6 to 8 feet below ground surface (ft bgs). The remaining impacted soils in the courtyard were subsequently addressed by operation of the reconfigured AS/SVE system.

In addition, as the result of the operation of the reconfigured AS/SVE system, concentrations of VOCs in groundwater decreased by 89 to 98 percent by April 2004 (Shaw, 2006). Some rebound of VOC concentrations in groundwater was observed during shutdown periods of the AS/SVE system. However, the magnitude of the rebound decreased with each subsequent shutdown period. Even accounting for the rebound effect, most groundwater sampling locations exhibited decreases in VOC concentrations of greater than 90 percent. Moreover, VOC concentrations in groundwater had leveled off and further reductions were not being realized through continued operation of the system (i.e., an asymptotic limit of decreasing VOC concentrations in groundwater versus time was reached in response to continued operation of the AS/SVE system). The relatively low rates of rebound in VOC concentrations following AS/SVE system shutdown demonstrate that significant VOC source material removal has occurred and that there is no indication of the presence of a dense, non-aqueous phase liquid source for VOCs in groundwater.

Because the continued operation of the AS/SVE system was no longer effective in further contaminant reduction, as the levels present in the groundwater had reached asymptotic conditions, the NYSDEC agreed to system shutdown in June 2005.

A review of soil vapor data obtained in March through April 2004 (Shaw, 2006) indicated that elevated concentrations of VOCs persisted in soil vapor beneath the Site. These detections were related to the same VOCs that were observed in soil and groundwater throughout the remedial program. Additional soil vapor sampling was conducted onsite in May 2005 (Shaw, 2005a) and July 2005 (Shaw, 2005b). In the Final Remedial Action Report (Shaw, 2006), equilibrium partitioning calculations demonstrated that source area soils (i.e., grossly impacted soils) are no longer present, although residual soil impacts may remain.

There is separate-phase petroleum product beneath a portion of the Site. The product remediation is being addressed under Spill No. 95-01433 through the NYSDEC spills program.

3.0 FUTURE USE OF SITE

The planned future use of the Site will be restricted-residential[1]. Portions of the existing Site structures will be demolished, although most of the four-story former factory building will remain. The proposed residential development will include the demolition of some existing structures, renovation/construction in the existing building to create up to 72 residential units, the construction of up to 26 new apartments, a below- and above-grade parking garage, pool and accessory structures, and landscaped areas. The residential units on the first floor of the existing building will be constructed on a raised first floor over a crawl space, with the existing slab on grade below the crawl space. The apartments will be built over the garage, as will the pool and accessory structures.

[1] The term "restricted-residential" has the same meaning as defined in 6 NYCRR 375-1.8(g)(2)(ii).

4.0 MANAGEMENT OF SOIL AND WASTEWATER

The purpose of this section is to provide the appropriate protocol for soil and wastewater management for activities that require soil excavation or dewatering/decontamination in connection with the planned redevelopment of the Site. The excavated soil and waste water will be tested, properly handled to protect the health and safety of workers and the nearby community, and will be properly handled and managed in a manner acceptable to the NYSDEC. This protocol will be conducted in accordance with the Draft DER-10 Technical Guidance for Site Investigation and Remediation (NYSDEC, 2002). Any deviations from--and/or modifications to--this protocol must have prior approval of NYSDEC. These activities are separated into a construction phase and a post-construction phase, as described below.

Handling, disposal, and reuse requirements for designated soils and wastewater are also discussed in this section. These requirements are to be implemented during all future development and maintenance/repair activities that require the performance of subsurface activities during construction or disturbance below the demarcation layer (discussed below) post-construction. The Health and Safety Plan (HASP) and the Community Air Monitoring Plan (CAMP) will be implemented during the handling of on-Site soils and groundwater. The CAMP and the HASP are discussed in Section 6.0 below.

4.1 Construction Phase Soil Excavation

Plate 1 shows areas to be excavated during Site construction for redevelopment and the approximate depths of excavation within each area from existing grade. During the construction phase of Site redevelopment, soils in the portion of the Site south of the existing building will be excavated to a depth corresponding to an approximate elevation of 9 feet relative to mean sea level (ft rmsl) for construction of the parking garage. As grade varies greatly in this area, the actual excavation depth will vary from approximately 5 to 25 feet below ground surface (bgs) depending on location. The excavation will include removal of all soils, structures and pavement in this area, including the existing retaining walls.

Excavations associated with the construction of drywells for the stormwater drainage system will extend to a depth of approximately one foot above the water table to accommodate the drainage structures. The remaining portions of the stormwater drainage areas (Plate 1) will be excavated

to a depth of approximately two feet bgs. The interior and exterior courtyards will be excavated to depths of approximately two feet bgs.

A demarcation layer must be placed and maintained at the bottom of all excavations beneath all landscaped areas and above all sub-surface areas of undisturbed, regraded, or reused Site soil in accordance with the SMP. Any proposed soil excavation on the property below the demarcation layer, or below the new garage slab, or below the existing building foundation slab, will be conducted in accordance with the SMP. The excavated soil and construction wastewater must be managed, characterized, and properly disposed in accordance with the SMP. Non-landscaped areas (buildings, roadways, parking lots, etc.) will be covered by a paving system or concrete at least 6 inches thick. These actions will eliminate the potential risk of direct contact to soils that exceed residential SCG levels.

More limited deeper soil excavation may also be performed for the installation of elevator pits and any other subsurface structures and utilities. Because such excavation of the deeper soil may involve removing soil from below the groundwater table, hydraulic control measures (i.e., excavation dewatering) may be required to manage groundwater intrusion. Additionally, if dewatering is necessary during any activities, air monitoring will be conducted at the point of discharge under the CAMP. Water that accumulates in the excavation will be removed and managed as part of the Construction Wastewater Management program described in Section 4.6.

All soil to be excavated from the Site during the construction phase will be pre-characterized in accordance with Appendix F for the constituents required by the potential soil disposal facilities. These analyses will include, but may not be limited to, total petroleum hydrocarbons, the full Target Compound List (TCL)+15 of VOCs, the TCL+30 list of SVOCs, Pesticides and PCBs and the Target Analyte List (TAL) of metals including mercury, cyanide and hexavalent chromium. All excavated soils will be managed in accordance with NYSDEC regulations and guidance and the requirements of the soil disposal facilities where the soil is to be transported. Reuse of soil onsite will be contingent upon satisfaction of 6 NYCRR 375-6.7(d)(1)(ii)(b), unless otherwise approved by NYSDEC. Reuse of soil offsite will be contingent upon the receipt of a beneficial use determination (BUD) from NYSDEC pursuant to NYCRR 360-1.15(d), unless otherwise approved by NYSDEC. If offsite disposal is required, it will be at a permitted facility

and will be further sampled, if necessary in accordance with the requirements of the disposal facility, as discussed in Section 4.3.

Surface and subsurface soils exposed after demolition of any structures will be analyzed as described above for reuse or disposal, as appropriate. In the event that petroleum-impacted soil is excavated, it will be staged, characterized, and disposed of in accordance with applicable NYSDEC regulations and guidance. The CAMP will apply to petroleum-impacted soil excavation.

All clean fill or topsoil imported from offsite will be sampled at a frequency of one sample per 500 yards for the first 1,000 yards, and one sample per 1,000 yards thereafter. The samples will be analyzed for TCL VOCs, SVOCs, pesticides, PCBs, TAL metals and cyanide. The analyses of samples will be submitted to the Department for approval. All obviously impacted soil and soil determined by sampling to exceed the lower of the protection of groundwater or protection of public health restricted-residential soil clean up objectives as set forth in 6 NYCRR Table 375-6.8 (b) will be placed in roll-off containers or stockpiled away from the construction activities on flat terrain on double layers of polyethylene sheeting, each with a minimum 8-mil thickness between the excavated soils and ground or pavement surface. The excavated soils to be managed in stockpiles will not exceed a quantity of approximately 500 cubic yards per stockpile. The stockpiles will be constructed with a perimeter berm to contain any leachate or runoff from the soil. Polyethylene sheeting will also be placed over the stockpiled soil and anchored to prevent precipitation from entering the soil pile and prevent wind transport of stockpiled soil. Stockpiled soil (including petroleum contaminated soil) will be removed from Site as quickly as practicable and in any event prior to residential occupancy. Any soil that is spilled onsite will be cleaned up as soon as practicable. Any spillage of soil offsite will be removed immediately.

Based on the results of the waste characterization soil samples and the field observations made while performing the excavations at the Site, a post-excavation soil sampling plan will be developed and submitted to NYSDEC for review and approval. The plan will detail the quantity, locations and procedures for collecting excavation sidewall and bottom soil samples.

4.2 Post-Construction Phase Soil Excavation

Any proposed soil excavation on the Site will be conducted in accordance with this SMP. During the post-construction phase of site re-development, the only accessible areas of soil will be beneath the landscaped areas shown in Plate 1. These areas will be underlain by a demarcation layer covered by a minimum of two feet of clean fill and/or topsoil. Therefore, unrestricted soil excavation in these areas will be limited to the depth above the demarcation layer, for which there are no soil management requirements. Excavation of soil below the demarcation layer will require prior notification to the NYSDEC DER and be in compliance with the construction-phase soil excavation and handling procedures discussed in Sections 4.1, 4.3, 4.4, 4.5 and 4.7. In emergency situations, notice need not be provided prior to excavation, but notice must be given within 48 hours of the start of such excavation. All open non-landscaped areas (such as roadways and walkways) must be covered by a paving system or concrete system at least 6 inches thick.

All other areas of soil excavation outside of landscaped areas must be performed in compliance with the construction-phase soil excavation and handling procedures discussed in Sections 4.1, 4.3, 4.4, 4.5 and 4.7, and must have prior notification to NYSDEC.

4.3 Disposal of Excavated and Stockpiled Impacted Soil

Excavated stockpiled soil that exceeds the lower of the protection of groundwater and protection of public health restricted-residential soil cleanup objectives as set forth in 6 NYCRR Table 375-6.8(b) will be transported offsite to a permitted soil disposal or recycling facility. For any excavated soils that contain chlorinated solvents, a request will be made to NYSDEC for a contained-in determination prior to any potential off-site reuse of excavated soils. On-site reuse of excavated soils from the Site must have prior NYSDEC approval. All analytical results of soil samples must be submitted to the NYSDEC for approval prior to reuse of the excavated soils.

In addition to the analyses described in Section 4.1, additional sampling and analysis for waste characterization purposes may be required by the waste disposal facility prior to offsite disposal. The waste disposal facility will dictate the analytical requirements for soil prior to disposal. Soil determined to be hazardous will be disposed of offsite at a permitted facility within 90 days of excavation. All impacted soil will be dewatered or stabilized, as necessary, loaded into transport vehicles and covered to prevent airborne migration during transportation. In addition, all

impacted soil that is stockpiled onsite will be covered with sheeting and, if necessary, vapor suppressant foam will be applied to minimize the migration of vapors offsite. Waste will be transported in accordance with New York State Department of Transportation (NYSDOT) requirements. All necessary waste documentation (e.g., waste manifests) will be supplied by the waste transporter and/or disposal facility and retained by the generator for record keeping.

4.4 Erosion Control Measures

During excavation and soil pile storage activities, temporary erosion and sediment control measures, including hay bales, silt fencing, and temporary berms will be used, as necessary, to control the migration of soil to other portions of the Site. Silt fences will be provided and installed in accordance with the New York Guidelines for Urban Erosion and Sediment Control.

A Storm Water Pollution Prevention Plan (SWPPP) will be prepared, as appropriate, in accordance with the NYSDEC document titled, *Reducing Impacts of Storm Water Runoff from New Development* (NYSDEC, 1992) for land disturbance of one acre or more and will include discussion of site planning, physical site characterization, erosion prevention, sedimentation controls, and hydraulic loading.

4.5 Dust and Odor Control

Dust emissions may occur during any intrusive and/or demolition activities, such as excavation and loading activities. Therefore, dust control measures in accordance with the CAMP, NYSDEC TAGM #4031–Fugitive Dust Suppression and Particulate Monitoring program at Inactive Hazardous Waste Sites (NYSDEC, 1989) and the HASP, discussed in Section 6.0 below, will be implemented during any invasive work, including excavation and demolition that includes slab removal and/or soil-invasive construction activities during which Site soil dusts can become airborne. TAGM #4031 provides guidance on developing a particulate monitoring and fugitive dust suppression program. Dust control measures that may be implemented include, but may not be limited to:

- Spraying water mist on accessways and equipment during loading activities;
- Transporting waste loads in properly covered and watertight containers; and
- Limiting areas of soil to be disturbed at any one time.

Any subgrade material left exposed prior to the placement of the surface cover for more than 90 days will be covered with a temporary cover (e.g., tarp). Such temporary cover will be placed sooner if dust and/or vapor issues become a nuisance. In addition, odor suppressant foam will be available at all times that excavation is being conducted at the site and will be used, in conjunction with other temporary cover, to mitigate any odor encountered during excavation. If fugitive dust exceeds the CAMP threshold or nuisance odors occur at any time (even if intrusive activities are not occurring), a tarp and/or other suppression technique as provided in the CAMP will be employed. As discussed in Section 6.0, the HASP will provide the protocol for air monitoring for particulates in the work zones and identify the level of personal protective equipment required, action levels for the work zones, and engineering controls that correspond to action level exceedances.

4.6 Construction Wastewater Management

Construction wastewater may be generated from the following activities:

- Personnel and equipment decontamination;
- Runoff/run-on control operations in areas of impacted soil; and
- Excavation dewatering.

Construction wastewater will be collected and stored onsite in appropriate drums or temporary storage tanks. An in-line bag filter or equivalent will be used to remove any particulates from the pumped wastewater prior to discharge to the temporary storage tanks. When a temporary storage tank is full, the wastewater will be sampled and analyzed in accordance with applicable disposal requirements. Based on the laboratory analytical results, the construction wastewater will be properly disposed of in accordance with NYSDEC regulations. In the event that the laboratory analyses do not indicate exceedances of appropriate discharge standards, construction wastewater may be discharged to a publicly owned treatment works (POTW) under a discharge permit.

Temporary construction wastewater storage containers will conform to both New York State and federal requirements. Appropriate controls will be used to prevent spills and overflows, including monitoring, gauging, and quick-close shut off valves. The storage containers, filters,

and pumps will be installed within secondary containment. All storage containers will be decontaminated following disposal or discharge activities.

4.7 Access Controls

The parking lot adjacent to the building provides sufficient access to the Site. During any intrusive work, temporary construction fencing will be installed around the area to be disturbed. Any open excavations will be barricaded with temporary controls (e.g., caution tape and traffic cones). A 6-foot chain link fence and an iron fence currently border the Site. Access to the Site will be controlled via a locked gate and limited to authorized personnel during any intrusive work. When groundwater is visible during any open excavation, a security person must be on-site 24/7.

5.0 ENGINEERING AND INSTITUTIONAL CONTROLS

Engineering controls (e.g., demarcation layer, vapor barrier and depressurization systems) will be incorporated into the final construction design to prevent soil vapor intrusion into above-grade residential structures and to prevent direct contact with Site soil that might exceed the restricted-residential cleanup objectives, thus preventing potential exposure to these soils

The institutional control for the Site will be in the form of an Environmental Easement that will, among other things, restrict the future use of the Site to restricted-residential, require compliance with this SMP, and prohibit the use of Site groundwater for potable, irrigation, or process purposes without the implementation of necessary water quality treatment as determined by New York State Departments of Health and Environmental Conservation. The Environmental Easement will also require the property owner to complete and submit to the NYSDEC a periodic certification of institutional and engineering controls.

5.1 Engineering Controls

Two engineering control designs will be used to prevent soil vapor intrusion into above grade residential structures: one for the existing factory building and the second for new construction (e.g., landscaped areas, roads, walkways, the garage and apartments). Design of the depressurization systems will be in accordance with NYSDOH October 2006, Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York. Any additional work plans and design/construction plans that describe construction details for implementation of the ESD and SMP will be submitted to the NYSDEC and the NYSDOH for review and approval. All mitigation systems will be tested prior to residential occupation in accordance with the SMP. Active systems will need to demonstrate effectiveness at mitigating soil vapor intrusion prior to cessation of an indoor air quality sampling program.

5.1.1 Engineering Controls for the Existing Factory Building

For the existing factory building, the engineering controls to prevent soil vapor intrusion into the building and prevent direct contact with soil beneath the building will consist of an active depressurization system between the first floor living area and the existing foundation slab (i.e. sub-floor), and a vapor barrier covered by a concrete mud slab.

The active sub-floor depressurization system will be installed between the existing slab and the first floor living space to prevent soil vapor intrusion into any residential spaces in the existing building and will be maintained and operated at all times in accordance with this SMP (Plate 2). The active depressurization system consists of a network of vapor collection piping set in an eight-inch thick sand layer to be installed above the existing foundation slab. The collection piping will be connected to the suction end of a blower unit. The collection pipes will be connected to an appropriately-sized common PVC discharge (riser) pipe that will convey air flow from the sand layer above the foundation slab to the atmosphere above the roofline of the factory building. A vapor barrier membrane will be installed over the entire subfloor depressurization system, thereby providing secondary protection against upward vapor migration into the residential spaces. The vapor barrier membrane will consist of 10 mil thick solvent-resistant polyethylene or equivalent that retards migration of Site VOCs. The vapor barrier membrane will be covered by a 3-inch thick concrete mud slab to protect the membrane integrity during construction activities and to provide tertiary protection. A crawl space will be located above the concrete mud slab and below a newly-constructed first floor level in the existing factory building.

The sub-floor depressurization system will be equipped with visual and electronic monitoring devices to verify performance. Visual devices in the form of manometers will be installed to visually indicate that the sub-floor depressurization system is operating properly (i.e., maintaining a minimum vacuum of 0.004 inches of water column).An electronic device in the form of an autodialer will automatically contact the remediation contractor, building management and/or maintenance staff in the event that a system failure occurs.

Prior to residential occupation, the active sub-floor depressurization system will be subject to a pressure field extension test to confirm that the blower is capable of maintaining a minimum vacuum of 0.004 inches of water column below the vapor barrier membrane to prevent vapor migration into the residential spaces. A minimum of one round of indoor air quality (IAQ) sampling will be conducted for site-related VOCs after the active sub-floor depressurization system is installed and before the finished floors and carpets are installed in the residential spaces as described in Section 7.2. If there are detections of compounds related to potential soil vapor intrusion, then re-evaluation of the system design and/or additional monitoring of indoor

air may be needed. The sub-floor depressurization system will be demonstrated to be effective at mitigating soil vapor intrusion, including during the heating season, prior to cessation of the IAQ sampling program.

The potential for vapors to migrate vertically through the factory building foundation and walls into the residential spaces is expected to be negligible. The exterior walls will be examined during construction to determine if any voids are present between the interior wall surface and the exterior wall surface that could present vapor migration pathways. If voids are observed within the wall surfaces, they will be properly grouted or sealed. In addition, if significant cracks or voids are observed in the foundation floor slab, foundation footings or structure beneath the exterior walls, these voids will be properly grouted or sealed.

Following completion of renovation/construction activities, the mud slab above the sub-floor depressurization system must not be breached except as provided in Section 7.3.6. Excavation of soil below the factory building will require compliance with the construction-phase soil excavation and handling procedures discussed in Sections 4.1, 4.3, 4.4, 4.5 and 4.7.

5.1.2 Engineering Controls for New Construction

For areas of new construction (e.g., new buildings/structures, apartments, pools, landscaped areas, roads, walkways and the garage), the engineering controls to prevent soil vapor intrusion into residential spaces and prevent direct contact with Site soil will consist of the following:

1. An active sub-slab depressurization (SSD) system and vapor barrier beneath the proposed garage foundation slab and along apartment soil-contact sidewalls;

2. A vapor barrier will be installed between the garage roof and the apartment's foundation slab (Plate 3);

3. A demarcation layer placed at the bottom of all excavations beneath landscaped areas shown in Plate 1 and above all subsurface areas of undisturbed, re-graded, or re-used Site soil, with the exception of beneath the garage; and

4. The new garage floor slab.

The new apartments will be built on top of the garage (Plate 3). A vehicular exhaust venting system will be operated at all times in the garage below the apartment units in accordance with applicable local building codes to aid in mitigating any soil vapor intrusion. Self-closing doors

and/or vented stairwells will be used in the garage elevator shafts and stairwells to prevent migration of vehicular exhaust from the garage space into the residential space.

An active sub-slab depressurization (SSD) system will be constructed below the proposed garage floor slab and along apartment soil-contact sidewalls (hereinafter "the garage SSD") and will be maintained and operated at all times in accordance with this SMP (Plate 3). The garage SSD system will prevent the accumulation and lateral/vertical migration of soil vapors from below the garage slab. The garage SSD system will be installed prior to pouring the concrete slab for the garage and will consist of a series of six-inch diameter perforated PVC collection pipes embedded in a 12-inch thick gravel layer. The collection pipes will be connected to an appropriately-sized common PVC discharge (riser) pipe that will convey air flow from the gravel layer below the slab to the atmosphere above the roofline of the apartments.

The collection pipe network will be covered by a vapor barrier membrane, consisting of a solvent vapor-resistant 10 mil thick polyethylene sheeting or equivalent.

A horizontal run of collection pipe will be placed four feet below grade along the vertical soil-contact foundation sidewalls for the apartments (Plate 3). In addition, all vertical soil-contact foundation sidewalls will be covered by a vapor barrier membrane. The testing of the garage SSD and IAQ testing must be conducted inside the new apartments as described above in section 5.1.1.

A vapor barrier will also be installed between the garage roof and the new apartment's foundation slab.

A permeable geotextile demarcation layer will be placed at the following locations:

- the bottom of all excavations beneath landscaped areas shown in Plate 1 prior to placement of clean fill or topsoil; and
- above any subsurface areas, with the exception of beneath the garage, where Site soil has been left undisturbed, has been re-graded but left in place, or where Site soil has been transported for onsite re-use.

The demarcation layer will not be installed in the stormwater drainage areas shown in Plate 1 because these areas will be excavated to the water table and the geotextile would interfere with the proper operation of the drainage system. Following completion of renovation/construction activities, the demarcation layer may not be breached without prior notification of the NYSDEC. Excavation of soil below the demarcation layer will require compliance with the construction-phase soil excavation and handling procedures discussed in Sections 4.1, 4.3, 4.4, 4.5 and 4.7.

The garage floor slab will serve as an engineering control to prevent direct contact for Site soil beneath it.

A subslab mitigation system and vapor barrier will be installed when any future structures/buildings/pool are built at the site. Performance testing of any mitigation system, which may include indoor air quality testing, will be required inside the existing building and any future buildings on the site.

5.1.3 Permits and Regulatory Compliance

The engineering control design and construction plans shall be signed and sealed by a New York State Licensed Professional Engineer. All work will be conducted in accordance with local regulations and the laws of the State of New York (6NYCRR). Air discharge permits are not expected to be required for sub-floor or sub-slab depressurization systems. However, based on initial sampling of exhaust from both SSD systems, the NYSDEC will determine if an air discharge permit is required or not.

The garage exhaust ventilation system will be designed, installed and operated in accordance with local building permit requirements.

A NYSDEC Dewatering permit is required for excavation dewatering that exceeds 45 gallons per minute.

An Air Facility Registration certificate for operation of the sub-floor and sub-slab depressurization systems will be obtained as required under 6 NYCRR Part 201-4.

5.2 Institutional Controls

The following institutional controls are required:

- A less restrictive use than restricted-residential, i.e., residential or unrestricted is prohibited (detached single family homes are not allowed);
- Compliance with the approved Site Management Plan;
- Vegetable gardens in direct contact with Site soil or that use Site soil are prohibited (Only container gardens that do not use Site soils are allowed, provided that the container is a barrier between the vegetable plant roots and the Site soils.);
- The use of the groundwater underlying the Site for any purpose, including but not limited to, potable, process or irrigation water, is prohibited without the implementation of necessary water quality treatment as determined by the New York State Departments of Health and Environmental Conservation; and
- Any proposed soil excavation on the Site below the demarcation layer, below the new garage floor slab or below the existing factory building foundation slab, will be conducted in accordance with the SMP. Management of the excavated soil will require compliance with the construction-phase soil excavation and handling procedures discussed in Sections 4.1, 4.3, 4.4, 4.5 and 4.7.

5.3 Environmental Easement

An Environmental Easement will be granted to the People of the State of New York acting through the NYSDEC by the Site Owner as required by ECL 27-1318.(b). The Owner will record the Environmental Easement in the land record office in Suffolk County.

6.0 HEALTH AND SAFETY

All soil excavation activities will be performed in accordance with applicable federal, state, and local laws and regulations. Construction/excavation activities will be performed by health and safety trained personnel in accordance with 29 CFR 1910 and 1926. While conducting invasive work at the Site, the Contractor shall provide safe and healthful working conditions. The Contractor shall comply with all New York State Department of Labor regulations and published recommendations and regulations promulgated under the Federal Occupational Safety and Health Act of 1970 and the Construction Safety Act of 1969, as amended, and with laws, rules, and regulations of other authorities having jurisdiction. Compliance with governmental requirements is mandated by law and considered only a minimum level of safety performance. The Contractor shall insure that all work is performed in accordance with recognized safe work practices.

A site-specific HASP is included as Appendix B. The contact information in the HASP is intentionally left blank and will be filled or modified, as appropriate, immediately prior to initiation of any activities covered by the HASP. All such HASP modifications will be provided to the NYSDEC. Additional HASPs will be prepared in accordance with 29 CFR 1910 and 1926, as well as any applicable Federal, State or local statutes or regulations by a certified health and safety professional on behalf of any contractor conducting construction/excavation activities in the area of the south parking lot, where past investigations have shown elevated levels of VOCs in soil vapor. The site-specific HASPs will include detailed instructions regarding emergency procedures, required training, communications, appropriate personal protection equipment (PPE), air monitoring requirements and action levels, and PPE upgrades and engineering controls that correspond to action level exceedances. The HASPs will be available at the Site for personnel reference during all construction/excavation activities and work conducted pursuant to this SMP.

6.1 Community Air Monitoring Plan

A Community Air Monitoring Plan (CAMP) is included as Appendix C. It was developed in accordance with the NYSDOH Generic Community Air Monitoring Plan contained in Appendix A1 of the Draft DER-10 and the NYSDEC TAGM #4031 - Fugitive Dust Suppression and Particulate Monitoring Program (NYSDEC, 1989).

Continuous ambient air monitoring will be required during all ground intrusive activities at the site, including ground-intrusive demolition activities, to measure the concentration of VOCs and particulates in ambient air in the work zone and at the perimeter of the work area. Monitoring will be performed both upwind and downwind of the work area. The monitoring will be conducted using a PID and Dataram 2000™ particulate monitor (manufactured by MIE, Inc.) or equivalent. All measurements will be electronically logged every 15 minutes or recorded in a field notebook and available for review by the NYSDEC, NYSDOH, the Suffolk County Department of Health Services (SCDHS) and the Suffolk county Department of Environment & Energy (SCDEE). If particulate or VOC measurements exceed the action levels specified in the NYSDOH generic CAMP, work will be discontinued and appropriate dust or vapor controls measures will be implemented. The SCDHS, SCDEE and NYSDOH are to be notified within 24 hours of any discontinued work action as a result of particulate and/or VOC CAMP exceedances. The SCDHS should be notified immediately if there is an acute exposure risk posed by these exceedances.

Dust and odor control measures will also be instituted, as necessary, to prevent any dust or odors from migrating offsite and impacting the surrounding community. During the course of the project, odor suppressant and water will be used on an as-needed basis during excavation activities to control the dust and/or odors generated.

7.0 OPERATION, MAINTENANCE AND MONITORING

This section describes the operation, maintenance, monitoring and inspection activities that will be performed at the Site. These activities include:

- Soil vapor and groundwater monitoring;
- Performance monitoring of active depressurization systems;
- Inspection and maintenance of active depressurization systems;
- Inspection and maintenance of garage exhaust ventilation system;
- Inspection and maintenance of areas overlying the demarcation layer.
- Inspection and maintenance of garage foundation slab, roadways and non-landscaped areas;
- Inspection and maintenance of factory building foundation slab and sidewalls; and
- Maintenance and repair of factory building vapor barrier.

7.1 Soil Vapor and Groundwater Monitoring

7.1.1 Soil Vapor Monitoring

During the soil vapor investigation, VOC-containing soil vapor was determined to have migrated off-site to a limited extent to the north, southeast and southwest. Although soil vapor intrusion (SVI) testing completed at structures in those directions confirm that vapor intrusion has not occurred, monitoring of the soil vapor at the Site boundary will be completed, in accordance with the NYSDOH October 2006, Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York, to verify VOC soil vapor concentrations at the Site boundary do not increase over time.

Soil vapor samples will be collected at five locations (SVMP-1 through SVMP-5) surrounding the property (Figure 2) at a depth of eight feet below grade. To collect the soil vapor samples, soil vapor implants will be installed to the desired depth using Geoprobe® direct-push methods. The soil vapor implants will be comprised of a 6-inch stainless steel screen attached to ¼-inch polyethylene tubing leading to the surface. At the surface, the polyethylene tubing will be protected in a 6-inch flush-mounted roadbox. The soil vapor points shall follow the permanent point construction protocol as per the NYSDOH guidance. In addition, an outdoor, upwind

ambient air sample will be collected at a location that takes into account wind direction and building configuration.

To sample the soil vapor points, six-liter SUMMA canisters fitted with a one-hour flow controller and an in-line filter will be affixed to the soil vapor implant tubing. Prior to collection of the samples, the vapor probes will be purged of a minimum of one well volume. Upon opening the SUMMA canister valve, the vacuum present within the canister will extract the soil vapor from the subsurface into the canister. Based on a volume of six liters and a sample time of one hour, soil vapor will be extracted at a flow rate of 0.1 liters per minute.

Following collection of the soil vapor samples, the samples will be shipped following proper chain-of-custody procedures to an NYSDOH ELAP-certified laboratory for analysis of VOCs in accordance with EPA Method TO-15. The presentation of the results of the soil vapor sampling will address the items noted in Section 2.7 of the NYSDOH October 2006, Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York (including those items on page 21 of this Guidance).

Monitoring of the soil vapor will commence on or before May 15, 2009 and will occur on a semi-annual basis for the first year commencing in the Spring of 2009, after which the need for continued sampling and the sampling frequency will be re-evaluated by the NYSDEC. Any modification to the sampling schedule and any decision to discontinue soil vapor monitoring at any location(s) will be subject to NYSDEC and NYSDOH approval.

7.1.2 Groundwater Monitoring

Since residual groundwater impacts above the NYSDEC Class GA groundwater standards remain, groundwater monitoring will be implemented. Groundwater monitoring will be implemented at well MW-11R, located in the former source area, at well MW-2, located at the downgradient property boundary, and at two wells installed downgradient of the Site by the Suffolk County Department of Health Services, nested well WCF-3 (15'-17' and 35'-37') and well WCF-10 (20'-22') (Figure 2). Monitoring well MW-11R will be monitored to track the remaining residual groundwater impacts onsite, while monitoring wells MW-2, WCF-3 and WCF-10 will be monitored to evaluate potential groundwater impacts downgradient of the Site.

After providing a minimum of one week's notice to the Suffolk County Department of Health Services of the planned time for such work, groundwater samples will be collected using low-flow sampling techniques (i.e., bladder or peristaltic pump). Extracted groundwater will be directed through a water quality meter fitted with a flow-through cell to identify water quality parameters (pH, conductivity, turbidity, dissolved oxygen and temperature) during sampling. Purging will continue until water quality parameters stabilize, after which a groundwater sample will be collected.

Following collection of the groundwater samples, the samples will be shipped following proper chain-of-custody procedures to a NYSDOH ELAP-certified laboratory for analysis of VOCs in accordance with USEPA Method OLC03.2.

Monitoring of the groundwater will commence on or before May 15, 2009 and will occur on a semi-annual basis for the first year commencing in the Spring of 2009, after which the sampling frequency will be re-evaluated. Any modification to the sampling schedule and any decision to discontinue groundwater monitoring at any location(s) will be subject to State approval.

7.1.3 Indoor Air Monitoring

Indoor air monitoring will be conducted if required by the State of New York.

7. 2 Performance Monitoring of the Active Depressurization Systems

Performance monitoring of the Factory building sub-floor depressurization system and the garage SSD will consist of the monitoring of the operation of the depressurization system blower(s) and monitoring of the depressurization system vacuum. Performance monitoring will include the visual observation of a U-tube manometer, or similar instrument, which will indicate that the depressurization system is operating effectively. Each system will be fitted with a warning device to notify the remediation contractor, building management and/or maintenance staff of system failure.

The data recorded during performance monitoring will be provided to the NYSDEC and NYSDOH as attachments to the annual engineer's certification reports.

Based upon the requirements of the NYSDOH, air sampling of the vapor collection piping and crawl space will not be necessary due to the continuous 24-hour operation of the factory building sub-floor depressurization system and the garage SSD. Upon startup, an air sample will be collected from the exhaust of the depressurization systems for analysis using USEPA method TO-15. The air test results will be used to perform a Division of Air Resources (DAR-1) analysis to estimate emissions. Emission levels based on the DAR-1 analysis will be compared to annual guidance concentrations and short term guidance concentrations to determine whether or not air emission control is required.

The post-mitigation testing recommendations set forth in Section 4.3 of the NYSDOH October 2006 Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York will be addressed. Protocol for testing of the venting system effluent air will be per ASTM E-2121 for the existing Factory Building and U.S. EPA 402-R-94-009 for the garage structure (i.e., new construction). The NYSDOH guidance on post-mitigation air sampling will be followed.

7.3 Inspection and Maintenance

The engineering controls (i.e., active depressurization systems; soil cover in landscaped areas; the demarcation layer underlying walkways, roads and other paved surfaces; and readily-accessible foundation components) will be inspected on an annual basis by qualified personnel to confirm that the controls are continuing to mitigate potential soil vapor migration into residential spaces and to prevent direct contact with underlying soil.

7.3.1 Inspection of Active Depressurization Systems

The existing factory building sub-floor depressurization system (visible components), the garage SSD (visible components), riser pipes, and associated valves will be inspected for proper operation and integrity. The inspection will include identification of any building modifications that could affect proper operation of the systems.

As necessary, preventative maintenance and replacement of damaged depressurization system components will be performed.

7.3.2 Inspection of Garage Exhaust Ventilation System

The fans that supply fresh air to the garage will be inspected annually by a qualified HVAC professional and/or professional engineer. The objective of the inspection will be to verify that the fans are in good operating condition and that the volume of supplied air is in compliance with the design volumes and air changes specified.

7.3.3 Inspection of Areas Overlying Demarcation Layer

Landscaped areas, roads, walkways, and other paved areas overlying the demarcation layer will be inspected annually to confirm that the areas have not been disturbed in a way that could result in a breach of the demarcation layer either through intrusive activity, erosion or cracking. If disturbances are observed, appropriate measures will be taken to repair the disturbed area.

7.3.4 Inspection of Garage Foundation Slab, Roadways and Non-Landscaped Areas

The interior surface of the garage foundation slab, roadways and other non-landscaped areas will be inspected annually for breaches that could result in direct contact with underlying soil. If a breach is observed, it will be repaired using grouting techniques or as appropriate, including in the garage and roadways, as appropriate for vehicular traffic use.

7.3.5 Inspection of Factory Building Foundation Slab and Sidewalls

The integrity of the sealant used in cracks in the factory building foundation slab and sidewalls that are not within – or covered by – the sub-floor depressurization system will be inspected on an annual basis by qualified personnel, and repaired as necessary.

7.3.6 Maintenance and Repair of Factory Building Vapor Barrier

If a penetration of the vapor barrier membrane is necessary, damaged portions of barrier layers will be removed and patched or replaced with identical or equivalent barrier materials as used in the initial construction of such components. As applicable, all overlying protective layers will be re-installed. If any piping or mechanical components of the vapor barrier system is damaged by such work they will be replaced with equivalent components to ensure the continued effectiveness and integrity of the factory building sub-floor depressurization system. In addition, all repairs will be documented for inclusion in the annual certification.

8.0 NOTIFICATION AND REPORTING

The NYSDEC contacts below shall be notified if unexpected conditions occur during construction activities (e.g., impacted soil or if drums are encountered):

Girish Desai, P.E.
Environmental Engineer 2
NYSDEC
Division of Environmental Remediation
Region 1
SUNY at Stony Brook
50 Circle Road
Stony Brook, New York 11790

and if USTs or petroleum related issues are encountered:

Hugh Cirrito
Environmental Engineer 2
NYSDEC
Division of Environmental Remediation
Region 1
SUNY at Stony Brook
50 Circle Road
Stony Brook, New York 11790

The following personnel shall also be contacted in accordance with the CAMP:

Sharon P McLelland
Public Health Specialist
New York State Department of Health
Bureau of Environmental Exposure Investigation
547 River Street, Room 300
Troy, New York 12180
(518) 402-7880

Suffolk County Department of Health Services
360 Yaphank Ave.
Yaphank, NY 11980
(631) 852-5774

Amy Juchatz, MPH
Office of Cancer Awareness and Environmental Assessment
Suffolk County Department of Environment and Energy
H. Lee Dennison Building, 2nd Floor
P.O. Box 6100
Hauppauge, New York 11788
(631) 853-5919
(631) 853 8208

The property owner would provide a periodic certification of the institutional and engineering controls, prepared and submitted by a professional engineer or such other expert acceptable to the Department, until the Department notifies the property owner in writing that this certification is no longer needed. This submittal will: a) contain certification that the institutional controls and engineering controls put in place are still in place and are either unchanged from the previous certification or are compliant with Department-approved modifications; b) allow the Department access to the site; and c) state that nothing has occurred that would impair the ability of the control to protect public health or the environment, or constitute a violation or failure to comply with the site management plan unless otherwise approved by the Department.

If any excavation activities have been performed during the year covered by that annual certification, a supplemental report will also be prepared and will include:

- A certification that all work was performed in conformance with this SMP;
- Plans showing areas and depth of material removal; and
- A text narrative describing the excavation activities performed. The text narrative will include, as applicable, HASP and CAMP monitoring performed, quantities and locations of soil/fill excavated, disposal or reuse locations for the excavated soil/fill, a description of any problems encountered, location and acceptability of test results for offsite backfill sources, and other pertinent information necessary to document that the site activities were carried out in accordance with this SMP.

Respectfully submitted,

REMEDIAL ENGINEERING, P.C.

Charles J. McGuckin, P.E.
President
Principal Engineer

9.0 REFERENCES

IT Corporation, 1999. Soil Gas Survey Report, Former Watch Case Factory Site, Bulova Corporation, Sag Harbor, New York. July 28, 1999.

IT Corporation, 2000. Confirmatory Soil Gas and Groundwater Monitoring Report, Former Watch Case Factory Site, Bulova Corporation, Sag Harbor, New York. May 16, 2000.

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NYSDEC, 1989. Technical and Administrative Guidance Memorandum 4031 – Fugitive Dust Suppression and Particulate Monitoring Program at Inactive Hazardous Waste Sites, October 1989.

NYSDEC, 1992. "Chapter 4: Storm Water Management and Erosion Control Plan" in Reducing the Impacts of Stormwater Runoff from New Development, April 1992.

NYSDEC, 1994. Technical and Administrative Guidance Memorandum 4046 – Determination of Soil Cleanup Objectives and Cleanup Levels, January 1994.

NYSDEC, 1996. Record of Decision, Bulova Watch Case Factory, Village of Sag Harbor, Suffolk County, Site No. 1-52-139, Sag Harbor, New York. December 1996.

NYSDEC, 2002. Draft DER-10 Technical Guidance for Site Investigation and Remediation, December 2002.

NYSDEC, 2006. 6NYCRR Part 375- Environmental Remediation Programs.

NYSDOH, 2006. Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York, October 2006.

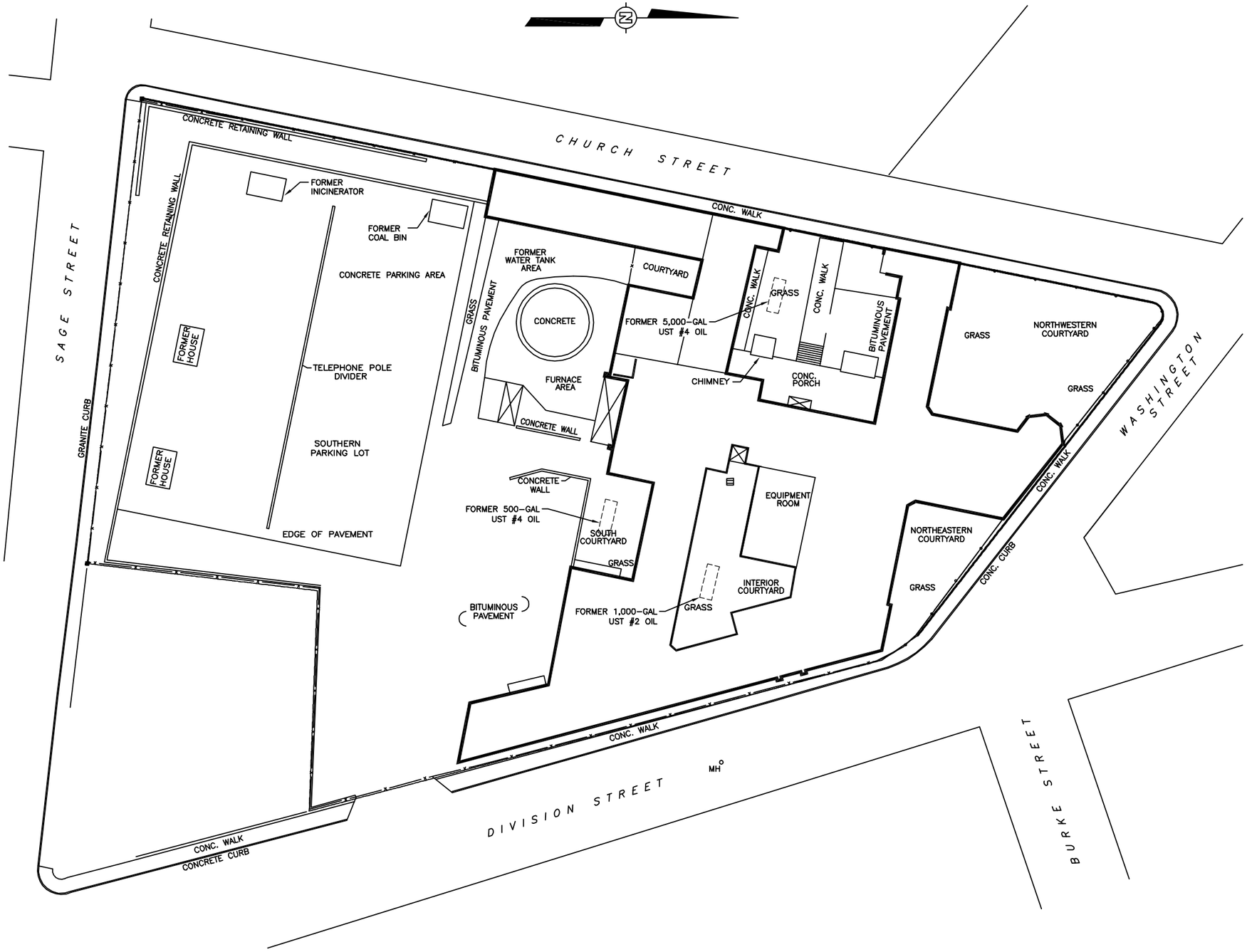
Shaw, 2001. Interior Courtyard Confirmatory Soil Boring Assessment Report, Bulova Corporation, Sag Harbor, New York June 2001).

Shaw, 2005a. E-mail from Shaw to NYSDEC summarizing May 2005 Soil Gas Survey Results. June 20, 2005.

Shaw, 2005b. Letter to NYSDEC regarding soil gas data from July 2005, Former Watch Case Factory Site, Sag Harbor, New York, September 2005.

Shaw, 2006. Final Remedial Action Report, Former Watch Case Factory Site, Bulova Corporation, Sag Harbor, New York, October 2006.

Shaw, 2007. Addendum #1 to the Final Remedial Action Report, Former Watch Case Factory Site, Bulova Corporation, Sag Harbor, New York, March 2007.



LEGEND

- PROPERTY LINE
- CHAIN LINK FENCE
- IRON FENCE
- FORMER UST (UNDERGROUND STORAGE TANK)

SCALE

0 50 100 FEET

SOURCE: SHAW ENVIRONMENTAL AND INFRASTRUCTURE, INC.
AND YOUNG & YOUNG
400 OSTRANDER AVENUE, RIVERHEAD, N.Y.
DATE: APRIL 4, 1994

Title:

SITE LOCATION MAP

FORMER WATCHCASE FACILITY
SAG HARBOR, NEW YORK

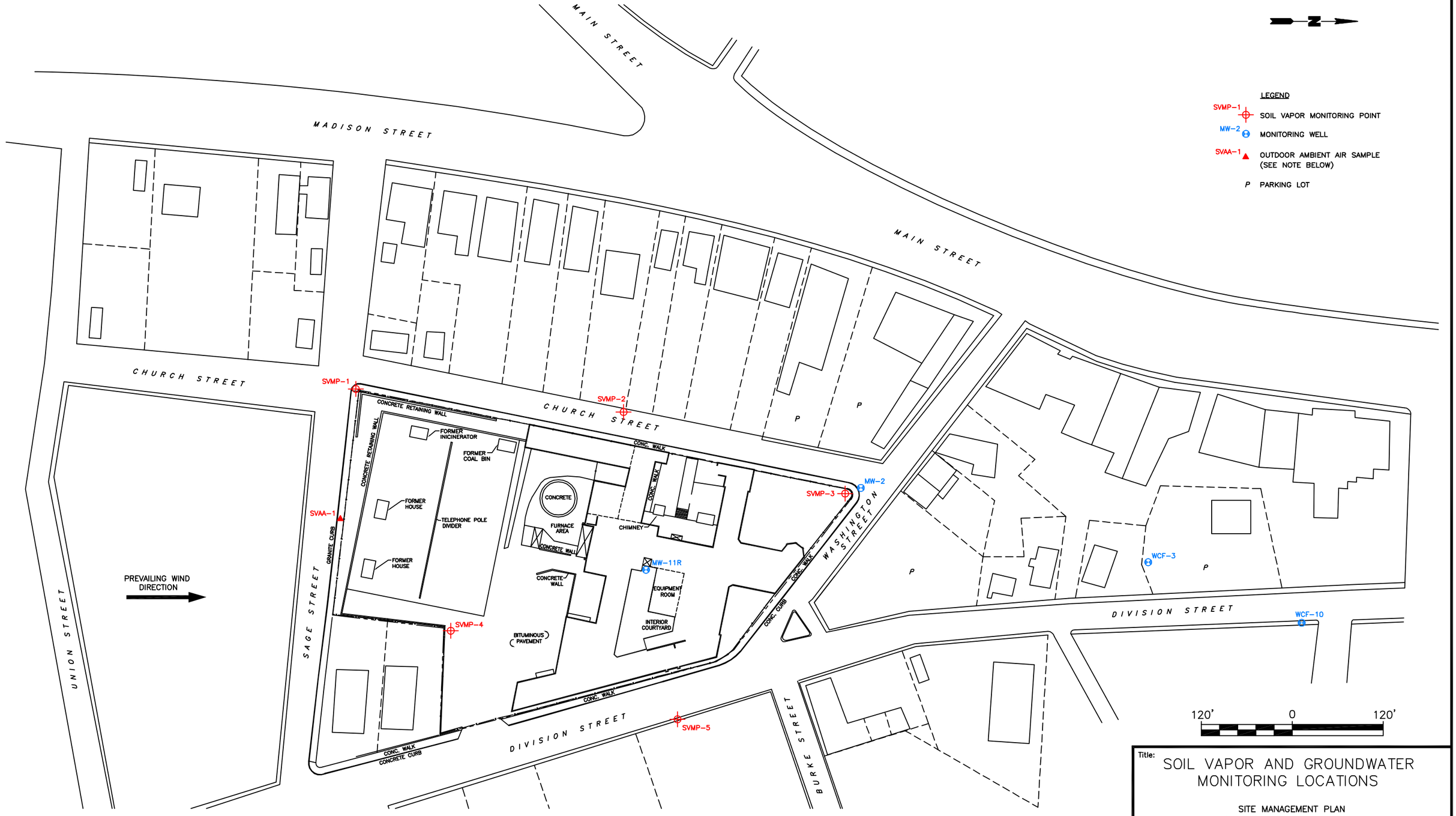
Prepared For:

SAG DEVELOPMENT PARTNERS, LLC

ROUX ASSOCIATES, INC.
Environmental Consulting & Management

Compiled by: G.N.	Date: 08SEP06	FIGURE
Prepared by: J.L.	Scale: AS SHOWN	1
Project Mgr: N.E.	Office: NY	
File No: ALF1010201	Project: 126210Y	

\ALF1262\ALF01Y\102\ALF1010201.DWG



SOURCE: YOUNG & YOUNG
400 OSTRANDER AVENUE, RIVERHEAD, N.Y.
DATE: APRIL 4, 1994

NOTES:
THE LOCATION OF THE UPWIND OUTDOOR AIR SAMPLE MAY CHANGE BASED ON ACTUAL METEOROLOGICAL CONDITIONS DURING THE SAMPLING ACTIVITIES. REVISED LOCATIONS WILL TAKE INTO ACCOUNT WIND DIRECTION AND BUILDING CONFIGURATION.

Title:
SOIL VAPOR AND GROUNDWATER MONITORING LOCATIONS

SITE MANAGEMENT PLAN
FORMER WATCHCASE FACTORY

Prepared For:
SAG DEVELOPMENT PARTNERS LLC

ROUX
ROUX ASSOCIATES, INC.
Environmental Consulting & Management

Compiled by: J.L.	Date: 09JUL07	FIGURE
Prepared by: R.K.	Scale: AS SHOWN	2
Project Mgr: J.L.	Office: NY	
File No: ALF1010210	Project: 126210Y	

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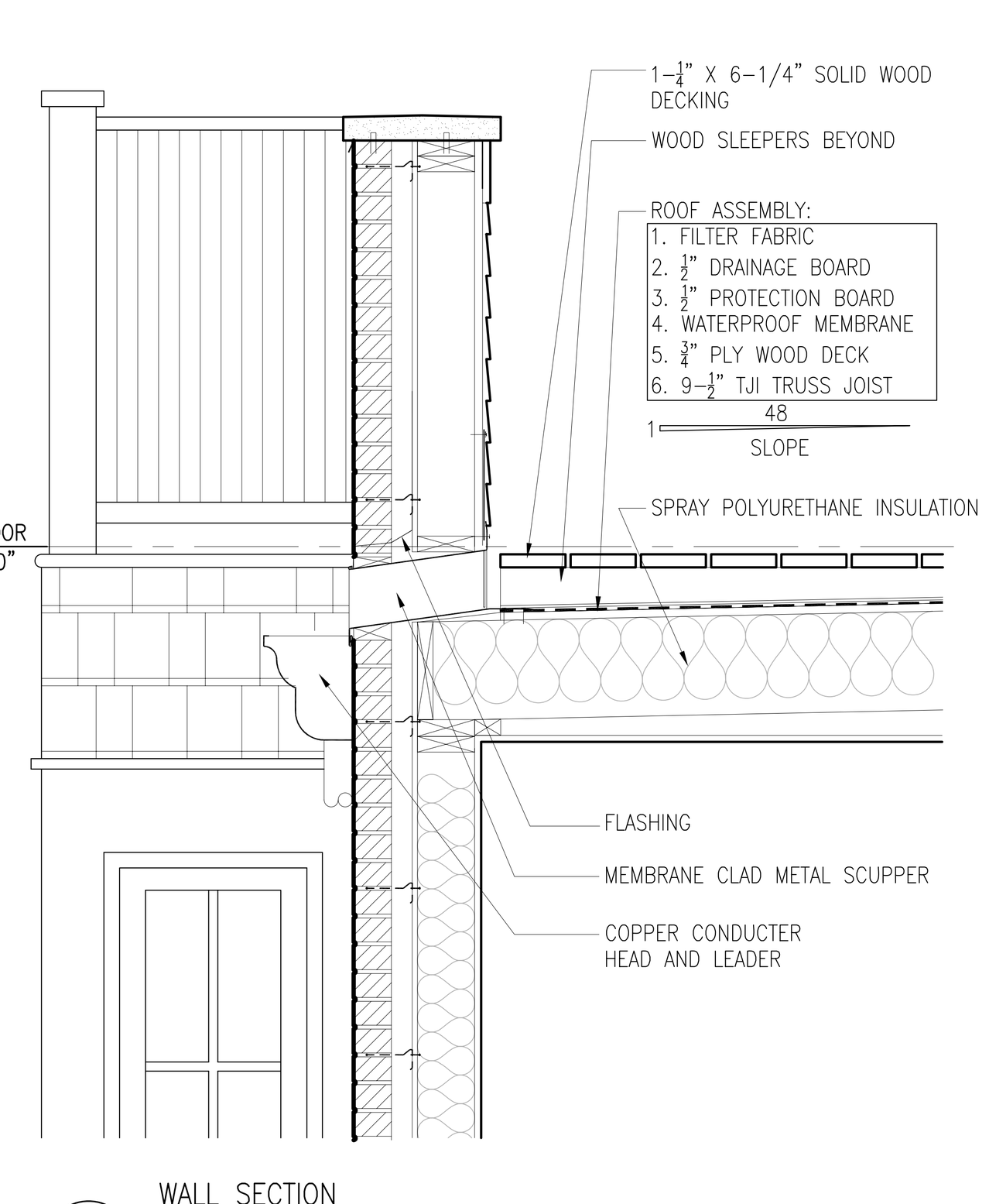
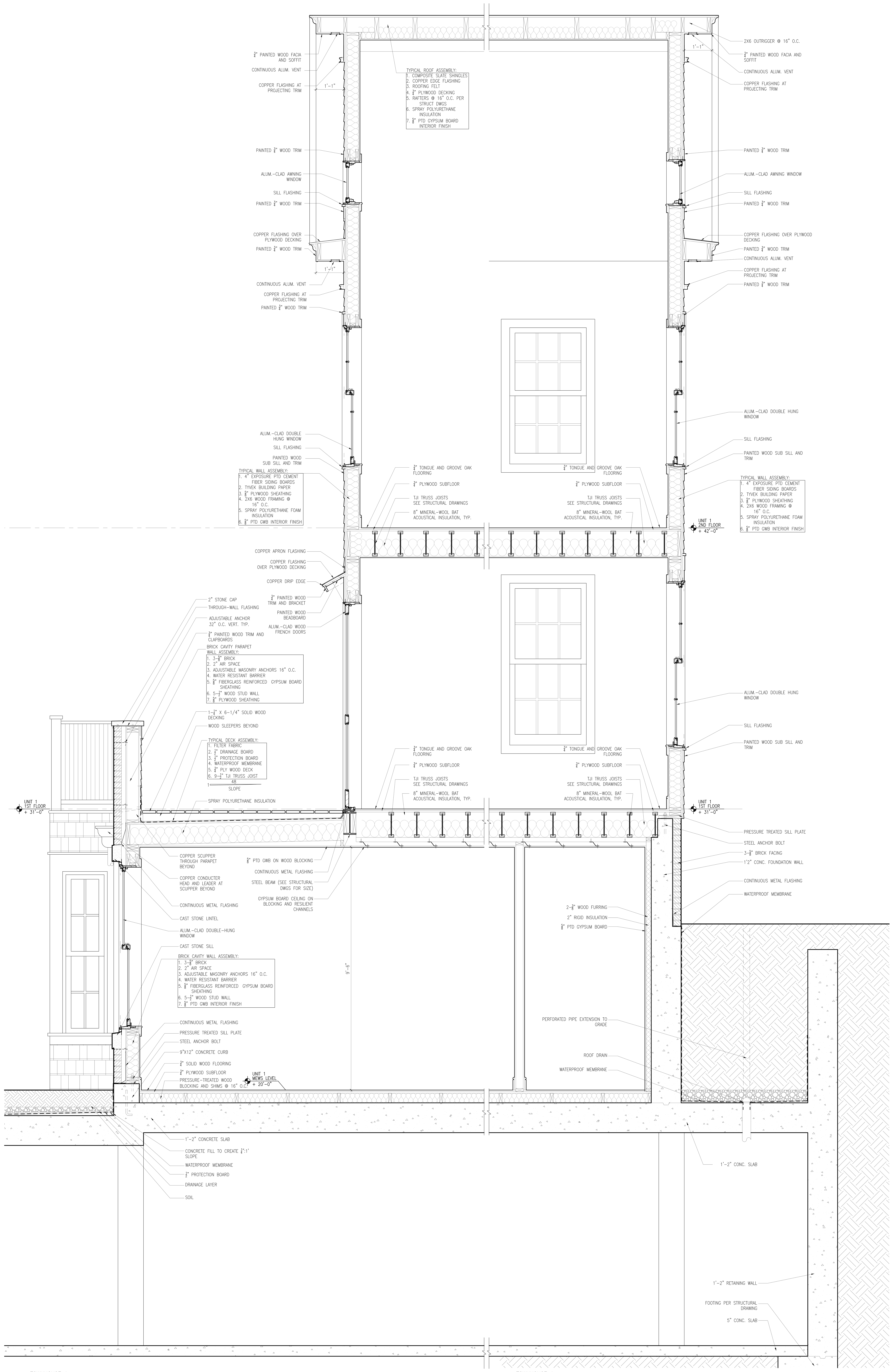
APPENDIX A

Preliminary Design / Construction Plans



A 4.30 WALL SECTION @ SCUPPER 3/4"=1'-0"



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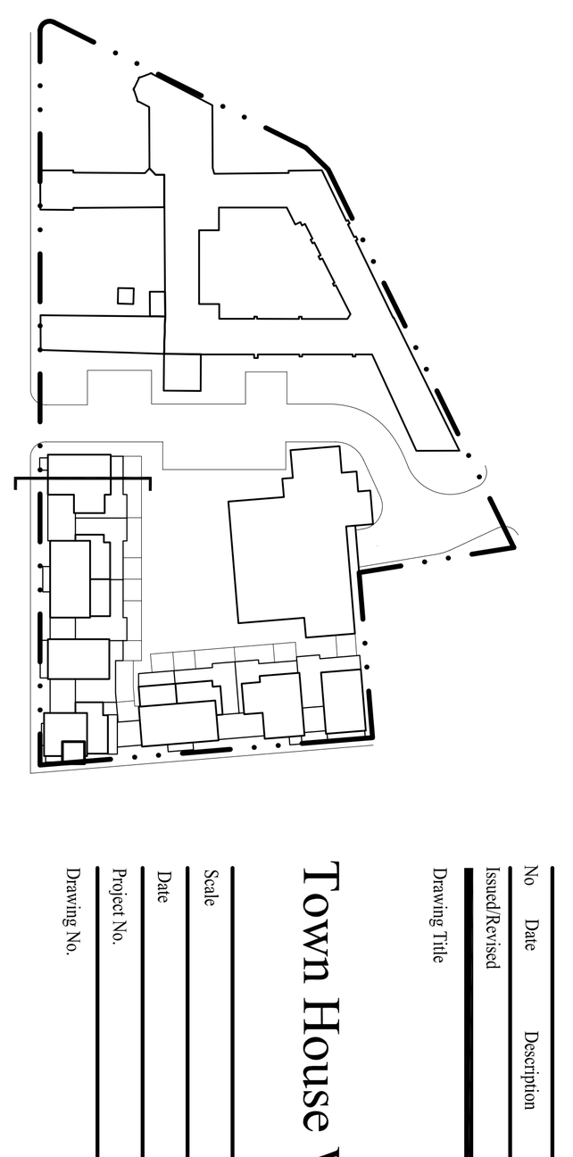
2 4.30 TOWNHOUSE 1 WALL SECTION 3/4"=1'-0"

KEY PLAN



DOB SUBMISSION

No | Date | Description

Issued/Revised

Drawing Title

Town House Wall Sections and Details

Scale 3/4"=1'-0"

Date 12 NOVEMBER 2007

Project No. 2006.00

Drawing No.

A4.30

Watchcase Factory Redevelopment

15 Church Street
Sag Harbor, New York

Sag Development Partners LLC

Beyer Blinder Belle
Architects & Planners LLP

41 East 11 Street
New York,New York.10003
212.777.7800

Structural Engineer
Robert Silman Associates
88 University Place
New York, NY 10003
212.620.7970

MEP Engineer
AKF Engineers
1501 Broadway, Suite 1700
New York, NY 10036
212.354.5656

Landscape Architect
Quennell Rothschild Partners
118 West 22nd Street
New York, NY 10011
212.929.3330

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Norton Brothers Dunn Engineering
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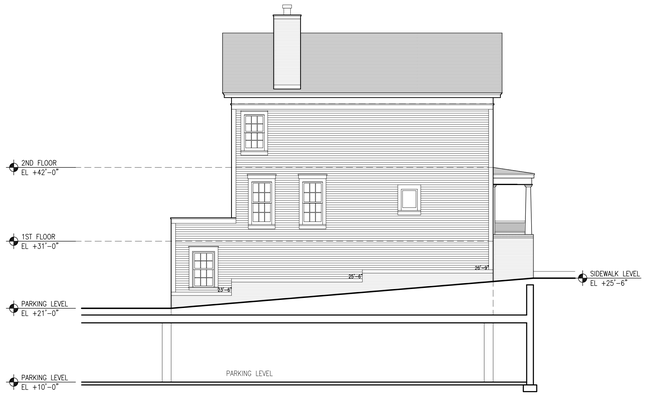
Patchogue, NY 11772
631.475.1452

Lighting Designer
Whitehouse Lighting Design
12-3 Steven Drive
Ossining, NY 10562
914.923.0021

Sustainability and LEED Consultants
Yarmuth Radoff Green LLP
585 Pleasant Street
Boulder, CO 80302
303.907.5313



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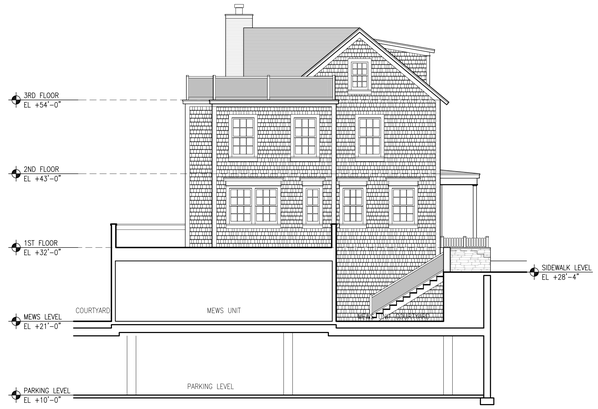

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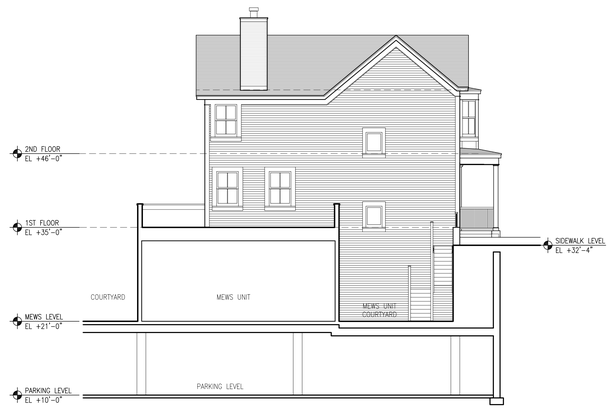

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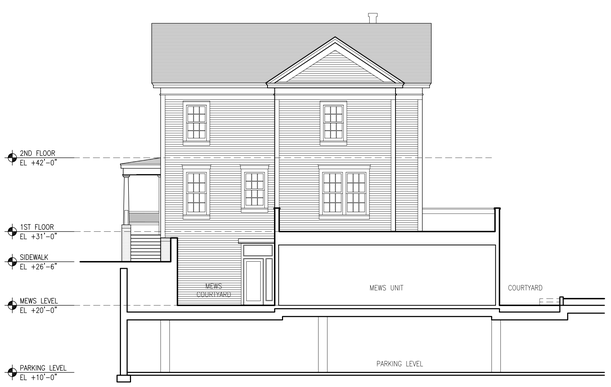

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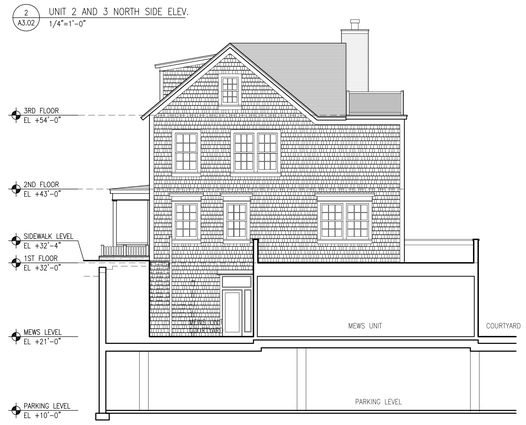

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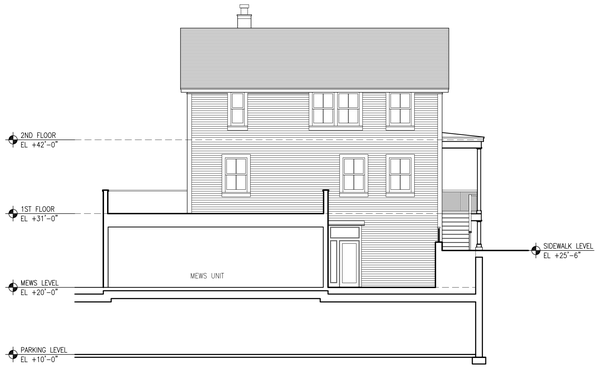

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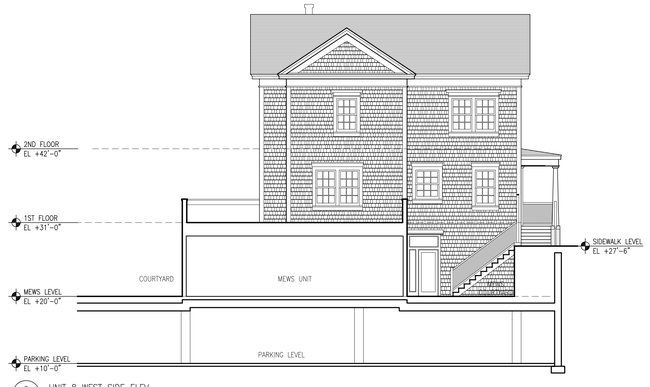

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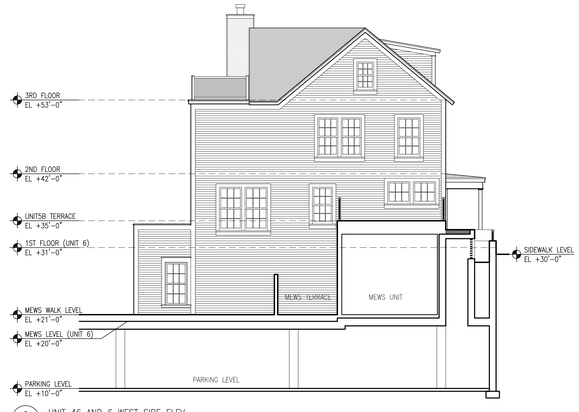

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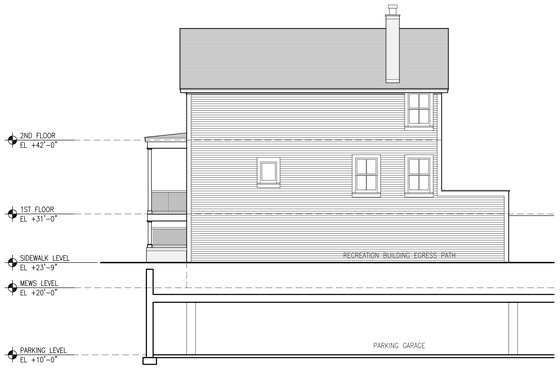

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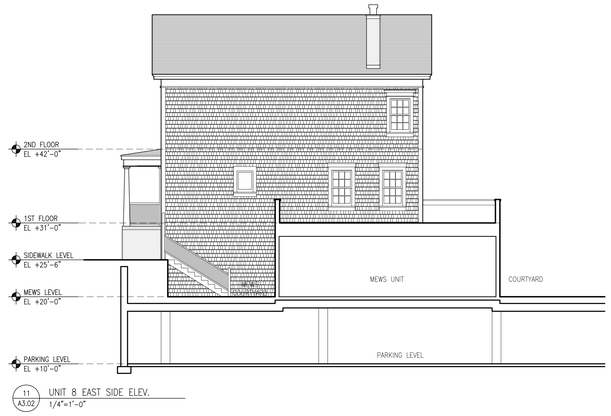

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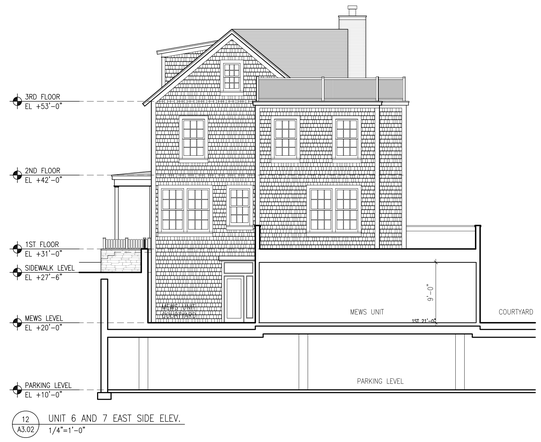

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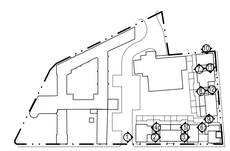

KEY PLAN

Watchcase Factory Redevelopment

15 Church Street
Sag Harbor, New York

Sag Development
Partners LLC

Beyer Blinder Belle
Architects & Planners LLP

41 East 11 Street
New York,New York.10003
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MEP Engineer
AKF Engineers
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Norton Brothers Dunn Engineering
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Lighting Designer
Whitehouse Lighting Design
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Boulder, CO 80302
303.907.5313

DOB SUBMISSION

No	Date	Description

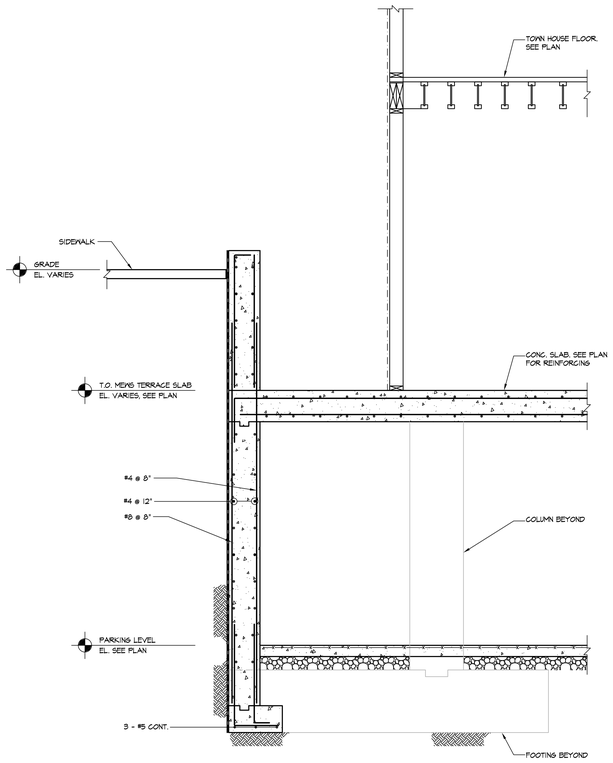
Issued/Revised

Drawing Title

Townhouse Elevations

Scale	1/8"=1'-0"
Date	12 NOVEMBER 2007
Project No.	2006.00
Drawing No.	

A3.02



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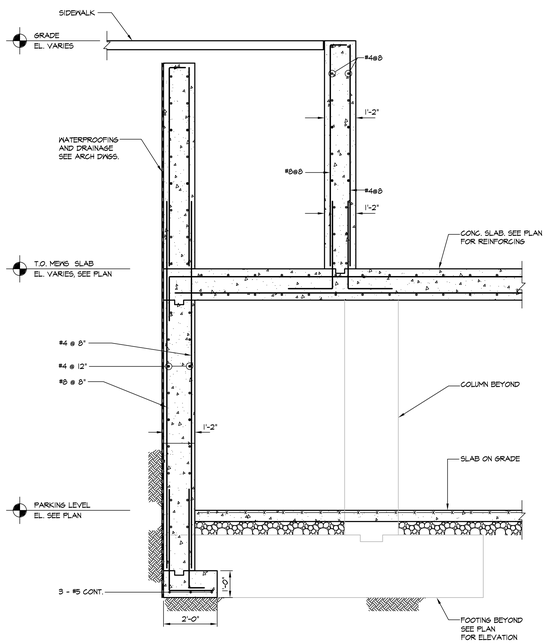

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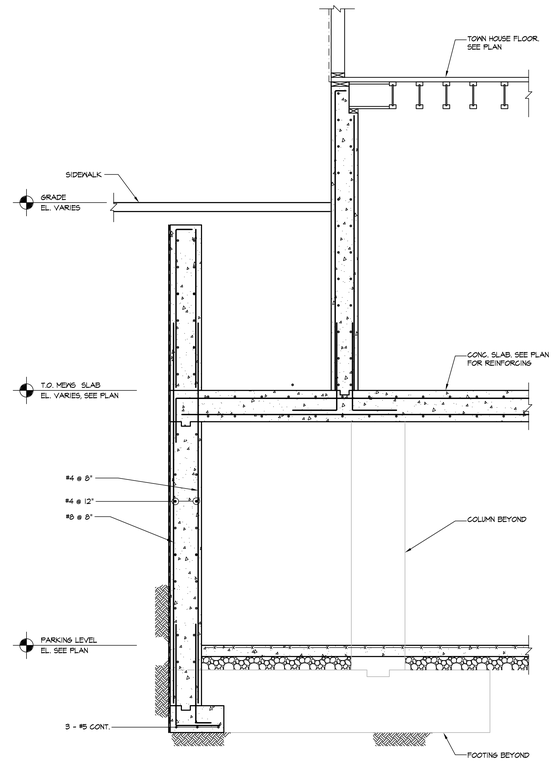

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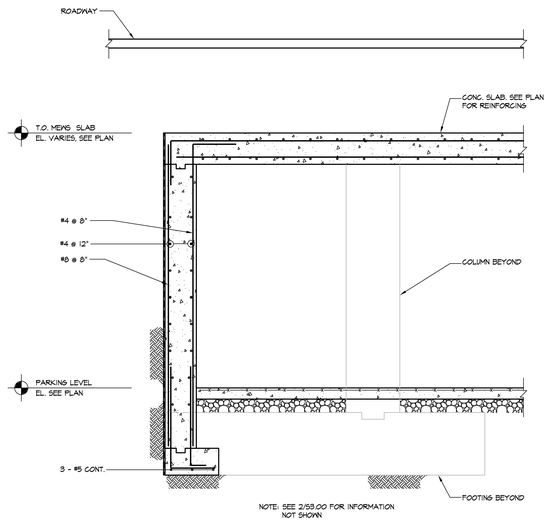

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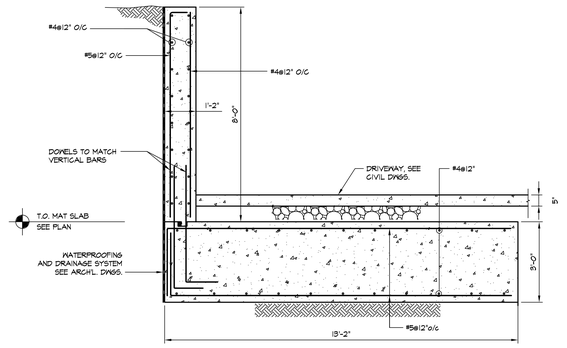

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Watchcase Factory

Sag Harbor, New York

Sag Development Partners LLC

Beyer Blinder Belle
Architects & Planners LLP

41 East 11 Street
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MEP Engineer
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Sustainability and LEED Consultants
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585 Pleasant Street
Boulder, CO 80302
303.907.5313

DOB SUBMISSION

No	Date	Description
Issued/Revised		

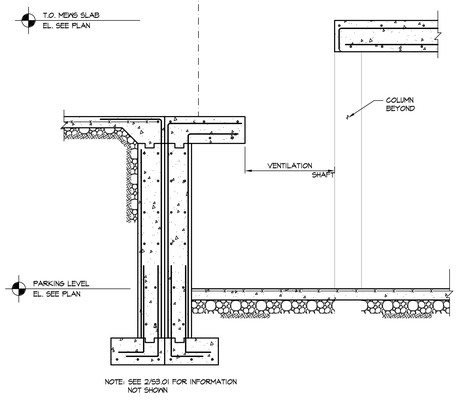
Drawing Title

Foundation Sections

Scale	as noted
Date	12 NOV 2007
Project No.	2006.00
Drawing No.	

S3.00

RSA #11346



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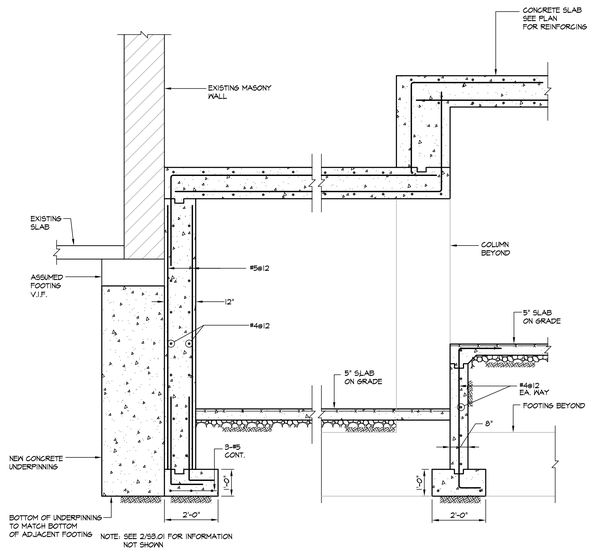

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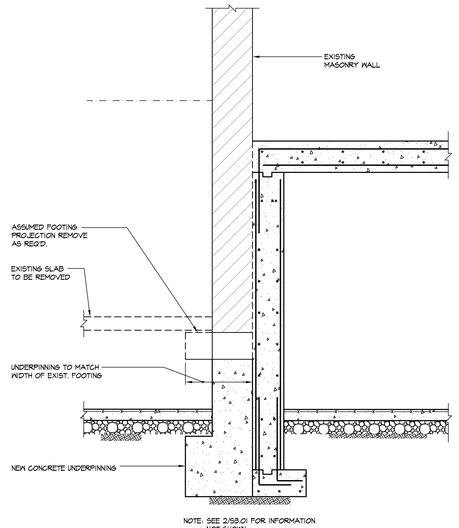

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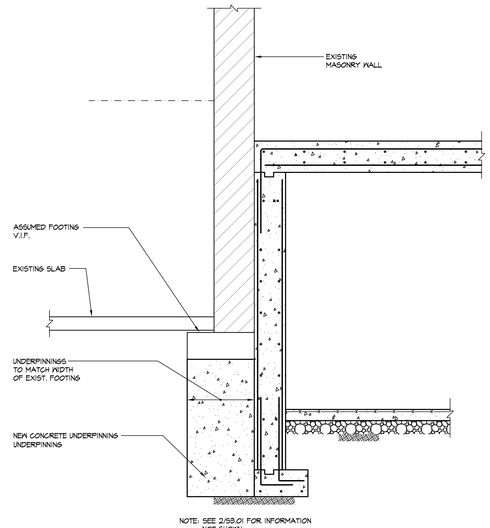

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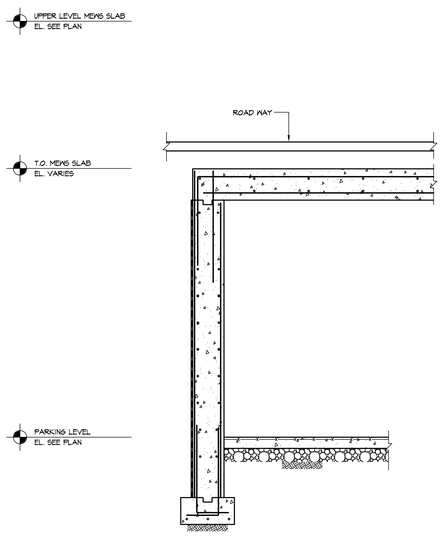

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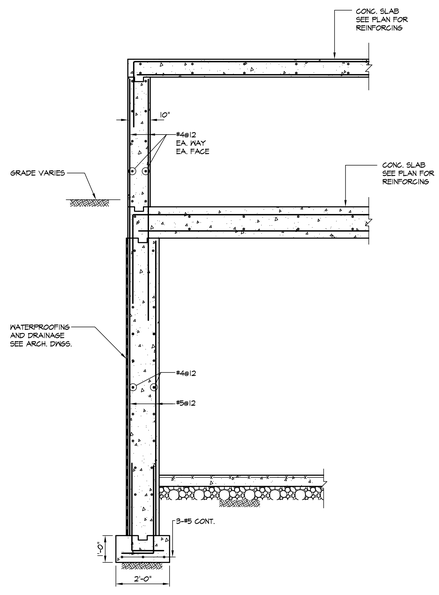

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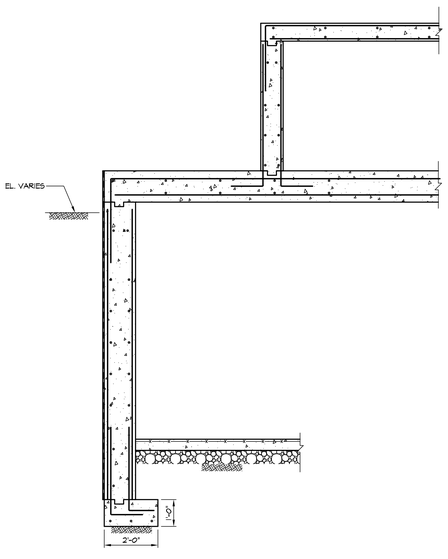

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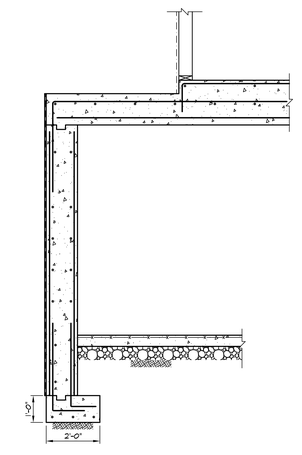

SECTION 8 S9.01
SCALE: ½"=1'-0"

Watchcase Factory

Sag Harbor, New York

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Partners LLC

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No	Date	Description
Issued/Revised		

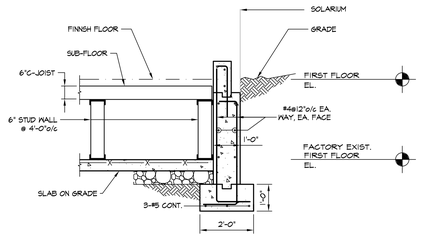
Drawing Title

Foundation Sections

Scale	as noted
Date	12 NOV 2007
Project No.	2006.00
Drawing No.	

S3.01

RSA #11346



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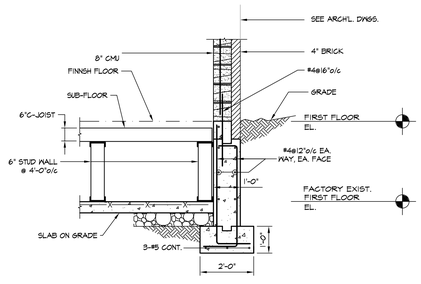

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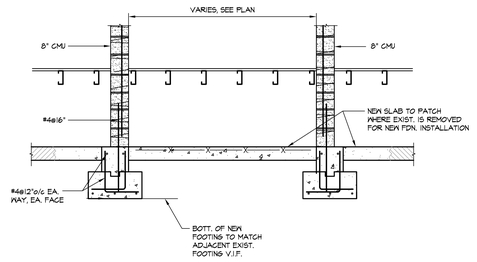

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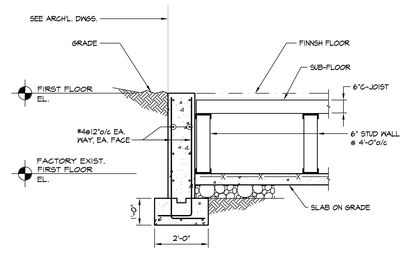

SECTION 4 — SCALE: ½"=1'-0" — S3.02

Watchcase Factory

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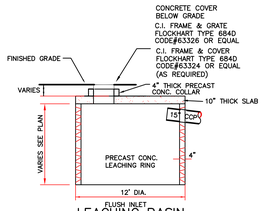
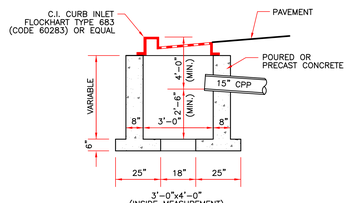
RSA #11346



LEACHING BASIN
LEACHING POOL



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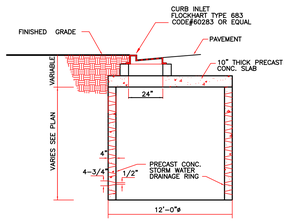
(CURB INLET TYPE)



CURB INLET LEACHING BASIN

DRAINAGE CALCULATIONS

DRAINAGE AREA A

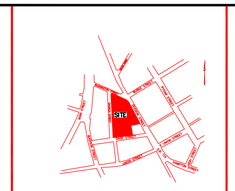
STRUCTURES	= 60,126 S.F. @ 100%	=	60,126 S.F.
LANDSCAPED AREAS	= 3,204 S.F. @ 10%	=	320 S.F.
	TOTAL	=	60,446 S.F.
STORAGE REQUIRED			
60,446 S.F. x 2"/12"		=	10,074 C.F.
STORAGE PROVIDED			
12' DIA. POOLS 110 L.F. X 101		=	11,110 C.F.
SEE PLAN FOR DEPTH OF INDIVIDUAL POOLS			

DRAINAGE AREA B

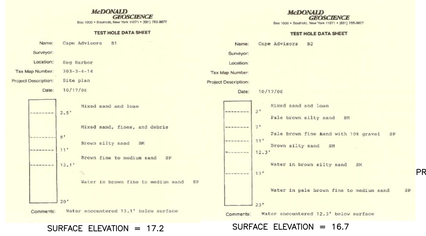
STRUCTURES	= 33,685 S.F. @ 100%	=	33,685 S.F.
LANDSCAPED AREAS	= 2,403 S.F. @ 10%	=	240 S.F.
	TOTAL	=	33,925 S.F.
STORAGE REQUIRED			
33,925 S.F. x 2"/12"		=	5,654 C.F.
STORAGE PROVIDED			
12' DIA. POOLS 65.5 L.F. X 101		=	6,615 C.F.
SEE PLAN FOR DEPTH OF INDIVIDUAL POOLS			

NOTE:
SEE PLUMBING, BASEMENT PLAN P1.00 FOR DISTRIBUTION OF STORM WATER TO SYSTEMS A & B

GROUND WATER ELEVATION = 4.0
INFORMATION PROVIDED BY ROUX ASSOCIATES

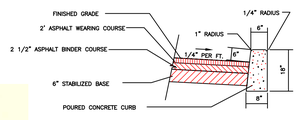


KEY MAP
SCALE: 1"=600'



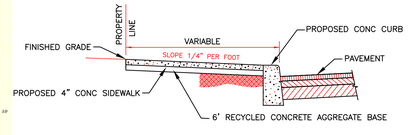
SURFACE ELEVATION = 17.2 SURFACE ELEVATION = 16.7

TEST HOLES



CURB AND PAVEMENT SECTION

NOTE:
SEE GENERAL NOTES FOR DETAILED PAVING AND CONCRETE SPECIFICATIONS



CONCRETE SIDEWALK & CURB SECTION
N.T.S.

GENERAL NOTES:

1. ELEVATIONS REFER TO N.G.V.D. 1929
2. PAVING TO CONSIST OF
   A. 6" SOIL STABILIZED BASE – SCDPW Item 2–SB
   B. 2, 1/2" BINDER COURSE
   C. 2" WEARING COURSE – SCDPW Item 51F (DOT Type 6,6F)
3. ALL POURED CONCRETE TO DEVELOP A 28 DAY COMPRESSIVE STRENGTH OF 4,000 PSI.
4. ALL PRECAST CONCRETE RINGS, DOMES, SLABS, CHIMNEYS AND COVERS SHALL BE REINFORCED AND SHALL BE DESIGNED FOR AASHTO H–20 LOADING.
5. CURBS AND CONCRETE WALKS TO BE CONSTRUCTED WITH 1/2" EXPANSION JOINTS AT 12' INTERVALS, WITH BITUMINOUS JOINT FILLER.
6. CONCRETE WALKS SHALL HAVE A 1/4"/FT PITCH TO CURB UNLESS OTHERWISE NOTED.
7. ALL POLYVINYL CHLORIDE SEWER PIPE SHALL BE JOHN–MANSVILLE OR EQUAL.
8. ALL ON–SITE CONSTRUCTION TO MEET VILLAGE OF SAG HARBOR REQUIREMENTS
9. ALL PARKING STALLS TO BE MARKED WITH A 4" WIDE WHITE PAINTED STRIPE

LEGEND : SITE LIGHTING FIXTURES

VP Village Pole Light: Metal Halide 175W Lamp

SITE DATA:

AREA OF SITE		99,801 SF OR 2.291 ACRES
ZONING DISTRICT		VILLAGE BUSINESS (VB)
AREA OF BUILDINGS	44,812 / 99,809	44,812 SF
LOT OCCUPANCY	9,653 / 99,809	44.9%
GREEN OPEN SPACE		9.7%
NUMBER OF DWELLING UNITS		81
PARKING REQUIRED	81X 1	81
PARKING PROVIDED	INCLUDING 6 HANDICAP PARKING SPACES	128 SPACES
INTENDED USE OF PROPERTY		RESIDENTIAL

Watchcase Factory

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No 1 Date 11/9/07 Description REVISED
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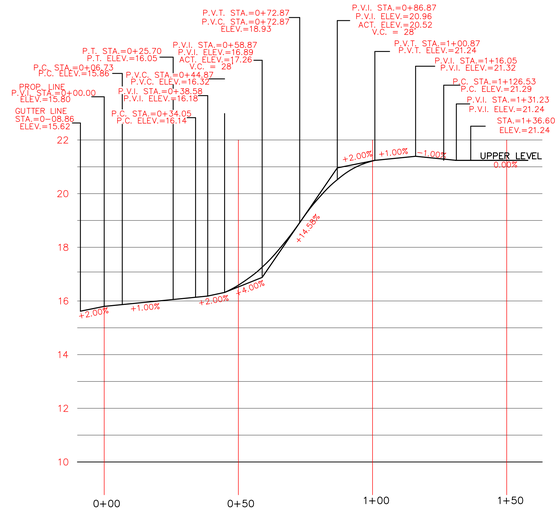
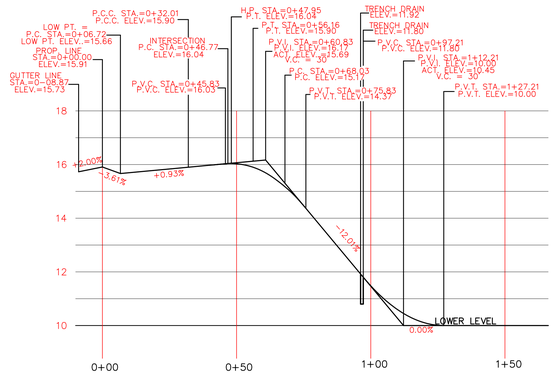
Drawing Title
DRAINAGE PLAN

Scale 1"=20'
Date 16 OCT 2007
Project No.
Drawing No. SP–1



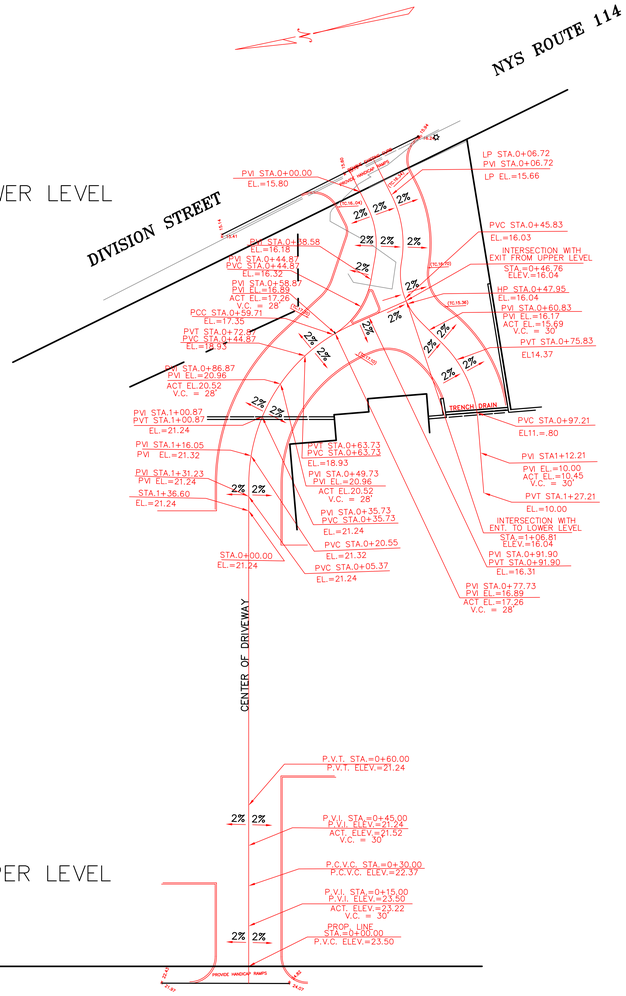
SCALE: HORIZ. 1"=20'
VERT. 1"=2'

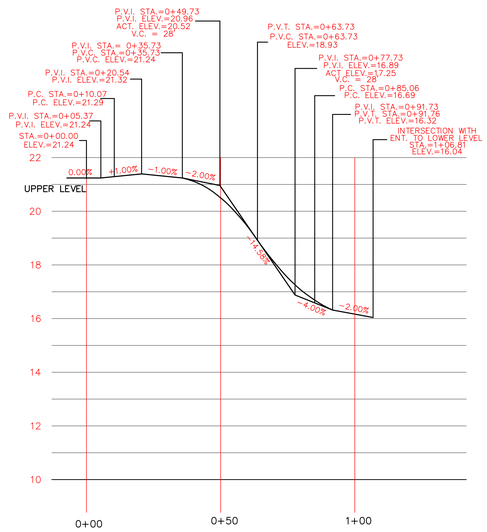
PROFILE OF EAST ENTRANCE DRIVEWAY TO UPPER LEVEL



SCALE: HORIZ. 1"=20'
VERT. 1"=2'

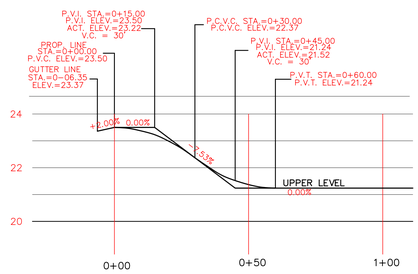
PROFILE OF EAST ENTRANCE DRIVEWAY TO LOWER LEVEL





SCALE: HORIZ. 1"=20'
VERT. 1"=2'

PROFILE OF EAST EXIT DRIVEWAY FROM UPPER LEVEL
TO EAST ENTRANCE DRIVEWAY TO LOWER LEVEL



SCALE: HORIZ. 1"=20'
VERT. 1"=2'

PROFILE OF WEST ENTRANCE DRIVEWAY TO UPPER LEVEL

DOB SUBMISSION

No. 1 Date 11/9/07 Description REVISED
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Drawing Title
ENTRANCE
GRADING PLAN

Scale 1"=20'
Date 16 OCT 2007
Project No.
Drawing No. SP-2

Watchcase Factory

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APPENDIX B

Site Specific

Health and Safety Plan

January 14, 2009

SITE-SPECIFIC CONSTRUCTION HEALTH AND SAFETY PLAN

Former Bulova Watch Case Factory
Sag Harbor, New York

Prepared for

SAG DEVELOPMENT PARTNERS, LLC
485 Broadway, 5th Floor
New York, New York 10013

ROUX ASSOCIATES, INC.

Environmental Consulting & Management

ROUX

209 Shafter Street, Islandia, New York 11749 ♦ 631-232-2600

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2. Action Levels for Worker Breathing Zone

FIGURE

1. Hospital Route Map

APPENDICES

A. Activity Hazard Analysis Sheets
B. Heat and Cold Stress Guidelines

APPROVALS

By their signature, the undersigned certify that this Construction Health and Safety Plan (HASP) is approved and will be utilized at the project site, the Former Watchcase Factory, 15 Church Street, Village of Sag Harbor, New York.

General Superintendent	Date
Site Superintendent	Date
Assistant Site Superintendent	Date
Corporate Safety Supervisor	Date
Site Health and Safety Officer	Date

1.0 INTRODUCTION

This Site-specific Construction Health and Safety Plan (HASP) has been prepared to address activities to be performed during the implementation of the Site Management Plan (SMP) at the Former Watchcase Factory, filed with the New York State Department of Environmental Conservation (NYSDEC). Relevant portions of Occupational Safety and Health Administration (OSHA) 29 CFR 1910.120 and 1926.62 were used as guidance while preparing this HASP.

This HASP was developed to accompany the Site Management Plan (SMP), submitted to the NYSDEC on January 29, 2007. The SMP addresses construction activities at the Site and maintenance activities during the post-construction period, when the Site will be used for residential occupation. These activities include management of soil and wastewater during excavation and construction and implementation of engineering and institutional controls. In addition, a Community Air Monitoring Plan (CAMP) has been prepared for the Site and is attached to the SMP as Appendix B.

This HASP pertains only to issues related to intrusive soil excavation, soil handling, sampling, and the implementation of engineering controls. Although not covered under this HASP, the excavation contractor (Contractor) shall adhere to all applicable OSHA and general construction regulations and guidance.

The designated Site Health and Safety Officer (SHSO) will be responsible for implementing the HASP. Compliance with this HASP is required of all workers who work at or enter the Site (hereinafter referred to as Site Workers), including the Contractor's employees, subcontractors to the Contractor, subcontractors to the Owner's representative, and onsite workers for the Construction Manager. In the event that a Site Worker does not follow these procedures, he or she will be required to leave the Site immediately. The content of this HASP may change or undergo revisions based upon changes in the technical scope of work, the results of monitoring, and/or additional information made available to health and safety personnel. Any proposed changes must be reviewed and approved by the Site Superintendent, the Corporate Safety Supervisor, and the SHSO implementing the changes to the HASP.

Upon entering the Site, all visitors will be required to sign in and read and comply with the provisions of this HASP. Occasional Site visitors (inspectors, owners, etc.) do not need to comply with this HASP if they sign a statement acknowledging that they have received Site-specific health and safety training and will comply with the procedures described in the training. In the event that a visitor does not follow these procedures, he or she will be required to leave the Site immediately.

1.1 Scope of Work

The proposed activities to be performed at the Site include:

- the excavation of portions of the Site to a depth of up to 15 feet below land surface (bls), as required to construct 18 new town homes and renovate the existing factory building to create up to 72 residential units, a below- and above-grade parking garage, pool and accessory structures, and landscaped areas;
- Construction of a sub-slab venting system for the proposed garage building;
- Installation of waterproofing/vapor barrier beneath and around the proposed garage building foundation;
- Construction of the garage building foundation; and
- Construction of an above-slab venting system and vapor barrier for the existing factory building.

All soil removed during the excavation will be disposed at an offsite approved treatment/disposal facility based on characterization sampling.

1.2 Emergency and Project Management Contact Information

Provided below is a list of telephone numbers for use in the event of an emergency onsite.

Emergency Medical Service 911

Police: Village of Sag Harbor Police Department 911
(dial 631-725-0247 non-emergency; dial 911 in an emergency)

Hospital: Southampton Hospital 631-726-8200

National Response Center 800-424-8802

Poison Control Center 800-222-1222

Chemtrec 800-262-8200

Fire: Sag Harbor Volunteer Fire Department 911
(dial 631-725-0252 non-emergency; dial 911 in an emergency)

Center for Disease Control 800-311-3435

NYSDEC Emergency Spill Response 800-457-7362

Project Field Office Trailer ..... TBD

The following table includes the contact information for site management and health and safety personnel.

Title	Contact	Company Name	Business Phone	Cellular Phone
General Superintendent				
Site Superintendent				
Assistant Site Superintendent				
Corporate Safety Supervisor				
Site Health and Safety Officer				
Construction Manager				
Owner's Onsite Representative				
Owner's Representative				

1.3 Directions to Southampton Hospital

Southampton Hospital
240 Meetinghouse Lane
Southampton, New York 11968
(631) 726-8200

Emergency Room Entrance:
On Lewis Street between Meetinghouse Lane and Herrick Road

Directions from Site to Southampton Hospital

From Church Street:

1) Head south on Church St. toward Sage St. - 364 ft
2) Turn right at Sage St - 236 ft
3) Turn right at Madison St - 351 ft
4) Turn left at CR-79/Main St - 1.0 mi
5) Continue on Bridgehampton/Sag Harbor Tpke/Sag Harbor Tpke 1.5 mi
6) Turn right at Scuttle Hole Rd 2.0 mi
7) Go straight at traffic circle and stay on Scuttle Hole Rd 2.3 mi
8) Turn right at Montauk Hwy 2.5 mi
9) Continue straight on Hampton Rd at light after Princess Diner 0.4 mi
10) Turn left at Old Town Rd 0.4 mi
11) Turn right at Meetinghouse Ln 384 ft
12) Left on Lewis Street for Emergency room entrance (between Meetinghouse Lane and Herrick Road).

Directions to the hospital are included in Figure 1.

1.4 Emergency Equipment

The following is a list of emergency equipment to be kept onsite at all times:

- First Aid Kit
- ABC Fire Extinguisher
- Absorbent Pads
- Air Horns
- Oil Dry
- Eye Wash

2.0 HEALTH AND SAFETY STAFF

This section briefly describes the health and safety responsibilities for the excavation work to be implemented at the Site. The following staff are responsible for ensuring compliance with the HASP.

2.1 General/Site Superintendent (GSS) – TBD

- Has the overall responsibility for the health and safety of Site Workers.
- Ensures that adequate resources are provided to the field health and safety staff to carry out their responsibilities as outlined below.

2.2 Corporate Safety Supervisor (CSS) – TBD

- Implements the HASP.
- Performs or oversees Site-specific training and approves revised or new safety protocols or field operations.
- Coordinates revisions of this HASP with GSS.
- Responsible for the development of new task safety protocols and procedures and resolution of any outstanding safety issues that may arise during the completion of Site work.

2.3 Site Health and Safety Officer (SHSO) - TBD

- Directs and coordinates health and safety monitoring activities.
- Ensures that field teams utilize proper personal protective equipment (PPE).
- Conducts initial onsite training prior to Site workers commencing work.
- Conducts and documents daily and periodic safety briefings.
- Ensures that field team members comply with this HASP.
- Immediately notifies the GSS and CSS of all accidents/incidents.
- At the end of each day, communicates the tasks completed, the next day's planned activities, any third party issues, changes of work plans, and/or changes in level of PPE to the designated representatives.
- Determines upgrading or downgrading of PPE based on site conditions and/or real time monitoring results.
- Ensures that monitoring instruments are calibrated daily or as per the manufacturer's instructions.

- Reports to the GSS and CSS to provide summaries of field operations and progress.
- Submits and maintains all documentation required in this HASP and any other pertinent health and safety documentation.

2.4 Site Workers

- Reports any unsafe or potentially hazardous conditions to the SHSO.
- Maintains knowledge of the information, instructions, and emergency response actions contained in the HASP.
- Complies with rules, regulations, and procedures as set forth in this HASP, including any revisions that are instituted.
- Prevents admittance to Site by unauthorized personnel.

3.0 BACKGROUND

This section provides a brief summary of the history and physical setting of the Site.

3.1 Site Description and History

The Site is a 2.3-acre parcel of property and currently contains a four-story brick building. The building is unoccupied and contains several courtyards. There are various other structures on the Site and an asphalt parking lot is located in the southern portion. The Site is bordered by Division Street to the east, Washington Street to the north, Church Street to the west, and Sage Street to the south. The factory building was built in 1881. The building was used as a watch factory from 1881 to 1936. Prior to 1881, the Site was used as a cotton mill. The Site was purchased by Bulova in 1936 and was used for the manufacture of watchcases from 1936 to 1981. Bulova owned the Site until 1987. The building is considered to be of significant local historical value.

An environmental investigation was conducted in 1987 by Chesner Engineering, P.C. on behalf of the then-owner of the Site, Watch Case Factory Associates, in connection with Watch Case's intended redevelopment of the Site for residential use. Following the 1987 environmental investigation, the Site was classified as a Class 2 Inactive Hazardous Waste Disposal Site by the New York State Department of Environmental Conservation (NYSDEC) in January 1993 due to soil and groundwater contamination by volatile organic compounds (VOCs). An Order on Consent (Index No. W1-0674-94-01) (NYSDEC, 1994) was entered into by the NYSDEC and Bulova, as the respondent, in July 1994 requiring the development and implementation of an Interim Remedial Measure Program for the Site consisting of installation and operation of onsite air sparging and soil vapor extraction systems and ancillary equipment. A second Order on Consent (NYSDEC, 1995) was entered into by the NYSDEC and Bulova in September 1995, requiring the development and implementation of a remedial program for the Site.

Between 1993 and 1998, soil and groundwater remediation to address the VOC contamination was performed in several phases at the Site. Sumps and drywells were closed in 1993. Two air sparge/soil vapor extraction (AS/SVE) systems were constructed and began operation in 1994. Impacted soil was excavated from the interior courtyard in 1996. In March 1998, the two AS/SVE systems were deactivated with NYSDEC approval. From October 22 through

November 9, 2001, additional soil was removed from the western portion of the interior courtyard using a vacuum truck. Deeper impacted soil was addressed by reactivating, reconfiguring, and operating one of the AS/SVE systems. The AS/SVE system was run in four major periods of operation and controlled shutdown for two years, commencing in March 2002 and ending in April 2004. The AS/SVE system was shut down in June 2005 with the NYSDEC's approval because contaminants in groundwater had reached asymptotic levels. The remedial activities are described in more detail in the Final Remedial Action Report prepared by Shaw Environmental & Infrastructure, Inc. (Shaw, formerly IT Corporation) on behalf of Bulova (Shaw, 2006).

In January 2006, the Site was purchased by Sag Development Partners, LLC (SDP) with the intention of redeveloping the Site for residential use in accordance with the prior zoning variance obtained by Watch Case to permit such use on the Site.

3.2 Summary of Environmental Conditions

A summary of the nature and extent of VOC contamination at the Site is provided in this section. A more detailed discussion of the nature and extent of contamination can be found in the Final Remedial Action Report (Shaw, 2006). In June 1999, a soil gas survey (IT Corporation, 1999) indicated the presence of VOC-impacted soil gas beneath the interior courtyard area. A subsequent soil gas survey performed in 2000 (IT Corporation, 2000) confirmed the results of the 1999 soil gas survey. In 2001, a confirmatory soil boring program was completed within the interior courtyard area. Results of the investigation identified an area of the interior courtyard outside the radius of influence of the original AS/SVE systems, which had elevated levels of VOCs in soil and groundwater. The main constituents were chlorinated solvents (1,1,1-trichloroethane (1,1,1-TCA), trichloroethene (TCE), and tetrachloroethene (PCE)). Soils impacted with these VOCs were detected in both shallow-depth soils (2'-6' below grade surface [bgs]) and deeper-depth soils (8'-14' bgs). Results of this investigation were submitted in a report entitled *Interior Courtyard Confirmatory Soil Boring Assessment Report* (Shaw, 2001).

In October and November 2001, approximately 110 cubic yards of soil were removed from the western portion of the interior courtyard to a depth of 6 to 8 feet below ground surface (ft bgs).

The remaining impacted soils in the courtyard were subsequently addressed by operation of the reconfigured AS/SVE system.

In addition, as the result of the operation of the reconfigured AS/SVE system, concentrations of VOCs in groundwater decreased by 89 to 98 percent by April 2004 (Shaw, 2006). Some rebound of VOC concentrations in groundwater was observed during shutdown periods of the AS/SVE system. However, the magnitude of the rebound decreased with each subsequent shutdown period. Even accounting for the rebound effect, most groundwater sampling locations exhibited decreases in VOC concentrations of greater than 90 percent. Moreover, VOC concentrations in groundwater had leveled off and further reductions were not being realized through continued operation of the system (i.e., an asymptotic limit of decreasing VOC concentrations in groundwater versus time was reached in response to continued operation of the AS/SVE system). The relatively low rates of rebound in VOC concentrations following AS/SVE system shutdown demonstrate that significant VOC source material removal has occurred and that there is no indication of the presence of a dense, non-aqueous phase liquid source for VOCs in groundwater.

Because the continued operation of the AS/SVE system was no longer effective in further contaminant reduction as the levels present in the groundwater had reached asymptotic conditions, the NYSDEC agreed to system shutdown on June 2005.

A review of soil gas data obtained in March through April 2004 (Shaw, 2006) indicated that elevated concentrations of VOCs persisted in soil gas beneath the Site. These detections were related to the same VOCs that were observed in soil and groundwater throughout the remedial program. Additional soil gas sampling was conducted onsite in May 2005 (Shaw, 2005a) and July 2005 (Shaw, 2005b). In the Final Remedial Action Report (Shaw, 2006), equilibrium partitioning calculations demonstrated that source area soils (i.e., grossly impacted soils) are no longer present, although residual soil impacts may remain.

There is separate-phase petroleum product beneath a portion of the Site. The product remediation is being addressed under Spill No. 95-01433 through the NYSDEC spills program.

4.0 POTENTIAL HAZARDS RELATED TO SOIL

This section provides a brief summary of the potential Compounds of Concern and related hazards at the Site.

4.1 General

The following information is presented in order to identify the types of materials that may be encountered at the Site. The detailed information on these materials was obtained from:

- Sax's Dangerous Properties of Industrial Materials - Lewis Eighth Edition;
- Chemical Hazards of the Workplace - Proctor/Hughes;
- Condensed Chemical Dictionary – Hawley;
- Rapid Guide to Hazardous Chemicals in the Workplace - Lewis 1990;
- NIOSH Pocket Guide to Chemical Hazards –1996; and
- ACGIH TLV Values and Biological Exposure Indices, OSHA 29 CFR 1910.1000.

4.2 Compounds of Concern

Investigation results indicate that the following volatile organic compounds are present in the soil and groundwater at the Site: 1,1,1-trichloroethane, trichloroethene (TCE), tetrachloroethene (PCE), and the heavy metals chromium, copper, lead, mercury, and silver.

The above-mentioned compounds may pose a potential exposure hazard through ingestion, inhalation, skin absorption, or a combination of these routes. These exposures will be further controlled through the use of PPE, designated action levels based upon onsite air monitoring, and the assignment of experienced field personnel. The Summary of Toxicological Data is found in Table 2 and provides information such as the chemicals' characteristics, health hazards, protection, and exposure limits.

5.0 HAZARD ASSESSMENT

The potential to encounter chemical hazards is dependent upon the work activity performed (intrusive versus non-intrusive) and the duration and location of the work activity. Such hazards could include inhalation and/or skin contact with chemicals/gases that could cause: dermatitis, skin burns, being overcome by vapors or asphyxiation.

Physical hazards that may be encountered during site work include: heat and cold stress, exposure to excessive noise, loss of limbs, being crushed, head injuries, punctures, cuts, falls, electrocution, bruises, and other physical hazards due to motor vehicle operation, heavy equipment, and power tools.

Biological hazards may exist during Site activities. These hazards include exposure to insect bites/stings and blood borne pathogens.

Prior to the beginning of each new phase of work, an activity hazard analysis will be prepared by the SHSO and GSS with assistance from the CSS. The analysis will address the hazards for each activity performed in the phase and will present the procedures and safeguards necessary to eliminate the hazards or reduce the risk. The Activity Hazard Analysis Sheets are located in Appendix A.

Note: Hazard assessment is documented in section 5.4

5.1 Chemical Hazards

The potential for personnel and subcontractors to be exposed to chemical hazards may occur during the following tasks:

- Excavation activities
- Dewatering of the excavation
- Installation of foundation piles
- Installation of sheet piling and/or shoring
- Decontamination station activities (equipment)

For chronic and acute toxicity data, refer to Summary of Toxicological Data in Table 1 for further details on compound characteristics.

5.1.1 Exposure Pathways and Assessment

Exposure to these compounds during ongoing activities may occur through inhalation of contaminated dust particles, inhalation of VOCs, SVOCs, and metals and by way of dermal absorption and accidental ingestion of the contaminant by either direct or indirect cross-contamination activities.

Inhalation of contaminated dust particles (VOCs, SVOCs, and metals) can occur during adverse weather conditions (high or changing wind directions) or during operations that may generate airborne dust such as excavation and loading of contaminated soils. Dust control measures such as applying water to roadways and excavations will be implemented where visible dust is generated in accordance with the remediation work plans. Where dust control measures are not feasible or effective, respiratory protection will be used (see Section 8.0 for monitoring procedures and action levels).

5.1.2 Operational Action Levels

A decision-making protocol for an upgrade in levels of protection and/or withdrawal of personnel from an area based on atmospheric hazards as determined by continuous air monitoring by our Industrial Hygienist and safety personnel is outlined in Table 2.

5.1.3 Additional Precautions

Dermal absorption or skin contact with chemical compounds is possible during intrusive activities at the Site. The use of PPE in accordance with Section 7.2 and strict adherence to proper decontamination procedures should significantly reduce the risk of skin contact.

The potential for accidental ingestion of potentially hazardous chemicals is expected to be remote when good hygiene practices are used.

5.2 Physical Hazards

A variety of physical hazards may be present during Site activities. These hazards include typical construction activities: operation of motor vehicles and heavy equipment, the use of power and hand tools, roping and rigging of steel sheeting, walking on objects, tripping over objects, working on surfaces which have the potential to promote falling, skin burns, crushing of fingers, toes, limbs, head injuries caused by falling objects, temporary loss of one's hearing and/or eyesight. The referenced hazards are not unique and are generally familiar to most workers at construction sites. An Activity Hazard Analysis shall be submitted to the Construction Supervisor prior to the beginning of each phase of work (i.e., definable task). Task specific safety requirements for each phase will be covered during safety briefings. Activity Hazard Analysis summaries are contained in Appendix A.

5.2.1 Noise

Noise is a potential hazard associated with operation of heavy equipment, power tools, pumps, and generators. High noise equipment operators will be evaluated at the discretion of the SHSO. Employees with an 8-hour time weighted average exposure exceeding 85 dB[-]A will be included in the hearing conservation program in accordance with 29 CFR 1910.95 and 1926.52.

It is mandated that employees working around heavy equipment or using power tools that dispense noise levels exceeding 90 dB[-]A are to wear hearing protection that shall consist of earplugs or protective earmuffs.

5.2.2 Heat Stress

Heat stress is a significant potential hazard associated with the use of protective equipment in a hot weather environment. The human body is designed to function at a certain internal temperature. When metabolism or external sources (fire or hot summer day) cause the body temperature to rise, the body seeks to protect itself by triggering cooling mechanisms. The SHSO will monitor the air temperature (as described later in this section) to determine potential adverse affects the weather can cause onsite personnel. Excess heat is dissipated by two means:

- Changes in blood flow to dissipate heat by convection, which can be seen as "flushing" or reddening of the skin in extreme cases.

- Perspiration, which is the release of water through skin and sweat glands. While working in hot environments, evaporation of perspiration is the primary cooling mechanism.

Protective clothing worn to guard against chemical contact effectively stops the evaporation of perspiration. Thus, the use of protective clothing increases heat stress problems.

The major disorders due to heat stress are heat cramps, heat exhaustion, and heat stroke. Heat cramps are painful spasms that occur in the skeletal muscles of workers who sweat profusely in the heat and may drink large quantities of water, but fail to replace the body's lost salts or electrolytes. Drinking water while continuing to lose salt tends to dilute the body's extracellular fluids. Soon, water seeps by osmosis into active muscles and causes pain. Muscles fatigued from work are usually most susceptible to cramps.

Extreme weakness or fatigue, dizziness, nausea, and headache characterize heat exhaustion. In serious cases, a person may vomit or lose consciousness. The skin is clammy and moist, complexion pale or flushed, and body temperature normal or slightly higher than normal. The treatment is to rest in a cool place and replacement of body water lost by perspiration. Mild cases may recover spontaneously with this treatment; severe cases may require care for several days. There are no permanent effects.

Heat stroke is a very serious condition caused by the breakdown of the body's heat-regulating mechanisms. The skin is very dry and hot with red mottled or bluish appearance. Unconsciousness, mental confusion, and/or convulsions may occur. Without quick and adequate treatment, the result can be death or permanent brain damage. As a first aid treatment, the person should be moved to a cool place. Body heat should be reduced artificially, but not too rapidly, by soaking the person's clothes in water and fanning them.

Steps that can be taken to reduce heat stress are:

- Acclimate the body. Allow a period of adjustment to make further heat exposure endurable.
- Drink more liquids to replace the body water lost during sweating.
- Take frequent breaks to rest and recover from the effects of heat stress.

- Wear personal cooling devices. These are two basic designs: units with pockets for holding frozen packets and units that circulate fluid from a reservoir through tubes to different parts of the body. Both designs can be in the form of a vest, jacket, or coverall. Some circulating units also have a cap for cooling the head.

- Wear long cotton underwear under chemical protective clothing. The cotton will absorb perspiration and will hold it close to the skin. This will provide the body with the maximum cooling available from the limited evaporation that takes place beneath chemical resistant clothing. It also allows for rapid cooling of the body when the protective clothing is removed.

Heat stress is a significant hazard associated with using protective equipment in hot weather environments. Local weather conditions may produce a situation that requires restricted work schedules in order to protect employees.

Appendix B contains procedures for heat stress; these will be used as a guideline and to provide additional information.

5.2.3 Cold Stress

Cold temperatures are a significant potential hazard. Examples of cold temperature hazards are frostbite and hypothermia.

Frostbite is the most common injury resulting from exposure to cold. The extremities of the body are most often affected. The signs of frostbite are:

- The skin turns white or grayish-yellow
- Pain is sometimes felt early but subsides later. Often there is no pain.
- The affected parts feel intensely cold and numb.

Hypothermia is characterized by shivering, numbness, drowsiness, muscular weakness, and a low internal body temperature when the body feels extremely cold. This can lead to unconsciousness and death. With both frostbite and hypothermia, the affected areas need to be warmed quickly. Immersion in warm water is an effective means of warming the affected areas quickly. In such cases, medical assistance will be sought.

To prevent these effects from occurring, persons working in the cold should wear adequate clothing and reduce the time spent in the cold area. The SHSO will monitor this and determine the appropriate time personnel should spend in adverse weather conditions.

Additional information about Cold Stress Control Guidelines is provided in Appendix C.

5.2.4 Lockout/Tagout

The remediation contractor will develop a lockout/tagout plan in the event of the repair of electrical, pneumatic, hydraulic, mechanical systems per OSHA requirements under 29 CFR 1910.147.

5.2.5 Excavation and Construction Safety

All excavation and construction work will be accomplished in strict conformance with 29 CFR 1926 .650 – 652. Site and safety controls will be implemented to insure both the safety of the person(s) excavating and all general personnel. This will apply to all related activities including shoring, steel cutting and welding, formwork construction, and rebar installation and pouring of concrete.

5.2.6 Confined Space Entry

The remediation contractor and its subcontractor's personnel will not be permitted to enter confined spaces at any time until the space has been thoroughly evaluated and all provisions of 29 CFR 1910.146 are satisfied.

5.3 Biological Hazards

The biological hazards, which have the potential to cause adverse health effects, are from exposure to domestic flies, mosquitoes, insects, and blood borne pathogens. The Activity Hazard Analysis (Appendix A) suggests controls for various hazards to be potentially encountered onsite.

5.3.1 Insect Stings

Stings from insects are often painful, cause swelling, and can be fatal if a severe allergic reaction such as anaphylactic shock occurs. If a sting occurs, the stinger should be scraped out of the skin, opposite of the sting direction. The area should be washed with soap and water followed by an ice pack.

Those individuals susceptible to bee stings must notify the SHSO prior to entering the site and should carry on their person their own medication. If the victim has a history of allergic reaction, he should be taken to the nearest medical facility. If the victim has medication to reverse the effects of the sting, it should be taken immediately.

If the victim experiences a severe reaction, a constricting band should be placed between the sting and the heart. The bitten area should be kept below the heart, if possible. A physician should be contacted immediately for further instructions.

5.3.2 Bloodborne Pathogens

The majority of the occupational tasks onsite will not involve a significant risk of exposure to blood, blood components, or body fluids. The highest risk of acquiring any bloodborne pathogen for employees onsite will be following an injury. When administering first aid care, there are potential hazards associated with bloodborne pathogens that cause diseases such as Human Immunodeficiency Virus (HIV), Hepatitis A (HAV), Hepatitis B (HBV), Hepatitis C (HCV), or the Herpes Simplex Virus (HSV). An employee who has not received the appropriate certification should never perform first aid and/or CPR.

In order to minimize any potential pathogen exposure, all employees should use the hand washing facilities on a regular basis. The decontamination area will provide an adequate supply of water, soap, and single use towels for hand washing. Additionally, the following universal precautions should be followed to prevent further potential risk:

- Direct skin or mucous membrane contact with blood should be avoided.
- Open skin cuts or sores should be covered to prevent contamination from infectious agents.
- Body parts should be washed immediately after contact with blood or body fluids that might contain blood, even when gloves or other barriers have been used.
- Gloves and disposable materials used to clean spilled blood shall be properly disposed of in an approved hazardous waste container.
- First aid responders shall wear latex or thin mil nitrile gloves when performing any procedure risking contact with blood or body substances.
- Safety glasses will be worn to protect the eyes from splashing or aerosolization of body fluids.

- A CPR mask will be worn when performing CPR to avoid mouth-to-mouth contact.
- Work gloves will be worn to minimize the risk of injury to the hands and finger when working on all equipment with sharp or rough edges.
- Never pick up broken glass or possible contaminated material with your unprotected hands.

5.4 Hazard Assessment

Task	Hazards	Risk of Exposure
Mobilization/Demobilization	Inhalation/Skin Contact	Low
	Heat Stress/Cold Stress	Low
	Noise	Moderate
	Physical Injury	High
Decontamination/Dewatering	Inhalation/Skin Contact	Moderate
	Heat Stress/Cold Stress	Moderate
	Physical Injury	Moderate
	Noise	Moderate
Earthwork/Drilling	Inhalation/Skin Contact	Moderate
	Heat Stress/Cold	Moderate
	Stress Noise	Moderate
	Physical Injury	Moderate
Sheeting and Shoring	Inhalation/Skin Contact	Moderate
	Heat Stress/Cold Stress	Moderate
	Noise	High
	Physical Injury	High

Activity	Hazard	Action Taken
Excavating	Struck by	Safe work zone with clearance
	Ground Stability	Inspection by competent person
	Hearing Loss	Ear Protection
Trucking	Struck by	Traffic control by flagmen
	Contamination/ Decontamination	(wash down)
Formwork Installation	Falls	All personnel will be 100% fall protected at a height of 6’ or

Activity	Hazard	Action Taken
		more
Rebar Installation	Impalement	All rebar with impalement potential will be properly protected
Concrete Installation	Burns	All personnel will wear proper attire (long sleeves, long pants, boots, gloves)
	Eye Damage	All personnel will utilize eye protection when working with concrete

General Conditions:

1. Hard hats will be worn at all times;
2. Eye protection will be worn at all times;
3. Steel-toed and shanked safety boots will be worn at all times; and
4. Hearing protection will be used when required.

All other safety requirements are as per OSHA 1926.

6.0 TRAINING

This section details the training requirement for Site Workers.

6.1 Site-Specific Training

Prior to the commencement of field activities, the SHSO, GSS, or CSS will provide site-specific training to all Site Workers. Site Workers will receive training that will specifically address the activities, procedures, monitoring, and equipment for site operations. It will include site layout, hazards, fire prevention and response, first aid equipment locations, and emergency services at the Site, and will highlight all provisions contained within this HASP. This training will also allow field workers to clarify anything they do not understand and to reinforce their responsibilities regarding safety and operations for their particular activity. This training may be conducted in conjunction with other site training or meetings.

6.2 Onsite Safety Meetings

Safety meetings will take place to discuss potential safety concerns for the upcoming activities. At a minimum, the appropriate field supervisors or foremen for all workers will conduct at least one formal daily safety meeting in the morning; however, additional meetings or briefings may be necessary as a result of changing conditions or modifying tasks. Copies of the daily safety meeting sign in sheet and a description of items discussed will be provided to the CSS and will be kept at the Site.

The meetings will also provide a forum to facilitate conformance with safety requirements and to identify performance deficiencies related to safety during daily activities or as a result of safety audits by the Contractor or other involved parties. These meetings may be conducted in conjunction with other site training or meetings.

Visitors onsite must be made aware of the hazards onsite in a site-specific safety briefing and sign a statement indicating that they will comply with the applicable requirements of this HASP.

6.3 First Aid and CPR

The SHSO will identify those individuals having first aid and CPR training to assist with emergency medical treatment during field activities, if necessary. The training will be consistent with the requirements of the American Red Cross. Certification and appropriate training documentation will be kept with the Site Workers' records by the SHSO.

7.0 SITE CONTROL AND PERSONAL PROTECTIVE EQUIPMENT

This section provides a detailed description of the site control measures and personal PPE procedures to be implemented at the Site. It is important to note that this HASP has been drafted to apply to work in Level D or modified Level D only. If the monitoring results require Level C protection or higher, all site work will immediately cease until activities can be completed with workers trained in accordance with 29 CFR 1910.120.

7.1 Site Control

Based on the site history and results of previous investigations, metals and VOCs have been identified in the soil onsite. As such, this HASP will be followed for all excavation and intrusive subsurface work on the entire site.

7.2 Personal Protective Equipment

The level of protection worn by Site Workers will be enforced by the SHSO. The level of protection may be upgraded at the discretion of the SHSO. All decisions on the level of protection will be based upon a conservative interpretation by the SHSO of the information provided by air monitoring results and/or other appropriate information. Any changes in the level of protection shall be recorded in the health and safety field logbook. If the level of respiratory protection needs to be upgraded, the Contractor will immediately contact the Construction Manager and Owner's Representative.

The level of PPE for work on the Site is Level D PPE, which includes the following:

- Work uniform (long pants, sleeved shirt)
- Hard hat
- Steel-toed, steel-shanked work boots
- Safety glasses
- Boot covers (as needed)
- Hearing protection (as needed)
- Reflective safety vest

If required by the SHSO, modified Level D PPE may also be used at the Site during specific activities, consisting of the following:

- Regular Tyvek coveralls (Poly-coated Tyvek as required)
- Outer gloves: leather, cotton, neoprene or nitrile (as required)
- Inner gloves: latex or nitrile (doubled) as required
- Chemical resistant boots over work boots (as required)
- Steel- toed, steel-shanked work boots
- Hard hat
- Safety glasses
- Hearing protection, as needed
- Reflective safety vest

7.3 Site Control for Unexpected Conditions

In the event that unexpected conditions (as defined in the SMP) or hazardous waste is encountered, thereby requiring workers trained in accordance with 29 CFR 1910.120, the following four-zone approach will be employed in order to prevent the spread of the contamination from the area containing the unexpected condition and to protect Site Workers. The four zones include the Exclusion Zone, the Contamination Reduction Zone, the Remediated Zone, and the Support Zone. A stepped remedial approach will be managed and the zones modified as the work progresses. Each of the areas will be defined through the use of control barricades and/or construction/hazard fencing. A clearly marked delineation between the zones will be maintained. Signage will be posted to further identify and delineate these areas.

The following subsections describe the four zones that will be utilized in the event that unexpected conditions or contamination is discovered at the Site.

7.3.1 Exclusion Zone

The area where the unexpected condition is discovered would be considered the Exclusion Zone (EZ). All excavation and handling of contaminated materials generated as a result of the discovery of an unexpected condition would take place within the EZ. This zone will be clearly delineated by

hay bales, jersey barriers, and/or similar methods. Safety tape may be used as secondary delineation within the EZ. The zone delineation markings may be opened in areas for varying lengths of time to accommodate equipment operation or specific construction activities. The SHSO may establish more than one EZ where different levels of protection may be employed or where different hazards exist. Site Workers will not be allowed in the EZ without:

- A buddy (co-worker)
- Appropriate PPE
- Medical authorization
- Training certification

7.3.2 Contamination Reduction Zone

A Contamination Reduction Zone (CRZ) will be established between the EZ and the property limits. The CRZ contains the Contamination Reduction Corridor (CRC) and provides an area for decontamination of Site Workers and equipment. The CRZ will be used for general site entry and egress, in addition to access for heavy equipment and emergency support services. Site Workers will not be allowed in the CRZ without:

- A buddy (co-worker)
- Appropriate PPE
- Medical authorization
- Training certification

7.3.3 Remediated Zone

A Remediated Zone (RZ) will be established in portions of the Site where the remediation has been completed and only general construction work will be performed. Setup of the RZ will consist of implementing several measures designed to reduce the risk of workers' exposure and prevent non-trained workers from entering the non-remediated zone. Non-trained workers will work only in areas where the potential for exposure has been minimized by removal of all hazardous materials. The remediated zone will then be separated from the non-remediated zone by installing and maintaining temporary plywood or other construction fences along the boundary between the two zones. If potentially impacted material is uncovered in the RZ, all non-trained

workers will be removed and the SHSO will assess the potential risks. If, at any other time, the risk of exposure increases while non-trained workers are present in the RZ, the non-trained workers will be removed. At all times, when non-trained workers are present in the RZ, air monitoring for the presence of VOCs will be conducted in the RZ, as well as at the fence line of the non-remediated zone.

7.3.4 Support Zone

The Support Zone (SZ) will be an uncontaminated area that will be the field support area for the site operations. The SZ will contain the temporary project trailers and provides for field team communications and staging for emergency response. Appropriate sanitary facilities and safety equipment will be located in this zone. Potentially contaminated Site Workers or materials are not allowed in this zone. The only exception will be appropriately packaged/decontaminated and labeled samples. Meteorological conditions will be observed and noted from this zone, as well as those factors pertinent to heat and cold stress.

8.0 MONITORING PROCEDURES

Ambient air monitoring and continuous air monitoring will be conducted in the active work areas by the Contractor during all excavation/truck loading activities, or as mandated by the SHSO. Monitoring will be performed to verify the adequacy of the Level D respiratory protection, to aid in site layout, and to document monitoring results. If air monitoring in these areas indicates the presence of potentially hazardous materials, control measures will be implemented in accordance with the SMP, HASP, and CAMP. All monitoring instruments shall be operated by qualified personnel only and will be calibrated prior to use daily or more often, as necessary. No excavation or truck loading activities will be performed without the presence of the SHSO or designated approved substitute at the Site and without air monitoring. The SHSO is responsible for ensuring that appropriate monitoring, levels of protection, and safety procedures are followed.

8.1 Instrumentation

The following monitoring instruments supplied by the Contractor will be available for use during field operations, as necessary. There will be a minimum of one of each piece of equipment on the site at all times:

- Photoionization Detector (PID) with 11.7 EV probe, Flame Ionization Detector (FID) or equivalent.
- Dust/Particulate Monitor (DM), MIE Miniram or equivalent.

A PID and/or FID equipped organic vapor meter shall be used to monitor VOCs in and around active work areas during excavation and truck loading activities. VOCs shall also be measured upwind of the work areas to determine background concentrations.

A particulate monitor shall be used to measure concentrations of dust and particulate matter in and around the active work areas. Particulates shall also be measured upwind of the work areas to determine background concentrations.

All instruments shall be calibrated daily prior to use in accordance with the manufacturer's procedures. Calibration records shall be documented and recorded daily.

The frequency of monitoring should be determined by the SHSO after consultation with the CSS/GSS. The rationale for any modification must be documented and maintained by the SHSO in the onsite health and safety files.

8.2 Action Levels

Action levels for the upgrading of PPE requirements in the HASP will apply to all Site work during excavation and truck loading activities at the Site. These action levels are provided in Table 2 and are for known contaminants measured using direct reading instruments in the Breathing Zone (BZ) for VOCs and particulates. The BZ will be determined by the SHSO, but is typically 4 to 5 feet above the work area surface or elevation.

An air horn will be readily available in the site trailer. An additional air horn will be located in the work area to alert Site Workers to an emergency situation. In the event of an emergency or the need to upgrade the level of personal protection, sharp blasts of the air horn will be sounded. If the level of respiratory protection needs to be upgraded, the Contractor will immediately contact the Construction Manager and Owner's Representative.

8.3 Community Air Monitoring Program

The Owner's representative (or designated subcontractor) will perform a community air monitoring program (CAMP) at the Site during all ground intrusive activities (i.e., during all grading, excavation and loading of soil for disposal). This CAMP will meet the requirements of the New York State Department of Health Generic CAMP. The CAMP details are provided in the CAMP Plan, included as Appendix B to the SMP.

8.4 Meteorological Monitoring

The Contractor will obtain, at a minimum, the daily temperature, wind direction, wind speed, and rain accumulations from the onsite meteorological station. This information will be used to assist with the determination of daily health and safety measures and locations of both work zone and perimeter monitoring devices. This requirement may be satisfied using data collected for the CAMP. All meteorological data will be recorded and kept onsite.

9.0 VEHICLE/SITE WORKER CLEANING AREAS AND DISPOSAL PROCEDURES

This section details the specific vehicle/Site Worker cleaning and waste disposal procedures to be implemented at the Site during the excavation and truck loading activities.

9.1 Contamination Prevention

Contamination prevention should minimize worker exposure and help to avoid spreading site-derived soil onto the public roadways. Procedures for prevention include:

Site Workers

- Do not walk through areas of soil
- Do not directly handle or touch soil
- No eating or drinking in the soil areas.
- Particular care should be taken to protect any skin injuries
- Stay upwind of dust
- Do not use cigarettes, cosmetics, gum, etc., in areas of soil

Heavy Equipment

- Care should be taken to limit the amount of soil that comes in contact with heavy equipment (tires).
- If tools used in soil are to be placed on equipment for transport to an area where all soil has been removed or to be cleaned, plastic should be used to keep the equipment clean.
- Dust control measures, including water misting, will be used on roads inside the site boundaries, as described in the CAMP.

9.2 Site Worker Cleaning Procedures

All Site Workers shall pass through a cleaning procedure when exiting the active work areas in the soil, including washing their hands and removing any loose soil from their clothing and boots. This will be accomplished in the designated Site Worker Cleaning Area to be located adjacent to active work areas in the soil. A field wash station for Site Workers, equipment, and PPE shall be set up and maintained by the Contractor. This will include a gross wash and rinse for boots worn in soil areas and, as necessary, equipment and facilities for Site Workers to wash their hands, arms, neck, and face after exiting areas of soil.

9.3 Vehicle Cleaning Area/Stabilized Construction Entrances

One or more temporary vehicle cleaning areas will be constructed to clean disposal trucks and other vehicles and equipment prior to leaving the Site. This area will reduce the amount of soil that disposal trucks and other vehicles spread onto the public roadway. The vehicle cleaning area will be constructed of gravel and will be of sufficient size to prevent vehicles from spreading soil onto the public roads and/or previously excavated areas of the Site where all soil has been removed. Before any disposal truck or other vehicle leaves the Site, the sides and wheels will be inspected. If any soils are observed on the wheels or body of the truck, they will be removed and collected for disposal using a shovel, broom, and/or other hand tools in the designated vehicle cleaning area. This will reduce the potential for disposal trucks to spread site-derived material onto the public streets. This vehicle cleaning area may be upgraded to include wet vehicle cleaning procedures (i.e., power washing or steam cleaning) if deemed necessary by the SHSO, CSS, and/or GSS.

In addition, all equipment used for excavation and other earthwork activities (i.e., excavators, bulldozers, backhoes, etc.) which comes in contact with contaminated soil shall be cleaned at the vehicle cleaning area prior to:

a. crossing into areas of the Site where no contaminated soil is present;
b. handling clean fill/topsoil; and
c. leaving the Site.

No equipment will be allowed to leave the Site prior to the SHSO or Site Superintendent's inspection and verification that the equipment was properly cleaned.

9.4 Disposal Procedures

A system of segregating all waste will be developed by the SHSO. All discarded materials, waste materials, or other objects shall be handled in such a way as to preclude the potential for spreading soil, creating a sanitary hazard, or causing litter to be left onsite. If any potentially contaminated materials (e.g., clothing, gloves, etc.) are generated, they will be bagged or drummed, as necessary, labeled, and segregated for disposal. All non-contaminated materials shall be collected and bagged for appropriate disposal as domestic waste.

10.0 EMERGENCY PLAN

The emergency plan outlined in this section will be understood by all Site Workers prior to the start of work so that, should an emergency occur, all parties will know how to respond. During an emergency, the SHSO will perform air monitoring as needed and will assist responding emergency personnel with health and safety information related to the Site. Site Workers will endeavor to keep non-essential personnel away from the incident until the appropriate emergency personnel arrive. At that time, the emergency personnel will take control of the Site. Site Workers may be asked to lend assistance to emergency personnel such as during evacuations, help with the injured, etc.

10.1 Emergency Response Numbers

The following sections provide emergency response and project management phone numbers. Emergencies encountered on this Site will be responded to via offsite emergency services personnel and Site Workers. The following master phone list will be prominently posted at the Contractor's construction trailer designated as the Site command post.

Emergency Medical Service 911

Police: Village of Sag Harbor Police Department 911
(dial 631-725-0247 non-emergency; dial 911 in an emergency)

Hospital: Southampton Hospital 631-726-8200

National Response Center 800-424-8802

Poison Control Center 800-222-1222

Chemtrec 800-262-8200

Fire: Sag Harbor Volunteer Fire Department 911
(dial 631-725-0252 non-emergency; dial 911 in an emergency)

Center for Disease Control 800-311-3435

NYSDEC Emergency Spill Response 800-457-7362

Project Field Office Trailer ..... TBD

The table in Section 1.2 provides the contact information for Project Management and Health and Safety Personnel.

10.2 Emergency Evacuation

Evacuation procedures will be discussed prior to the start of work and periodically during safety meetings. In the event of an emergency situation such as fire or an explosion, an air horn or other appropriate device will be sounded for three (3) sharp blasts, indicating the initiation of evacuation procedures. The emergency evacuation route shall be clearly posted in the appropriate site trailers. Under no circumstances will incoming Site Workers or visitors be allowed to proceed into the area once the emergency signal has been given. Once the alarm has been sounded, the SHSO or GSS must ensure that access for emergency equipment is provided and that all combustion apparatuses have been shut down. All Site Workers will assemble outside of the active work areas and away from the area of danger and the fire department and other emergency response personnel will be notified by telephone of the emergency.

10.3 Injury to Site Workers

Emergency first aid shall be applied onsite as appropriate. In the event that additional medical attention is necessary, the injured worker should be brought to the emergency room at the hospital (adjacent to the Site). If the site worker is unable to be brought to the hospital, 911 should be called and an ambulance sent to the Site.

10.4 Site Worker Exposure

The following describes the appropriate mitigation measures to be followed in the event that Site Workers are exposed to contaminants.

Skin Contact:	Use copious amounts of soap and water. Wash/rinse affected area thoroughly, then clean or remove PPE and provide appropriate medical attention, if necessary. Eyes should be rinsed for 15 minutes upon chemical contamination.
Inhalation:	Move to fresh air and/or, if necessary, clean or remove PPE and transport to emergency medical facility.
Ingestion:	Clean or remove PPE and transport to emergency medical facility, if necessary.
Puncture Wound or Laceration:	Clean or remove PPE and transport to emergency medical facility, if necessary.

11.0 FIELD TEAM REVIEW

Each Site Worker shall sign this section after site-specific training is completed and before being permitted to work at the Site.

Site/Project: Former Watchcase Factory

15 Church Street

Sag Harbor, New York 11963

Date	Name	Signature	Company

Date	Name	Signature	Company

SHSO CERTIFICATION OF HOSPITAL DIRECTIONS

Name of SHSO:

Date:

This is to certify that on (enter date), I personally drove the route to Southampton Hospital as listed in the HASP. The Map Routing and Directions were/were not as listed in the plan. Listed below were conditions that resulted in different directions.

_____

_____

_____

_____

_____

_____

_____

_____

Site Health and Safety Officer

Table 1. Toxicological, Physical, and Chemical Properties of Compounds Potentially Present at the 15 Church Street Former Watchcase Factory Site, Sag Harbor, New York

Compound	CAS #	TLV	IDLH	PEL	Routes of Exposure	Toxic Properties	Target Organs	Physical/Chemical Properties
Arsenic (As)	7440-38-2	0.01	5 mg/m^3	0.5 mg/m^3 organic 0.010 mg/m^3 - inorganic	Dermal; inhalation; ingestion	Sensory irritant Lung & Skin Cancer Aplastic anemia Numbness	skin eyes lungs blood peripheral nervous system	Silver gray - tin white BP: sublimes
Barium (soluble)	7440-39-3	0.5 mg/m^3	50 mg/m^3	0.5 mg/m^3	Inhalation; ingestion	Sensory irritant Increase muscle contractility Slows heart rate	skin eyes smooth muscle heart	Silver white BP: 1640°
Barium (insoluble) (as barium sulfate)	7727-43-7	mg/m^3	(ND)	15 mg/m^3 5 mg/m^3 resp.	Inhalation; ingestion	Baritosis	lungs	White or yellow odorless
Benzene	71-43-2	1.6 mg/m^3 0.5 ppm	Ca 500 ppm	1 ppm	Dermal; inhalation ingestion	CNS depression Hematopoietic depression Dermatitis Leukemia	CNS blood skin eyes resp system bone marrow	Liquid (solid below 42°F BP: 80.093°C flammable LEL: 1.4% UEL: 8.0%
Cadmium (dust)	7440-43-9	0.01 mg/m^3	9 mg/m^3	0.005 mg/m^3	Inhalation; ingestion	Sensory irritant Lung injury Kidney disease Cancer	skin eyes kidneys bone	Silver-white/blue tinged BP: 1409°F Noncombustible
Chromium (III)	7440-47-3	0.5 mg/m^3	250 mg/m^3	1 mg/m^3	Dermal; inhalation ingestion	Decreased pulmonary function Sensory irritant	lung skin eyes	Steel gray metal
Chromium (VI)	7440-47-3	0.05 mg/m^3	Ca 25 mg/m^3	0.005 mg/m^3	Dermal; inhalation; ingestion	Nasal and lung tumors Sensory irritant Cancer	lungs eyes skin	Red, rhombic crystals
Coal tar pitch volatiles (PAHs)	65996-93-2	0.2mg/m^3	80 mg/m^3	0.2 mg/m3	Inhalation, absorption, ingestion	Dermatits Bronchitis Carcinogen	lungs liver skin eyes	Appearance and odor vary depending on the specific compound
Copper (dusts and mists as Cu)	7440-50-8	1 mg/m^3	100 mg/m^3	1 mg/m^3	Dermal; inhalation; ingestion	Sensory irritant GI irritation CNS depressant	skin eyes GI tract CNS	Reddish metal BP: 4730°F Powdered form may ignite
1,1-Dichloroethane	75-34-3	405 mg/m^3 100 ppm	3,000 ppm	400 mg/m^3 100 ppm	Dermal; ingestion; inhalation	CNS depression Liver damage Sensory irritant	CNS liver eyes	Liquid; Chloroform odor BP: 57.3°C flammable LEL: 5.6% UEL: 11.4%

Table 1. Toxicological, Physical, and Chemical Properties of Compounds Potentially Present at the 15 Church Street Former Watchcase Factory Site, Sag Harbor, New York

Compound	CAS #	TLV	IDLH	PEL	Routes of Exposure	Toxic Properties	Target Organs	Physical/Chemical Properties
1,2-Dichloroethane (Ethylene dichloride)	107-06-2	40 mg/m^3 10 ppm	Ca (ND)	4.0 mg/m^3 1 ppm	Dermal; ingestion; inhalation	CNS depressant Liver neurosis Kidney damage Dermatitis	CNS liver kidneys skin	Colorless liquid BP: 83.5° LEL: 6.2% UEL: 15.9%
1,2-Dichloroethene	540-59-0	793 200 ppm	1,000 ppm	790 200 ppm	Dermal; ingestion; inhalation	CNS depressant Epigastric cramps Sensory irritant Dermatitis	CNS stomach skin	Colorless liquid BP: 59° LEL: 9.7% UEL: 12.8%
Diesel Fuel	68334-30-5	NA	NA	NA	Dermal; inhalation	Resp irritation Dizziness, nausea Skin disorders Liver disorders	lungs CNS skin liver	Light amber liquid F1.Pt = >100°F LEL = 0.6% UEL = 7.0%
Ethylbenzene	100-41-4	434 mg/m^3 100 ppm	800 ppm (10% LEL)	435 mg/m^3 100 ppm	Dermal; inhalation; ingestion	Sensory irritant CNS depressant Narcosis Hematological disorders	eyes skin CNS respiratory system blood	Liquid aromatic odor BP: 277°F Fl.P: 59°F LEL: 1.2% UEL: 7.0%
Fuel Oil	68476-33-5	NA	(ND)	NA	Dermal; inhalation ingestion	Skin cancer Liver damage Blood disorders	skin liver bone marrow	Dark liquid LEL = 1.0% UEL = 3.0% F1.Pt = >140°F
Gasoline	8006-61-9	896 mg/m^3 300 ppm	Ca (ND)	None	Dermal; inhalation; ingestion	CNS depression Sensory irritant Dermatitis Pelmonary Edema	CNS eyes skin resp system	Liquid, aromatic F1.Pt = -50°F
Kerosene	8008-20-6	None	NA	NA	Dermal; inhalation	Eye/skin irritation Resp. irritation Dizziness, nausea	eyes skin resp. system CNS	yellow to white oily liquid F1.Pt = >115°F LEL = 0.7% UEL = 5.0%
Lead (as Pb)	7439-92-1	0.05 mg/m^3	100 mg/m^3	0.05 mg/m^3	Dermal; inhalation ingestion	Abdominal pain CNS depressant Anemia Nephropathy Reproductive effects	GI tract CNS blood kidneys	Metal - soft gray BP: 3164°F
Mercury (Hg)	7439-97-6	0.025 mg/m^3	10 mg/m^3	0.1 mg/m^3	Dermal;	CNS effects	CNS	Liquid - shiny metal
Naphtha	8030-30-6	1,590 mg/m^3 400 ppm	1000 ppm	400 mg/m^3 100 ppm	Inhalation; ingestion	Resp irritant Eye irritation	eye resp tract	Clear, flammable
Napthalene	91-20-3	15 ppm	250 ppm	10 ppm	Inhalation, skin absorption, contact, ingestion	Irritation of the eyes, skin, headache, confusion, excitement, nausea, vomiting, abdominal pain, irritation of bladder, profuse sweating, kidney failure	blood CNS	Colorless to brown soild with an odor of mothballs
Nickel	7440-02-0	1.5 mg/m^3	Ca 10 mg/m^3	0.015 mg/m^3	Dermal; inhalation; ingestion	Pulmonary fibrosis Lung cancer Sinus cancer Sensory irritant GI irritation	lungs skin eyes GI tract	Silver-white metal BP: 2730°

Table 1. Toxicological, Physical, and Chemical Properties of Compounds Potentially Present at the 15 Church Street Former Watchcase Factory Site, Sag Harbor, New York

Compound	CAS #	TLV	IDLH	PEL	Routes of Exposure	Toxic Properties	Target Organs	Physical/Chemical Properties
Selenium (Se)	7782-49-2	0.2 mg/m^3	1 mg/m^3	0.2 mg/m^3	Dermal; inhalation; ingestion	Sensory irritant Bronchial irritation GI distress	respiratory system skin eyes liver kidneys blood	Steel grey, non-metallic BP: 690°F
Silver (Ag)	7440-22-4	0.1 mg/m^3	10 mg/m^3	0.01 mg/m^3	Dermal; inhalation; ingestion	Sensory irritant Bronchitis	skin eyes lungs	Lustrous white metal BP: 2212°
Tetrachloroethene (perchloroethylene PCE)	127-18-4	170 mg/m^3 25 ppm	Ca 150 ppm	100 ppm	Dermal; inhalation; ingestion	CNS depression Liver damage Sensory irritant	CNS liver skin eyes kidneys	Liquid ether-like odor BP: 121.20°C
Toluene	108-88-3	188 mg/m^3 50 ppm	500 ppm	200 ppm	Dermal; inhalation; ingestion	CNS depression Liver damage Kidney damage Defatting of skin	CNS liver kidney skin	Liquid benzene odor BP: 110.4°C flammable LEL: 1.2% UEL: 7.1%
Trichloroethene (TCE)	79-01-6	269 mg/m^3 50 ppm	Ca 1000 ppm	100 ppm	Dermal; inhalation; ingestion	CNS depression Sensory irritant Kidney damage Liver damage Heart damage	CNS skin eyes kidney liver CVS	Liquid BP: 86.7°flammable LEL: 12.5% UEL: 90%
1,1,1- Trichloroethane (methyl chloroform)	71-55-6	1,910 mg/m^3 350 ppm	700 ppm	1,900 mg/m^3 350 ppm	Dermal; ingestion; inhalation	Sensory irritant CNS depression Cardiac arrhythmia	skin CNS CVS eyes	Liquid; BP: 74.1° Fl.P: = 32.5°
Vinyl chloride (chloroethylene)	75-01-4	2.6 mg/m^3 1 ppm	Ca (ND)	1 ppm	Inhalation; ingestion	Liver tumors Blood tumors Sensory irritant CNS depressant Cancer	liver blood eyes skin CNS	Colorless gas Highly flammable BP: 13° FP: -159.7° LEL: 4% UEL: 22%
Xylene(s)	1330-20-7	434 mg/m^3 100 ppm	900 ppm	435 mg/m^3 100 ppm	Dermal; inhalation; ingestion	Sensory irritant Blood dyscrasia Bronchitis CNS depression	CNS eyes skin GI tract blood liver kidneys	Liquid Aromatic odor BP: 138.5° flammable LEL: 1.1% UEL: 7.0%
Zinc Oxide (dust)	7440-66-6	10 mg/m^3	500 mg/m^3	15 mg/m^3 (total) 5 mg/m^3 (resp.)	Dermal; inhalation; ingestion	Skin irritant Cough	skin lungs	Bluish-white metallic element BP: 908°

Table 1. Toxicological, Physical, and Chemical Properties of Compounds Potentially Present at the 15 Church Street Former Watchcase Factory Site, Sag Harbor, New York

Notes:
Ca - Carcinogen
TLV - Threshold Limit Value (ACGIH)
IDLH - Immediately Dangerous to Life and Health (OSHA)
PEL - Permissive Exposure Level (OSHA)
PPM - Parts per million
mg/m3 - milligrams per cubic meter
Fl. Pt. - Flash point
LEL - Lower Explosive Level
UEL - Upper Explosive Level
BP - Boiling Point
NA - Not Available
ND - Not Determined

References

Guide to Occupational Exposure Values, 2000. American Conference of Governmental Industrial Hygienists.

Hawley's Condensed Chemical Dictionary, Sax, N. Van Nostrand and Reinhold Company, 11th Edition, 1987.

Occupational Safety and Health Administration, 1993. General Industry Air Contaminant Standard (2a CFR 1910.1000).

Proctor, N.H., J.P. Hughes and M.L. Fischman, 1989. Chemical Hazards of the Workplace. Van Nostrand Reinhold. New York.

Sax, N.I. and R.J. Lewis, 1989. Dangerous Properties of Industrial Materials. 7th Edition. Van Nostrand Reinhold. New York.

U.S. Department of Health and Human Services, 1997. NIOSH Pocket Guide to Chemical Hazards.

TABLE 2

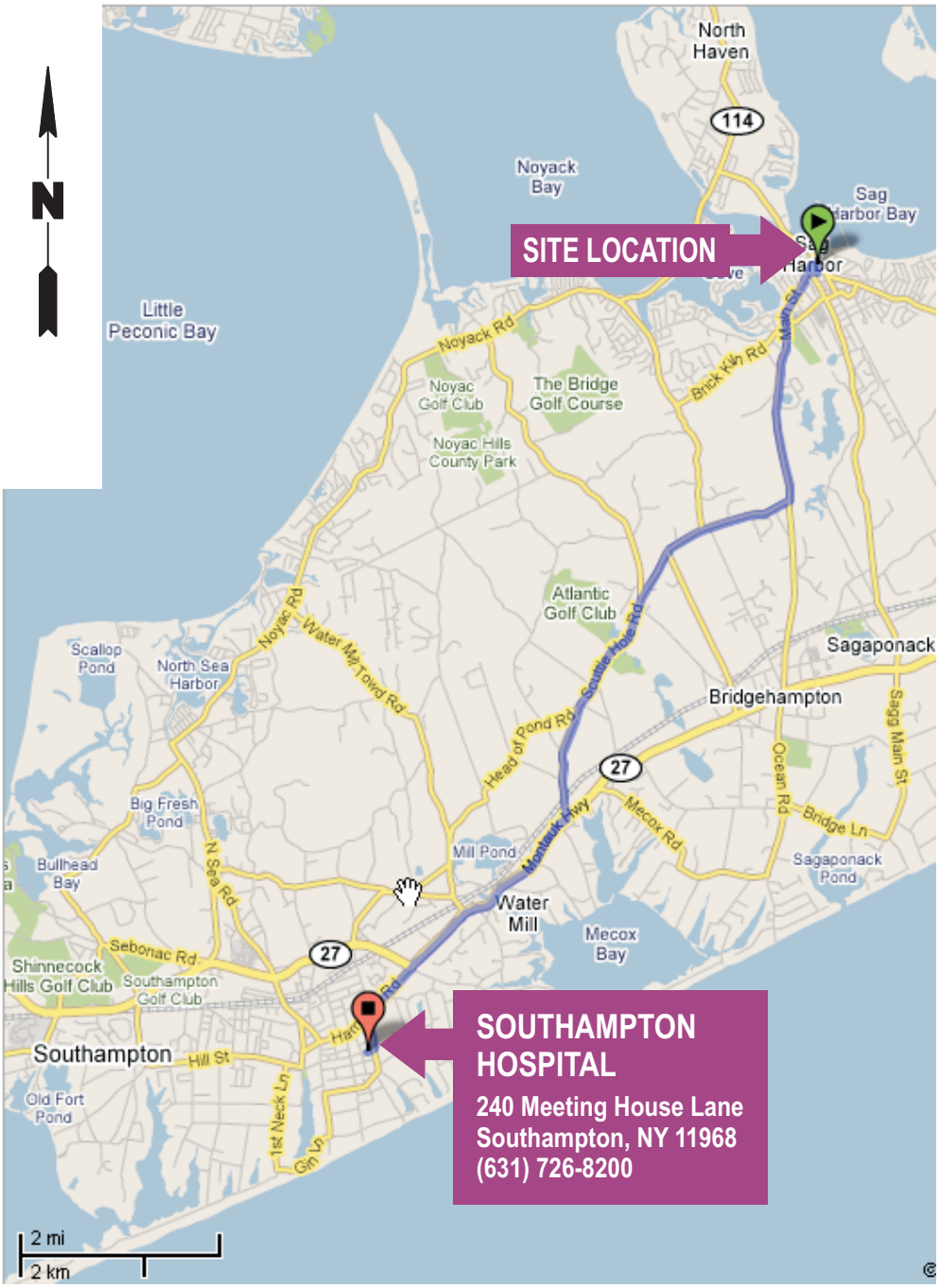
Action Levels For Worker Breathing Zone

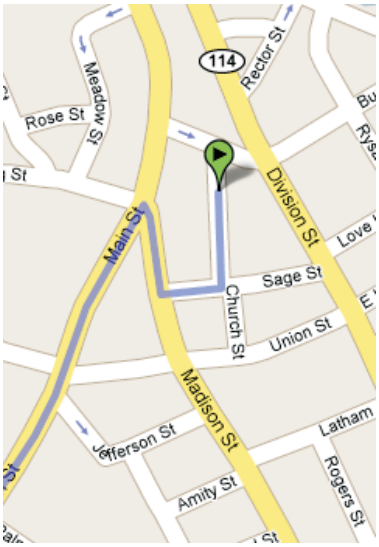
Instrument	Action Level *	Level of Respiratory Protection/Action
PID	0 to <5 ppm (one minute sustained)	Level D *
PID	>5 to <50 ppm (one minute sustained)	Level C (Utilize Air Purifying Respirator)
PID	>50 to <100 ppm (one minute sustained)	Level B
PID	>100ppm	Stop work** (ventilate, apply foam)
Dust Monitor	0 – 1.0 mg/m^3, 5-minute average	Level D
Dust Monitor	>1.0 to 5.0 mg/m^3, 5-minute average	Level D – Institute dust suppression measures
Dust Monitor	>5.0 to 50 mg/m^3, 5-minute average	Level C – Institute dust suppression measures

Note: Action levels are based on above background levels.

* Instrument readings will be taken in the breathing zone (BZ) of the Site Workers, unless otherwise indicated.

** Suspend work in immediate area. Conduct air monitoring periodically to determine when work can continue. Implement mitigative measures.





SITE

HOSPITAL

DIRECTIONS TO SOUTHAMPTON HOSPITAL

- Head south on Church St toward Sage St
- Turn right at Sage St
- Turn right at Madison St
- Turn left at CR-79/Main St
- Continue on Bridgehampton/Sag Harbor Tpke/Sag Harbor Tpke
- Turn right at Scuttle Hole Rd
- At the traffic circle, take the first exit and continue straight on Scuttle Hole Rd
- Turn right at Montauk Hwy
- Continue straight after Princess Diner on Hampton Rd
- Turn left at Old Town Rd
- Turn right at Meetinghouse Ln to 240 Meetinghouse Ln, Southampton

Title:

HOSPITAL ROUTE MAP

SOUTHAMPTON HOSPITAL
240 MEETING HOUSE LANE
SOUTHAMPTON, NEW YORK

Prepared for:

SAG DEVELOPMENT PARTNERS

ROUX
ROUX ASSOCIATES, INC.
Environmental Consulting & Management

Compiled by: J.L.		Date: 19JAN07	FIGURE
Prepared by: B.H.C.		Scale: SHOWN	1
Project Mgr.: J.L.		Office: NY	
File No.: ALF1010206.CDR		Project No.: 126210Y	

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APPENDIX A

Activity Hazard Analysis Sheets

ACTIVITY HAZARD ANALYSIS

ACTIVITY: Mobilization/Demobilization	**Analyzed by / Date:_____**	
Principal Steps	**Potential Hazards**	**Recommended Controls**
Temporary Facilities Set Up (Support and CRZ zones)	Noise	Ear plugs, ear muffs.
	Eyes	Safety glasses with side shields, safety visor or shield.
	Slips-Trips-Falls	Be sure footing is in a clear area free of loose material.
	Power Tools	Hard hats.
	Heat Stress/Cold Stress	Follow heat stress/cold stress guidelines in HASP appendices.
	Cuts and Abrasions	Wear work gloves.
	Punctures	Wear puncture resistant steel toed boots, long sleeve shirts, work shirts or cover alls.
	Electrocution	Ground fault circuit interrupters.
	Traffic Hazards	Wear orange safety vests.
	Insect Bites	Use bug repellent.
Equipment to be Used	**Inspection Requirements**	**Training Requirements**
Power Tools (e.g., Drills, Saws) Hand Tools (e.g., Hammer, Shovel, Pry Bars) Trailers, Vehicles, Low Boy, Heavy Equipment.	Daily inspections to insure personnel wear appropriate PPE during mobilization and demobilization and survey work.	Tool box safety meetings. Review heavy equipment safety guidelines.

ACTIVITY HAZARD ANALYSIS

(Continued)

ACTIVITY: Contaminated Soil Excavation	**Analyzed by / Date:_____**	
Principal Steps	**Potential Hazards**	**Recommended Controls**
Work Zone Delineations	Noise	Ear plugs, ear muffs
Decon Area Layout Personal/Perimeter Air Monitoring	Eyes	Safety glasses with side shields or upgrade to Level C full-face respirators.
Removal of Contaminated Soil Verification of Soil Removal	Electrocution	Inspect area for overhead electrical lines. Follow Lock out/Tag out Procedures.
Loading Contaminated Soil for Disposal Decon/Demobilization	Puncture	Steel toe/steel shank boots. Avoid direct handling of soil – use shovels, rakes or squeegees.
	Wildlife	Avoid contact with all animals.
	Hose Connections	Make sure all vacuum line connections are clamped and secured.
	Traffic – Vehicle	Cones and flagging to be used for vehicles parked on streets – if a lane is to be taken, flagmen to be used.
	Traffic – Pedestrian	All work zones to be delineated SSO to be able to control area from curious onlookers.

ACTIVITY HAZARD ANALYSIS

(Continued)

ACTIVITY: Contaminated Soil Excavation	**Analyzed by / Date:_____**	
Equipment to be Used	**Inspection Requirements**	**Training Requirements**
Dump Truck(s) Rubber Tire Backhoe Miscellaneous Hand Tools Level D and Level C PPE Excavator	Prior to start of work daily -area for security -barriers in place -equipment inspection PPE Inspections -before donning -buddy system to continually observe -upon de-suiting During Operations – that are remains secure Atmosphere -prior to entering confined space -continually during operations	40-Hour HAZWOPER 8-Hour Refresher Site Specific Training and Orientation Daily Safety Meetings

ACTIVITY HAZARD ANALYSIS

(Continued)

ACTIVITY: Drilling Activities		**Analyzed by / Date:_____**
Principal Steps	**Potential Hazards**	**Recommended Controls**
Work Zone Delineations	Noise	Ear plugs, ear muffs
Decon Area Layout Personal Air Monitoring	Eyes	Safety glasses with side shields or upgrade to Level C full-face respirators.
Installation of Soil Borings Installation of Monitoring Wells	Electrocution	Inspect area for overhead electrical lines. Follow Lock out/Tag out Procedures.
Installation of Soil Vapor Sampling Points Decon/Demobilization	Puncture	Steel toe/steel shank boots. Avoid direct handling of soil – use shovels, rakes or squeegees.
	Wildlife	Avoid contact with all animals.
	Hose Connections	Make sure all vacuum line connections are clamped and secured.
	Traffic – Vehicle	Cones and flagging to be used for vehicles parked on streets – if a lane is to be taken, flagmen to be used.
	Traffic – Pedestrian	All work zones to be delineated SSO to be able to control area from curious onlookers.

ACTIVITY HAZARD ANALYSIS

(Continued)

ACTIVITY: Drilling Activities		**Analyzed by / Date:_____**
Equipment to be Used	**Inspection Requirements**	**Training Requirements**
Drill Rig Support Truck Miscellaneous Hand Tools Level D and Level C PPE	Prior to start of work daily -area for security -barriers in place -equipment inspection PPE Inspections -before donning -buddy system to continually observe -upon de-suiting During Operations – that are remains secure Atmosphere -prior to entering confined space -continually during operations	40-Hour HAZWOPER 8-Hour Refresher Site Specific Training and Orientation Daily Safety Meetings

ACTIVITY HAZARD ANALYSIS

(Continued)

ACTIVITY: Miscellaneous Fill Placement		**Analyzed by / Date:_____**
Principal Steps	**Potential Hazards**	**Recommended Controls**
Grading Placement of Fill	Abrasions; heat stress; cold stress; cuts; slips; trips; falls; insects; rodents and stray animals; hazardous noise; puncture; struck by moving heavy equipment; loading and unloading of heavy equipment; crushed or pinned between machinery; and nuisance dust.	Hard hats; safety glasses/goggles; work gloves; puncture resistant steel toed, steel shank work boots. Hearing protection (muffs/plugs). Personnel should stand at least 10 feet from moving or swing radios of equipment. Personal protective equipment.
Equipment to be Used	**Inspection Requirements**	**Training Requirements**
Bull dozer Grader Dump Trucks Water Truck Hand Tools (Shovels, etc.)	Periodic inspection to ensure site personnel wear the appropriate PPE. Daily site safety inspection check list. Heavy equipment/machinery must be inspected by SSHO & Operator.	Tool box safety meetings Review working around or near heavy equipment and review heavy equipment safety guidelines.

ACTIVITY HAZARD ANALYSIS

(Continued)

ACTIVITY: Sheeting/Pile Installation	**Analyzed by / Date:_____**	
Principal Steps	**Potential Hazards**	**Recommended Controls**
Mobilization Equipment Set Up Unloading of Equipment Installation of Shoring/Sheeting Removal of Shoring Loading of Equipment Demobilization	Buried utilities and underground structures Truck traffic Slip / trip / fall Rigging to unload and handle materials Overhead hazards Workmen in the area Site control Equipment operation Sheeting installation and removal Demobilization of equipment Cold / heat stress Biological hazards Hearing protection / eye protection Hand protection Untrained personnel Electric powered hand tools Cutting torches	All trucks to be equipped with backup alarms – pedestrian traffic to have orange protective vests for visibility. All personnel are to be aware that the potential for slipping / tripping / falling exists at all times due to uneven terrain. Equipment being laid out and staged. Any person working at a height of greater than 6 feet must have a safety harness and shock absorbing lanyard. Sheeting being delivered to the site will have to be unloaded prior to this activity – all grips, slings, chains, clevises or grab hooks and any other lifting devices shall be inspected. A regular inspection of these items shall be made prior to their use for any lifting. Any equipment with frayed or broken components will be set aside and tagged and shall not be used until the appropriate repairs are made. Prior to the start of any activity, the area shall be checked for overhead hazards. Operators and spotters are to be aware of the potential for personnel and/or equipment to be in the work zone. No lifting and rigging shall go over a person or vehicle. During all phases of operations, the minimum personal protection will consist of hard hat, steel-toed and steel-shanked work boots, safety glasses. When handling wire rope, slings, chains, etc., appropriate hand

ACTIVITY HAZARD ANALYSIS

(Continued)

ACTIVITY: Sheeting/Pile Installation		**Analyzed by / Date:_____**
Principal Steps	**Potential Hazards**	**Recommended Controls**
		protection will be used. When working around equipment, hearing protection shall be used. Extra care shall be taken to make sure no one's hands or feet are caught under or between metal objects when lifting or setting sheeting. All personnel shall be trained and qualified to perform the task assigned them. Equipment operators are responsible to make sure their swing radius and work areas are clear. Operators are to be trained and competent with their equipment. During operations, a zone will be established outside of the swing radius and/or fall radius of the equipment and sheeting where control of persons entering and exiting can be safety maintained. The same type of control for vehicles will be maintained. Equipment will be in good working order, equipped with current protective devices and travel alarms. A competent person shall have designed the sheeting / pile plan to meet the stress loads of the environment. This plan shall include all bracing, cross bracing, installation depths.

ACTIVITY HAZARD ANALYSIS

(Continued)

ACTIVITY: Sheeting/Pile Installation		**Analyzed by / Date:_____**
Principal Steps	**Potential Hazards**	**Recommended Controls**
		Hydraulic and/or airlines used to power the vibratory sheeting drive / extractor shall be checked twice daily. Operators and spotters will have a clear plan of communications. All hand signals will be predetermined. There will only be one person spotting for the operator that gives directions. If two-way communications are to be used, the channel will remain undisturbed during lifting and setting operations by company personnel. Tag lines as appropriate will be used to erect and disassemble the sheeting. When loading shoring up to demobilize, there shall not be any lifts over a person or equipment. Potential exists for cold / heat stress. Follow the guidelines for cold / heat stress in the HASP. Replenish fluids and take breaks, as necessary. If there is a need to utilize electric power tools, all cords will be inspected. Ground Fault Interrupter (GFI) outlets will be used. No guards shall have been removed and no triggers will be wired open. If cutting torches are utilized, all lines, gauges, regulators and torches shall be inspected prior to use. Tanks will have current inspection and be inspected upon receipt at the site prior to their use. A 30-minute fire watch will be maintained after burning activity has stopped for the day.

ACTIVITY HAZARD ANALYSIS

(Continued)

ACTIVITY: Sheeting/Pile Installation		**Analyzed by / Date:_____**
Principal Steps	**Potential Hazards**	**Recommended Controls**
Equipment to be Used	**Inspection Requirements**	**Training Requirements**
Tractor Trailers Hydraulic Excavators and/or Cranes Interlocking Steel Sheeting/Shoring/Bracing Materials Miscellaneous Slings, Grips, chains, hooks, Clevises Miscellaneous Electric Power Tools Oxygen and Acetylene Torches Pile Drivers	Daily inspection of equipment as recommended by manufacturer. Inspection of work area and perimeters prior to start and during works operations. Twice daily inspection of cables, slings, etc., electric equipment, torches, regulators, gauges.	Current CDL license for tractor trailer operators. Competent person to develop shoring plan. Site specific HASP. Trained operations/laborers. Daily safety meetings.

APPENDIX B

Heat and Cold Stress Guidelines

Heat Stress

Heat stress is a significant potential hazard and can be associated with heavy physical activity and/or the use of personal protective equipment (PPE) in hot weather environments.

Heat cramps are brought on by prolonged exposure to heat. As an individual sweats, water and salts are lost by the body resulting in painful muscle cramps. The signs and symptoms of heat cramps are as follows:

- severe muscle cramps, usually in the legs and abdomen;
- exhaustion, often to the point of collapse; and
- dizziness or periods of faintness.

First aid treatment includes moving to a shaded area, rest, and fluid intake. Normally, the individual should recover within one-half hour. If the individual has not recovered within 30 minutes and the temperature has not decreased, the individual should be transported to a hospital for medical attention.

Heat exhaustion may occur in a healthy individual who has been exposed to excessive heat. The circulatory system of the individual fails as blood collects near the skin in an effort to rid the body of excess heat. The signs and symptoms of heat exhaustion are as follows:

- rapid and shallow breathing;
- weak pulse;
- cold and clammy skin with heavy perspiration;
- skin appears pale;
- fatigue and weakness;
- dizziness; and
- elevated body temperature.

First aid treatment includes cooling the victim, elevating the feet, and replacing fluids and electrolytes. If the individual has not recovered within 30 minutes and the temperature has not decreased, the individual should be transported to the hospital for medical attention.

Heat stroke occurs when an individual is exposed to excessive heat and stops sweating. This condition is classified as a **MEDICAL EMERGENCY**, requiring immediate cooling of the victim and transport to a medical facility. The signs and symptoms of heat stroke are as follows:

- dry, hot, red skin;
- body temperature approaching or above 105°F;
- large (dilated) pupils; and
- loss of consciousness - the individual may go into a coma.

First aid treatment requires immediate cooling and transportation to a medical facility.

Heat stress (heat cramps, heat exhaustion, and heat stroke) is a significant hazard if any type of protective equipment (semi-permeable or impermeable) which prevents evaporative cooling is worn in hot weather environments. Local weather conditions may require restricted work schedules in order to adequately protect personnel. The use of work/rest cycles (including working in the cooler periods of the day or evening) and training on the signs and symptoms of heat stress should help prevent heat-related illnesses from occurring. Work/rest cycles will depend on the work load required to perform each task, type of protective equipment, temperature, and humidity. In general, when the temperature exceeds 88°F, a 15 minute rest cycle will be initiated once every two hours. In addition, potable water and fluids containing electrolytes (e.g., Gatorade) will be available to replace lost body fluids.

Cold Stress

Cold stress is a danger at low temperatures and when the wind-chill factor is low. Prevention of cold-related illnesses is a function of whole-body protection. Adequate insulating clothing must be used when the air temperature is below 40°F. In addition, reduced work periods followed by rest in a warm area may be necessary in extreme conditions. Training on the signs and

symptoms of cold stress should prevent cold-related illnesses from occurring. The signs and symptoms of cold stress include the following:

- severe shivering;
- abnormal behavior;
- slowing of body movement;
- weakness;
- stumbling or repeated falling;
- inability to walk;
- collapse; and/or
- unconsciousness.

First aid requires removing the victim from the cold environment and seeking medical attention immediately. Also, prevent further body heat loss by covering the victim lightly with blankets. Do not cover the victim's face. If the victim is still conscious, administer hot drinks, and encourage activity, such as walking wrapped in a blanket.

APPENDIX C

Community Air Monitoring Plan

January 26, 2009

COMMUNITY AIR MONITORING PLAN

Former Bulova Watch Case Factory
Sag Harbor, New York

Prepared for

SAG DEVELOPMENT PARTNERS, LLC
485 Broadway, 5th Floor
New York, New York 10013

ROUX ASSOCIATES, INC.

Environmental Consulting & Management

ROUX

209 Shafter Street, Islandia, New York 11749 ♦ 631-232-2600

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1.3 Meteorological Monitoring 4
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FIGURE

1. CAMP Monitoring Location Map

TABLE

1. Action Limit Summary for VOCs and Particulates, Former Watchcase Factory Project

APPENDIX

A. Action Limit Report

1.0 INTRODUCTION

Remedial Engineering, P.C and Roux Associates, Inc. (collectively referred to herein as Roux Associates), on behalf of Sag Development Partners, LLC (SDP), have developed a project specific Community Air Monitoring Plan (CAMP) to implement real-time monitoring at the Former Watchcase Factory (Site) during soil excavation activities. Based on the results of previous investigations conducted and concerns associated with historical operations of watchcase manufacturing at the Site, volatile organic compounds (VOCs) and particulates have been identified as contaminants of potential concern (COPC). The monitoring program will screen and analyze ambient air for total VOCs and particulate concentrations at the downwind perimeter of the Site. The monitoring program will be implemented at all times during excavation of the Site and while performing any foundation construction activities (e.g., pile driving, pile drilling, excavation) that could potentially cause vapors or particulates to migrate towards the Site perimeter. The CAMP is designed to provide a measure of protection for the downwind community and onsite workers not directly involved with the subject work activities from potential airborne contaminant releases as a direct result of remedial and construction activities. This plan is consistent with the New York State Department of Health's (NYSDOH) Generic Community Air Monitoring Plan guidance document.

Roux Associates shall be responsible for implementation of the CAMP and will have direct and constant communication with all components of the remediation/construction team in order to effectively and instantaneously initiate the necessary onsite controls to prevent and/or minimize offsite migration of VOCs and particulates.

Given the site-specific characteristics, it is expected that the odor threshold will be lower than the minimum allowable VOC air concentrations. As such, primary emphasis will be placed on odor management as part of the CAMP and Site Management Plan (SMP) implementation. The suppression techniques discussed in Section 1.4 address not only VOCs and particulates, but odors as well. This comprehensive odor management approach will minimize the potential for exceedance of the VOC action levels.

The specifics of the CAMP are presented in the following four (4) sections:

- 1.1 VOC Monitoring Approach

- 1.2 Particulate Monitoring Approach
- 1.3 Meteorological Monitoring Approach
- 1.4 Available Suppression Techniques

1.1 VOC Monitoring Approach

Total VOC concentrations in the air will be monitored continuously in the breathing zone (approximately five feet above grade) at up to four locations along the perimeter of the Site during all ground intrusive activities. The monitoring locations will be modified, as necessary, in consideration of the wind direction and building layout to make sure that the air flow is not impaired by dead air spaces resulting from the building configuration. The VOC monitoring will be conducted using MiniRAE 2000 portable VOC monitors or similar type monitors. The equipment will be calibrated at least once daily using isobutylene as the calibration gas. One (1) upwind, one (1) downwind monitor and up to two additional locations will be deployed each day for continuous monitoring of the Site perimeter during all ground intrusive activities. Each monitoring unit will be equipped with an audible alarm to indicate exceedance of the action levels (as defined below and summarized in Table 1).

The monitoring equipment is capable of calculating 15-minute running average concentrations, which will be compared to the levels specified below.

- If the ambient air concentration of total VOCs at the downwind perimeter of the Site exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities must be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities can resume with continued monitoring.

- If the ambient air concentration of total VOCs at the downwind perimeter of the Site persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities must be halted, the source of VOCs identified, suppression techniques employed to abate emissions, and monitoring continued. After these steps, work activities can resume if the total organic vapor level at the site perimeter is below 5 ppm over the background concentration for the 15-minute average. If levels are in excess of 25 ppm above background, identified contributing ground-intrusive activities will be halted and vapor suppression techniques will be evaluated and modified until monitoring indicates VOC levels at the Site perimeter are below 5 ppm over background. Once VOC levels are below 5 ppm at the site perimeter, work will resume with continued monitoring.

All 15-minute readings will be recorded and will be made available for the Suffolk County Department of Health Services (SCDHS), NYSDEC, NYSDOH, and Suffolk County Department of Environmental & Energy (SCDEE) personnel to review. Instantaneous readings, if any, used for decision purposes will be recorded. If an exceedance of the action level occurs, an Action Limit Report will be completed, identifying the monitoring device location, the measured VOC level, the activity causing the exceedance, meteorological conditions, and the corrective actions taken, as provided in Appendix A. Additionally, the SCDHS, NYSDEC, NYSDOH, and SCDEE will be notified no later than 24 hours following an action level exceedance. Daily monitoring equipment locations and meteorological conditions will also be documented on the daily CAMP Monitoring Location Plan as shown in Appendix B. All documentation will be kept on file at the Site.

1.2 Particulate Monitoring, Response Levels and Actions

Particulate concentrations will be monitored continuously at the perimeters of the Site at particulate monitoring stations. The particulate monitoring will be performed using real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM-10) and capable of integrating over a period of 15 minutes (or less) for comparison to the airborne particulate action levels (as defined below and summarized in Table 1). Monitoring equipment will be MIE Data Ram monitors or equivalent. A minimum of one (1) upwind and one (1) downwind and up to two additional perimeter monitoring locations equipped with an omni-directional sampling inlet and a PM-10 sample head will be deployed each day. The data logging averaging period will be set to 15-minutes with time and date stamp recording. Alarm averaging will be set at 90 micrograms per cubic meter ($\mu g/m^3$) above the average background concentration per 15-minute period. This setting will allow proactive evaluation of site conditions prior to reaching Action Levels of 100 $\mu g/m^3$ above background. The equipment will be outfitted with an audible alarm to indicate exceedance of the action level. In addition, fugitive dust migration will be visually assessed during all work activities. The monitoring will be evaluated as follows:

- If the downwind PM-10 particulate level is 100 $\mu g/m^3$ greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the Site, then dust suppression techniques must be employed. Work may continue with dust suppression techniques, provided that downwind PM-10 particulate levels do not exceed

150 µg/m^3 above the upwind level and provided that no visible dust is migrating from the Site.

- If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than 150 µg/m^3 above the upwind level, work must be stopped, a re-evaluation of activities initiated, and dust suppression techniques modified. Work can resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 µg/m^3 of the upwind level and in preventing visible dust migration.

Based on the results of the pre-excavation waste characterization soil sampling, a more stringent action level of 50 µg/m^3 above background will be used as a trigger to employ dust suppression measures during excavation of any portion of the Site containing soils that are determined to contain lead (Pb) above applicable standards.

All 15-minute readings will be recorded and be made available for SCDHS, NYSDEC, NYSDOH, and SCDEE personnel to review. Instantaneous readings, if any, used for decision purposes will be recorded. If an exceedance of the action level occurs, an Action Limit Report will be completed, identifying the monitoring device location, the measured particulate concentration, the activity causing the exceedance, meteorological conditions, and the corrective actions taken, as provided in Appendix A. Daily monitoring equipment locations and meteorological conditions will also be documented on the daily CAMP Monitoring Location Plan, as shown in Appendix B. All documentation will be kept on file at the Site.

1.3 Meteorological Monitoring

Meteorological data consisting of wind speed, wind direction, temperature, barometric pressure, and relative humidity will be collected using a Davis Corporation wireless instrument station or equivalent. At a minimum, a full set of meteorological parameters will be measured and recorded at the start of each workday, noon of each workday, and the end of each workday. Wind direction readings will be utilized to position the VOC and particulate monitoring equipment in appropriate upwind and downwind locations.

1.4 Available Suppression Techniques

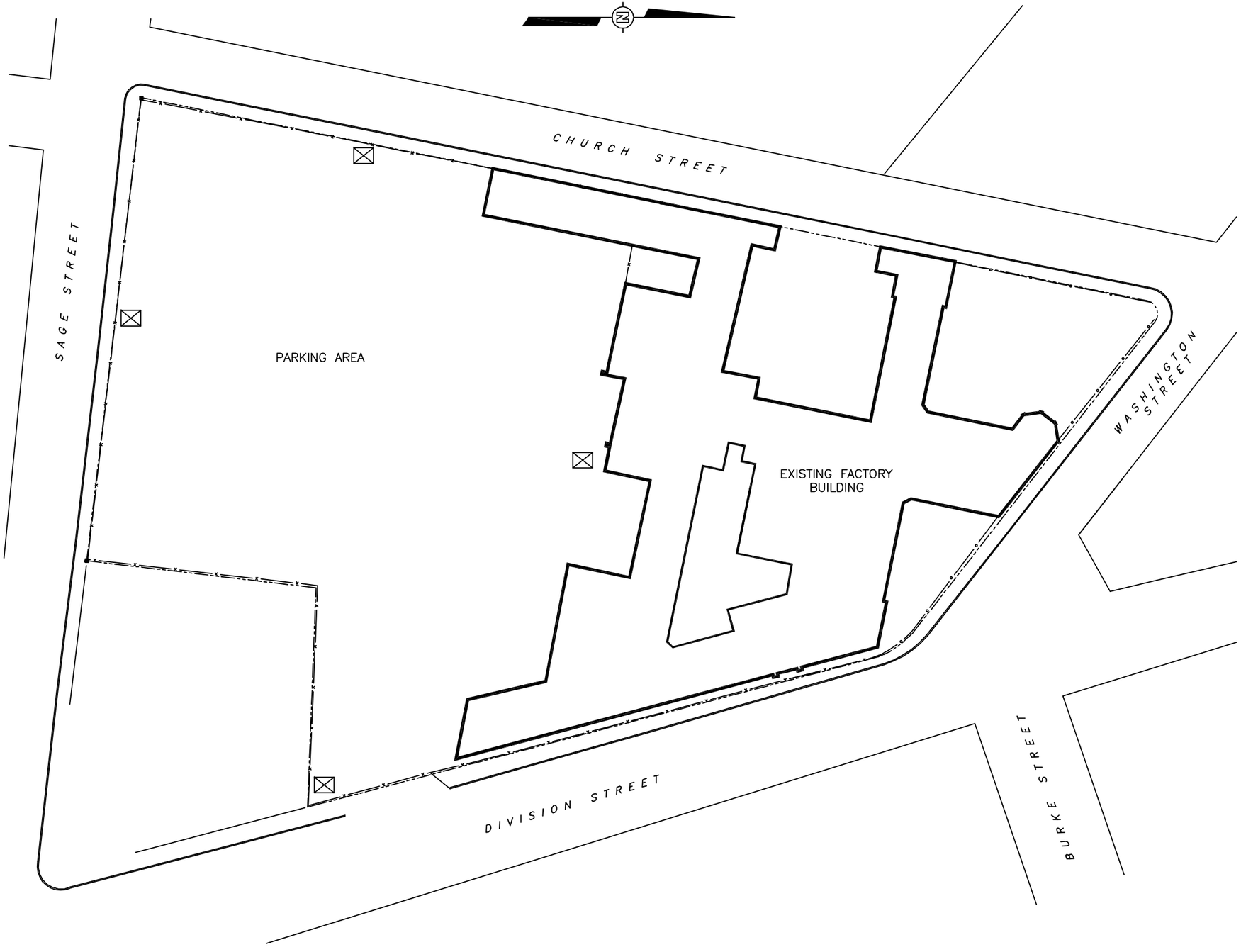
During all intrusive activities, vapor suppression foam will be applied routinely to areas where there is active excavation and handling or exposure of grossly-contaminated odor-producing

soils/materials to preemptively mitigate the potential for odors, VOCs, and particulates to be released into the air. Water misting via controlled fire hose and/or dedicated water truck will be utilized as a daily site control measure to mitigate the potential for particulate/dust release in non-contaminated work areas and roadways. Excavation methods and material staging and loading methods will be continually evaluated and modified (as necessary) to alleviate the potential for odor, VOCs, and particulate releases.

1.5 Reporting

All recorded monitoring data will be downloaded and logged daily, including action limit reports (if any) and daily CAMP monitoring location plans. All records will be maintained onsite for SCDEE/SCDHS/NYSDEC/NYSDOH review. The results of the CAMP monitoring will be submitted to SCDEE, SCDHS, NYSDEC and NYSDOH in monthly CAMP data summary reports, which will contain all of the CAMP data collected during the month, daily monitoring station location maps, and copies of the month's Action Limit Reports (ALRs) (if any). A description of all CAMP-related activities will also be included in the Monthly Progress Report submitted to the NYSDEC and NYSDOH. Additionally, all CAMP monitoring records will be included in the overall Remedial Action Completion Report, which will be submitted to the NYSDEC and NYSDOH. If an ALR is generated due to VOC exceedances, the SCDEE will be the first point of contact, followed by the SCDHS and then the NYSDOH and NYSDEC. All agencies listed will be notified no later than 24 hours after the exceedance. In addition, if work is stopped in accordance with Sections 1.1 and 1.2 due to action level exceedances after suppression techniques have been employed, then the SCDEE will be contacted immediately to assess any potential impacts to the community.

If results of the pre-excavation waste characterization sampling indicate exceedances of the toxicity characteristic leaching procedure (TCLP) concentrations for hazardous waste, the NYSDOH will be contacted and provided the results to evaluate if Site-specific CAMP actions are needed to be protective of public health. A map will be provided to the NYSDOH with any sampling data to assess the potential for the public to be exposed from site disturbances.



LEGEND

- PROPERTY LINE
- CHAIN LINK FENCE
- IRON FENCE
- ILLUSTRATIVE CAMP MONITORING LOCATION DURING PARKING AREA EXCAVATION

CAMP – COMMUNITY AIR MONITORING PLAN

NOTE:
LOCATIONS MAY BE MODIFIED BASED ON PREVAILING WIND DIRECTION AND WORK ACTIVITY LOCATION. LOCATIONS WILL BE MOVED TO ACCOMODATE OTHER EXCAVATION AREAS.

50' 0 50'

BASEMAP SOURCE

SHAW ENVIRONMENTAL AND INFRASTRUCTURE, INC. AND YOUNG, 400 OSTRANDER AVENUE, RIVERHEAD, N.Y. DATE: APRIL 4, 1994.

Title:
CAMP MONITORING LOCATION MAP

FORMER WATCHCASE FACTORY
SAG HARBOR, NEW YORK

Prepared For:
SAG DEVELOPMENT PARTNERS, LLC

ROUX ASSOCIATES, INC.
Environmental Consulting & Management

Compiled by: G.N.	Date: 15JAN09	FIGURE
Prepared by: J.A.D.	Scale: AS SHOWN	1
Project Mgr: N.E.	Office: NY	
File No: ---10102R01	Project: 126210Y	

N:\---1262Y\---01Y\102R\---10102R01.DWG

Table 1. Action Limit Summary for VOCs and Particulates, Former Watchcase Factory, Sag Harbor, New York

Contaminant	Downwind Action Levels*	Action/Response
Volatile Organic Compounds (VOCs) (Monitoring Via Photoionization Detector and Odor Observation)	< 5 ppm	1. Resume work with continuing monitoring.
	5 ppm < level < 25 ppm	1. Work activities must be temporarily halted, source vapors must be identified, suppression techniques employed to abate emissions, and monitoring continued. 2. After these steps, if VOC levels (200 feet downwind of the exclusion zone or half the distance to the nearest potential receptor or structure, whichever is less) is below 5 ppm over background, resume work.
	> 25 ppm	1. Identified contributing ground intrusive activities must be halted and vapor suppression techniques must be evaluated and modified until monitoring indicates VOC levels below the action level. 2. After these steps, if VOC levels (half the distance to the nearest potential receptor or structure) are below 5 ppm over background, resume work.
Particulates (Monitoring Via Particulate Meter and Observation)	< 100 ug/m^3	1. If dust is observed leaving the work area, then dust control techniques must be implemented or additional controls used.
	100 ug/m3 < level < 150 ug/m^3	1. Employ dust suppression techniques. 2. Work may continue with dust suppression techniques provided that downwind PM-10 particulate concentrations do not exceed 150 ug/m^3 above the upwind level and provided that no visible dust is migrating from the work area.
	> 150 ug/m^3	1. STOP work 2. Re-evaluate activities and modify dust suppression techniques. Work can resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 ug/m^3 of the upwind level and in preventing visible dust migration.

* 15-minute running time-weighted average (twa) above background. Particulate readings are based on the respirable (PM-10) fraction. Background readings are taken at upwind locations relative to Work Areas or Exclusion Zones.

APPENDIX A

Action Limit Report

ACTION LIMIT REPORT

Project Location: 15 Church Street, Sag Harbor, New York

Date: _____ Time: _____

Name: _____

Contaminant: PM-10: _____ VOC: _____

Wind Speed: _____ Wind Direction: _____

Temperature: _____ Barometric Pressure: _____

DOWNWIND DATA

Monitor ID #: _____ Location: _____ Level Reported: _____

Monitor ID#: _____ Location: _____ Level Reported: _____

UPWIND DATA

Monitor ID #: _____ Location: _____ Level Reported: _____

Monitor ID#: _____ Location: _____ Level Reported: _____

BACKGROUND CORRECTED LEVELS

Monitor ID #: _____ Location: _____ Level Reported: _____

Monitor ID#: _____ Location: _____ Level Reported: _____

ACTIVITY DESCRIPTION

CORRECTIVE ACTION TAKEN

APPENDIX D

Record of Decision

New York State Department of Environmental Conservation
Division of Environmental Remediation

MEMORANDUM

TO: Distribution
FROM: George W. Heitzman, Division of Environmental Remediation, BERA
SUBJECT: Bulova Watch Case Factory (Site #152139) - Draft Record of Decision

DATE: December 23, 1996

Enclosed for your information and file is the signed Record of Decision (ROD) for the Bulova Watch Factory Site. Thank you for your assistance in completing this project. Please call me at (518) 457-3395 if you have any questions about this document.

Distribution (w/enclosure):

A. Carlson (NYSDOH)
G. Laccetti (NYSDOH)
S. Robbins (SCDHS)
J. Pim (SCDHS)
R. Becherer (DEC Region 1)
L. Oliva (DEC Tarrytown)
N. Hastings (Fluor Daniel GTI)
A. Tonn (Fluor Daniel GTI)
R. Weber (Bulova)
M. Bernstein (Van Ness, Feldman)
M. Braunstein (Watch Case Factory Assoc.)
M. Chertok (Sive, Paget & Riesel)
L. Nussbaum (Goodkind, Labaton & Rudoff)
Sag Harbor Public Library

Department of Environmental Conservation

Division of Environmental Remediation

Record of Decision

Bulova Watch Case Factory Site
Village of Sag Harbor, Suffolk County
Site Number 1-52-139

December 1996

New York State Department of Environmental Conservation

GEORGE E. PATAKI, *Governor* MICHAEL D. ZAGATA, *Commissioner*

DECLARATION STATEMENT - RECORD OF DECISION

Bulova Watch Case Factory Inactive Hazardous Waste Site
Sag Harbor, Suffolk County, New York
Site No. 152139

Statement of Purpose and Basis

The Record of Decision (ROD) presents the selected remedial action for the Bulova Watch Case Factory inactive hazardous waste disposal site, which was chosen in accordance with the New York State Environmental Conservation Law (ECL). The remedial program selected is not inconsistent with the National Oil and Hazardous Substances Pollution Contingency Plan of March 8, 1990 (40CFR300).

This decision is based upon the Administrative Record of the New York State Department of Environmental Conservation (NYSDEC) for the Bulova Watch Case Factory inactive hazardous waste site and upon public input to the Proposed Remedial Action Plan (PRAP) presented by the NYSDEC. A bibliography of the documents included as a part of the Administrative Record is included in Appendix B of the ROD.

Assessment of the Site

Actual or threatened release of hazardous waste constituents from this site, if not addressed by implementing the response action selected in this ROD, presents a current or potential threat to public health and the environment.

Description of Selected Remedy

Based upon the results of the Remedial Investigation (RI) for the Bulova Watch Case Factory and the remediation goals established for the site, the NYSDEC has selected No Further Action. The components of the remedy are as follows:

- Continued operation of the ongoing soil and groundwater remediation system, consisting of two air sparging and soil vapor extraction systems to treat VOCs at the site. One system is located in the Interior Courtyard to remediate the source area, and the other is located in the Northwest Courtyard to prevent contaminants from leaving the site property.

- Monitoring of the performance of the remediation system to ensure that the remediation goals are met.

- Reclassification of the site from a Class 2 to a Class 4 on the New York State Registry of Inactive Hazardous Waste Disposal Sites.

New York State Department of Health Acceptance

The New York State Department of Health concurs with the remedy selected for this site as being protective of human health.

Declaration

The selected remedy is protective of human health and the environment, complies with State and Federal requirements that are legally applicable or relevant and appropriate to the remedial action to the extent practicable, and is cost effective. This remedy utilizes permanent solutions and alternative treatment or resource recovery technologies, to the maximum extent practicable, and satisfies the preference for remedies that reduce toxicity, mobility, or volume as a principal element. This remedy addresses contamination associated with hazardous waste disposal at the site. Residual petroleum contamination remains on the property and must be addressed by the current property owner pursuant to the NYSDEC Spill Response Program.

12/20/96
Date

Michael J. O'Toole, Jr., Director
Division of Environmental Remediation

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SECTION 1: SITE LOCATION AND DESCRIPTION

The site is located in the Village of Sag Harbor in the Town of Southampton, Suffolk County, New York. The Village of Sag Harbor is located on the north shore of the south fork of Long Island. The site is bordered by Division Street to the east, Washington Street on the north, Church Street to the west and Sage Street to the south. Division Street forms the boundary between the Village of Sag Harbor/Town of Southampton and the Town of East Hampton. A site location map and a site plan are presented in Figures 1 and 2, respectively.

The site encompasses approximately 2.3 acres and presently contains one building. The building consists of an abandoned one- to four-story brick and timber structure located on the north end of the site. The building is irregular in shape and contains a number of courtyards referred to as:

The Interior Courtyard, located in the central portion of the building;
The South Courtyard, which is located directly south of the building;
The Northeastern Courtyard, which fronts Division Street and Washington Street;
The Northwestern Courtyard, which fronts Church Street and Washington Street;
The Western Courtyard, which fronts Church Street; and
The SU-7 Courtyard, located between the western wing and southeast corner of the building.

A brick furnace is located approximately 50 feet south of the building. Previous structures which existed on the site include a water tower, which was approximately 20 feet from the south side of the main building, and a rectangular building approximately 100 x 150 feet in size located in the southwest corner of the site.

The site is located next to the downtown portion of Sag Harbor, which consists of residential, commercial, and community structures. The site is located in the historical district of Sag Harbor. The structures surrounding the site consist primarily of private residences, a church community center, and an elementary school in the east and a paved parking area and a row of commercial store fronts in north.

The majority of open space on the property is paved with either bituminous asphalt or concrete. Approximately 25% of the site is unpaved. Site access is restricted by chain link or iron fencing that completely surrounds the property. The southwest corner of the site is approximately 15 feet below street level and rises to street level along the western and north sides of the site. Regional topography generally slopes down to the north, in the direction of Sag Harbor which is a salt water body located approximately 800 feet to the north-northeast of the site.

Other bodies of salt water are also located approximately 1200 feet to the northwest of the site (Sag Harbor Cove) and approximately 2200 feet to the southwest of the site (Upper Sag Harbor Cove). The closest surface fresh water body is Otter Pond located approximately 2300 feet to the south-southwest of the site. Groundwater at the site flows towards the north-northwest and occurs at 12 - 14 feet below ground surface.

SECTION 2: SITE HISTORY

2.1 Operational/Disposal History

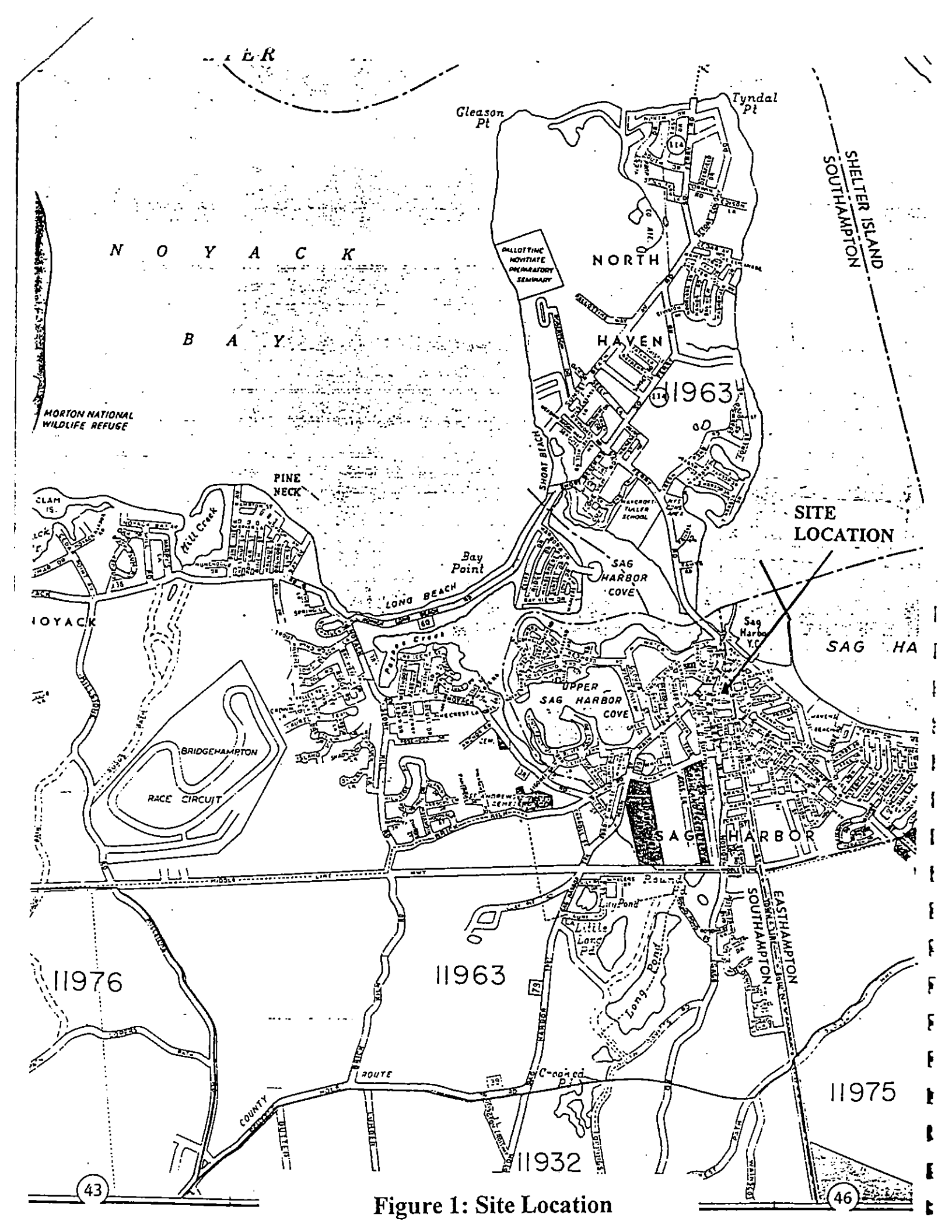
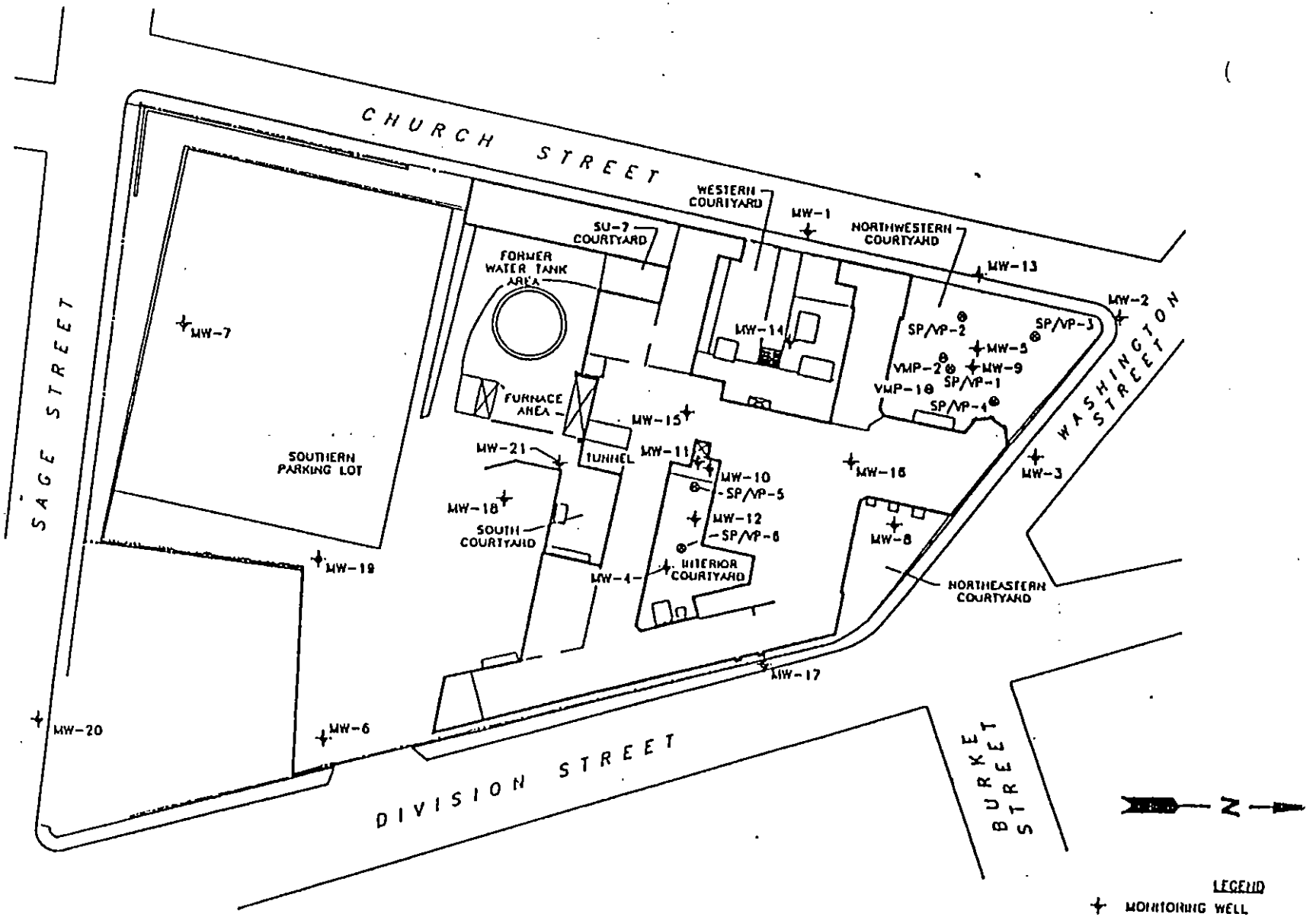


Figure 1: Site Location

Figure 2: Former Watch Case Factory Site



Bulova Corporation owned and operated the facility between 1936-1981. During this period, unknown quantities of 1,1,1 trichloroethane and trichloroethene wastes were released into the environment. The primary location of chemical and hazardous waste storage was the Interior Courtyard and a room adjoining that courtyard. Underground storage tanks (USTs) containing fuel oil presently exist in the Interior Courtyard and South Courtyard, and two USTs have been removed from the Western Courtyard.

The site was designated as a Class 2 site by the NYSDEC on January 20, 1993.

2.2 Remedial History

The following is a chronological listing of investigations and remedial measures performed at the site. A more detailed description of these actions is provided in the May 1995 Remedial Investigation/Feasibility Study (RI/FS) Work Plan.

September 1987 - An environmental survey, consisting of 8 soil and 11 soil gas samples, was performed.

May 1989 - An additional soil vapor survey was performed. A total of 15 soil gas samples were collected.

June/July 1989 - Five monitoring wells, currently labeled MW-6 through MW-9, were installed and sampled.

February 1990 - Two underground storage tanks were removed from the Western Courtyard.

February 1991 - An asbestos survey of the building interior was performed.

June/July 1991 - Monitoring wells MW-1 through MW-5 were installed and sampled. Soil samples were also obtained during the installation of the wells.

May 1993 - Air sparge/vapor extraction point SP-VP-1, located in the Interior Courtyard, was installed. Three soil borings and six surface soil samples were also taken.

June 1993 - The former transformer pad was sampled for Polychlorinated Biphenyls (PCBs).

September/October1993 - Dry wells, storm water catch basins, sumps and floor drains were sampled and cleaned out. Soil samples were also taken from the building and Interior Courtyard.

November 1993 - Air sparge/vapor extraction points SP-VP-2 thru SP-VP-6, located in the Interior and Northwest Courtyards, were installed.

April 1994 - A second clean out of select dry wells, catch basins, sumps and floor drains was performed and verification samples were taken.

April 1994 - Soil samples were collected from the base of the coal tunnel, approximately 6 feet inside the entrance. Historically, this tunnel was used to move coal in wheelbarrows from storage bins to the furnace area.

September 1994 - Operation of the Air Sparge and Soil Vapor Extraction System began.

November 1994 - Soil gas points SG-1 through SG-25 were installed and sampled.

November 1994 - Additional surface and subsurface soil samples were collected around the furnace, adjacent to sump SU-5, at the base of the tunnel and near injection well IW-7. Background soil samples were also taken for comparison.

December 1994 - Monitoring wells MW-13 through MW-20 were installed and sampled.

January 1995 - A third clean out of select dry wells, catch basins, sumps and floor drains was performed and verification samples were taken.

July 1996 - Surface soils across one-third of the Interior Courtyard were removed and the entire courtyard was covered with 12 inches of clean soil.

Currently, soil vapor extraction systems and air sparging systems are operating in the Northeast and Interior Courtyards. Periodic sampling of select monitoring wells is also being conducted in compliance with the approved Interim Remedial Measures (IRM) Work Plan.

SECTION 3: CURRENT STATUS

In response to a determination that the presence of hazardous waste at the site presents a significant threat to human health and the environment, the responsible party (Bulova Corporation) has recently completed a Remedial Investigation (RI).

3.1 Summary of the Remedial Investigation

The purpose of the RI was to define the nature and extent of any contamination resulting from previous disposal activities at the site.

Due to the extent of prior investigations, the RI was implemented in one phase, which concluded in October 1995. The Final Remedial Investigation Report, dated August 1996, describes the field activities and findings of the RI in detail.

The RI included the following activities:

Surficial soil samples were collected from 15 different locations on and off the site. The purpose of three (3) off-site soil samples was to determine the background levels of chemicals in area soils. The soil samples collected were analyzed for VOCs, SVOCs, pesticides/PCBs and metals.

To supplement the information already collected on the groundwater underneath the site, groundwater samples were collected from existing wells in the Western and Northwest Courtyard areas. These samples were analyzed for VOCs, SVOCs and metals.

To further understand the groundwater conditions beyond the property line, eight groundwater samples were taken at six locations between the northern boundary of the site and the shore line. These samples were analyzed for VOCs.

Air samples were taken at four locations inside the building and analyzed for VOCs.

To determine which media (soil, groundwater, etc.) contain contamination at levels of concern, the RI analytical data was compared to environmental Standards, Criteria, and Guidance (SCGs). Groundwater, drinking water and surface water SCGs identified for the Bulova Watch Factory Site were based on NYSDEC Ambient Water Quality Standards and Guidance Values and Part V of the New York State Sanitary Code. NYSDEC soil cleanup guidelines for the protection of groundwater, background conditions, and risk-based remediation criteria were used as SCGs for soil. These are listed in NYSDEC's Technical Administrative Guidance Memorandum (TAGM) #4046.

Based upon the results of the Remedial Investigation and comparison to the SCGs and potential public health and environmental exposure routes, some of the soils and groundwater at the site required remediation. These are summarized below. More complete information can be found in the RI Report.

Chemical concentrations in soils and groundwater are reported in parts per billion (ppb) and parts per million (ppm). Air sampling results are reported in parts per billion by volume (ppbv). For comparison purposes, SCGs are given for each medium.

3.1.1 Nature of Contamination

As described in the RI Report, many soil, groundwater and air samples were collected at the site to characterize the nature and extent of contamination.

Soil

A total of twelve soil samples were collected from different areas on site. Three background soil samples were also obtained to determine soil quality off site. All the samples were analyzed for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), and metals. All but two soil samples were also analyzed for pesticides and PCBs.

The concentrations of VOCs detected in soil were below the recommended cleanup objectives. Trichloroethene, benzene, naphthalene and toluene were the primary VOCs detected in soil.

Several SVOCs, including benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, phenol, and dibenzo(a,h)anthracene were detected in one or more soil samples, above the recommended cleanup objectives. Benzo(a)pyrene was detected in the background samples above the recommended cleanup objectives.

One PCB, Aroclor-1254, was detected in site soils, at concentrations below the recommended cleanup objective of 1 ppm. Several pesticides were detected in both on-site and background soil samples at concentrations exceeding the cleanup guidelines.

Arsenic, mercury, chromium, lead, silver and selenium are the metals which exceeded the recommended cleanup objectives in one or more soil samples.

Groundwater

During the RI, selected on-site monitoring wells were sampled and analyzed for VOCs, SVOCs and metals. Six off-site geoprobe points were installed and eight groundwater samples were obtained from them. Two of the eight geoprobe samples were taken from a depth of 27 feet to see if the contamination had migrated deeper into the aquifer. All groundwater samples obtained using the geoprobe were analyzed for VOCs.

Wells MW-1 and MW-15 presently contain floating fuel oil, and MW-14 contains an oily sheen. The investigation and remediation of this petroleum-related contamination is being undertaken by the current property owner pursuant to the NYSDEC's Spill Response Program, and is not under the scope of this ROD.

Groundwater analytical results from monitoring wells MW-13 and MW-14 contained benzene, toluene, ethyl benzene, and xylene (BTEX), and several chlorinated hydrocarbons at concentrations exceeding ambient standards. SVOCs were also detected in the two monitoring wells at concentrations exceeding standards. Naphthalene was the primary compound detected in MW-14. The only inorganic contaminant which exceeded the laboratory detection limit was barium.

Geoprobe samples taken off site found VOC concentrations ranging from non-detect to 29 ppb. Trichloroethene, benzene and naphthalene were detected at concentrations exceeding ambient standards in three different locations. Each of these contaminants was found in only one off-site sample, indicating that a measurable off-site plume was not identified.

Several on-site monitoring wells are part of the monitoring program instituted as part of the IRM at the site, as described in Section 3.2. Groundwater samples are obtained from these monitoring wells on a periodic basis and analyzed for VOCs. The following chlorinated VOCs are routinely detected at concentrations exceeding ambient standards:

trichloroethene	tetrachloroethene	chloroform
1,1,1-trichloroethane	1,2-dichloroethene	vinyl chloride
1,1,2-trichloroethane	1,1-dichloroethane	

Air

Three of the four indoor air samples did not contain detectable levels of contaminants. One sample, collected in the eastern wing of the building adjacent to SU-5, contained trichloroethene at a concentration of 2.4 ppbv. The Annual Guideline Concentration (AGC) for this contaminant is 0.084 ppbv.

3.1.2 Extent of Contamination

Table 1 summarizes the extent of contamination for the contaminants of concern in soil, groundwater, and air, and compares the data with the remedial action levels (SCGs) for the site. For the purposes of the RI, the site has been organized into 11 geographic areas. The following are the media which were investigated in each of these areas and a summary of the findings of the investigation.

Soil

Interior Courtyard

A total of four soil samples were collected from the Interior Courtyard. VOCs were below the recommended soil cleanup objectives. Several SVOCs, including benzo(a)anthracene (0.24-2.8 ppm), chrysene (0.36-3.1 ppm), benzo(b)fluoranthene (0.36-3.4 ppm), benzo(k)fluoranthene (0.37-2.4 ppm) and benzo(a)pyrene (0.26-2.5 ppm) exceeded soil cleanup guidelines in one or more samples. Metals exceeded background concentrations in all four samples. Chromium and lead were detected at up to 2600 ppm and 900 ppm, as compared to the cleanup objectives of 50 ppm and 260 ppm (site background) respectively.

Furnace Area

VOCs in the sample collected from this area were below the soil cleanup guidelines. Three SVOCs, phenol (0.34 ppm), benzo(a)pyrene (0.15 ppm) and dibenz(a,h)anthracene (0.043 ppm) were above the cleanup guidelines. Cadmium exceeded the background concentrations but was below the soil cleanup guideline of 10 ppm.

Former Water Tank Area

VOCs, SVOCs, pesticides and PCBs were detected below the soil cleanup guideline with the exception of benzo(a)pyrene (0.14 ppm).

SU-7 Courtyard

No VOCs exceeded the soil cleanup guidelines. Five SVOCs: benzo(a)anthracene (1.7 ppm), chrysene (2.8 ppm), benzo(b)fluoranthene (2.6 ppm), benzo(k)fluoranthene (1.8 ppm), and benzo(a)pyrene (1.8 ppm) exceeded the soil cleanup guidelines. Arsenic (19 ppm), silver (9.5 ppm) and selenium (2.7 ppm) exceeded the soil cleanup guidelines.

Southern Parking Lot

VOCs, SVOCs and pesticides/PCBs were all below soil cleanup guidelines. Arsenic (33 ppm) was the only metal that exceeded the cleanup guideline.

South Courtyard

VOCs, pesticides and PCBs were below cleanup guidelines. Three SVOCS: benzo(a)anthracene (0.30 ppm), chrysene (0.45 ppm) and benzo(a)pyrene (0.24 ppm) were detected above cleanup guidelines. Silver (65 ppm) also exceeded the background cleanup guideline.

Western Courtyard

VOCs and SVOCs were not detected at the detection limit. Concentrations of all metals were below background levels.

Groundwater

Groundwater beneath the site is contaminated above ambient groundwater standards in the primary source area (Interior Courtyard) and downgradient of this source. This on-site groundwater contamination is limited to the uppermost portion of the Upper Glacial Aquifer, and contaminants do not appear to have migrated into wells located 50 feet below ground surface.

At the site boundary, the Interim Remedial Measures described below have been effective in reducing formerly high contaminant concentrations to levels which are approaching ambient groundwater standards. Since April 1996, monthly monitoring results have detected individual site contaminants at 15 ppb or less, as compared to their groundwater standard of 5 ppb.

Off-site groundwater impacts from past releases were investigated using the Geoprobe methodology. Site-related contaminants were detected off site at concentrations that exceeded ambient groundwater standards. However, no individual contaminant was found in more than one well, and all contaminants occurred at low concentrations (< 30 ppb). The highest contaminant level found off site was 29 ppb of trichloroethylene in GP-2D, at a depth of 27 feet. This data indicates that an off-site plume was not identified.

3.2 Interim Remedial Measures

Interim Remedial Measures (IRMs) are conducted at sites when a source of contamination or exposure pathway can be effectively addressed before completion of the RI/FS.

In 1994, a remediation system for sub-surface soils and groundwater was installed at the site as an Interim Remedial Measure (IRM). The objective of this system is to remove VOCs from the soil and groundwater by a combination of two techniques, soil vapor extraction and air sparging.

The soil vapor extraction (SVE) system uses a blower attached to several wells to draw air through soils above the water table. This flow of air allows VOCs to evaporate from the soils and into air between soil particles. Contaminants are then drawn into the collection wells and treated prior to discharge.

SVE systems are effective in cleaning soils above the water table, but are not effective for remediating contaminated soils below the water table. Air sparging is a technology that has proven effective in these situations. This technology can remove VOCs from soil below the water table and also offers the additional benefit of capturing some of the VOCs dissolved in the groundwater. Air sparging is the process of injecting air into the saturated soils below the water table. This causes VOCs in the saturated soil to evaporate into the injected air, which in turn is captured by the SVE system. Figure 2 shows the 8 locations at which the system operates at the site.

Figure 3: Bulova Watch Factory
IRM Monitoring Results - MW-9

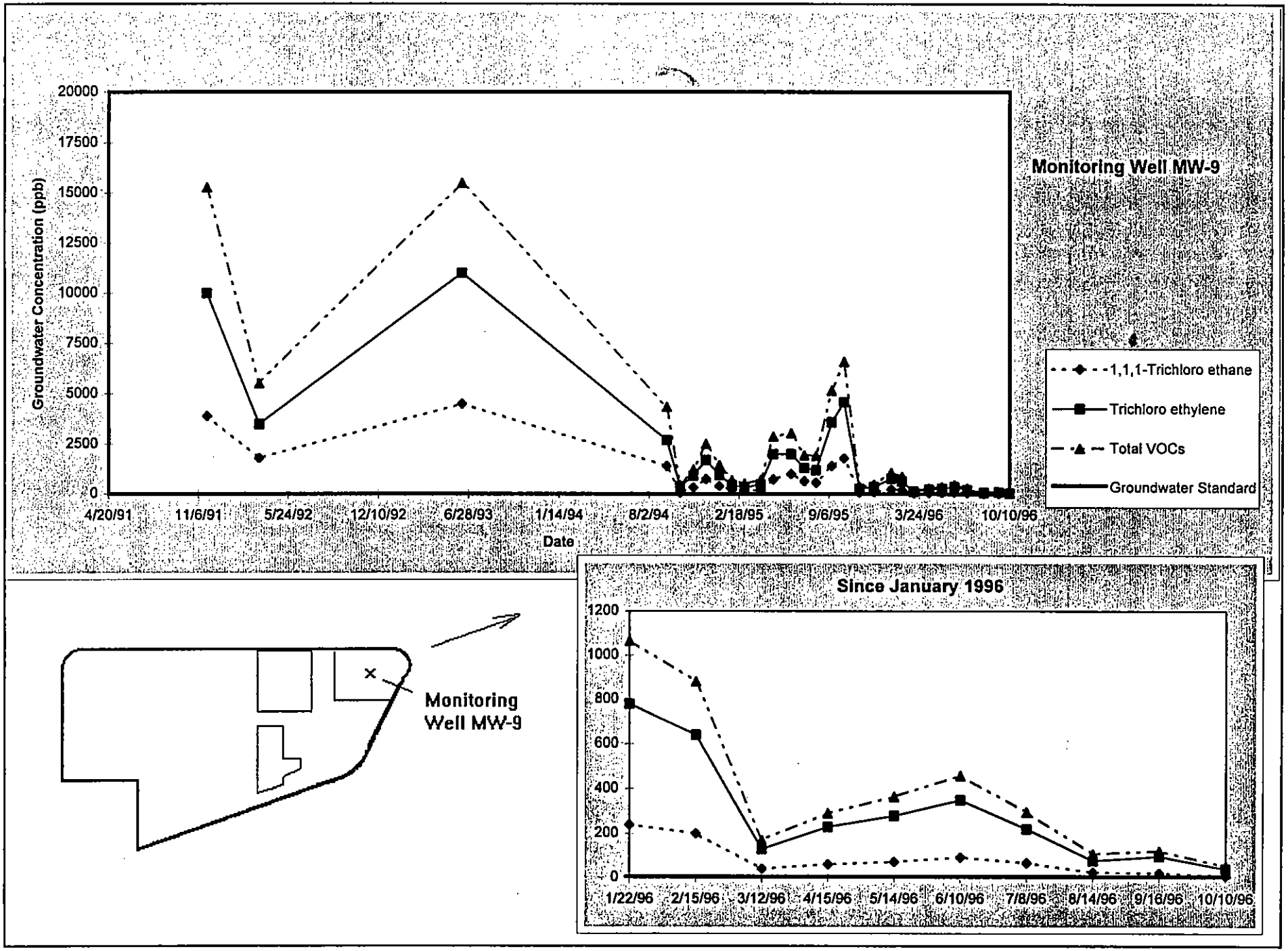
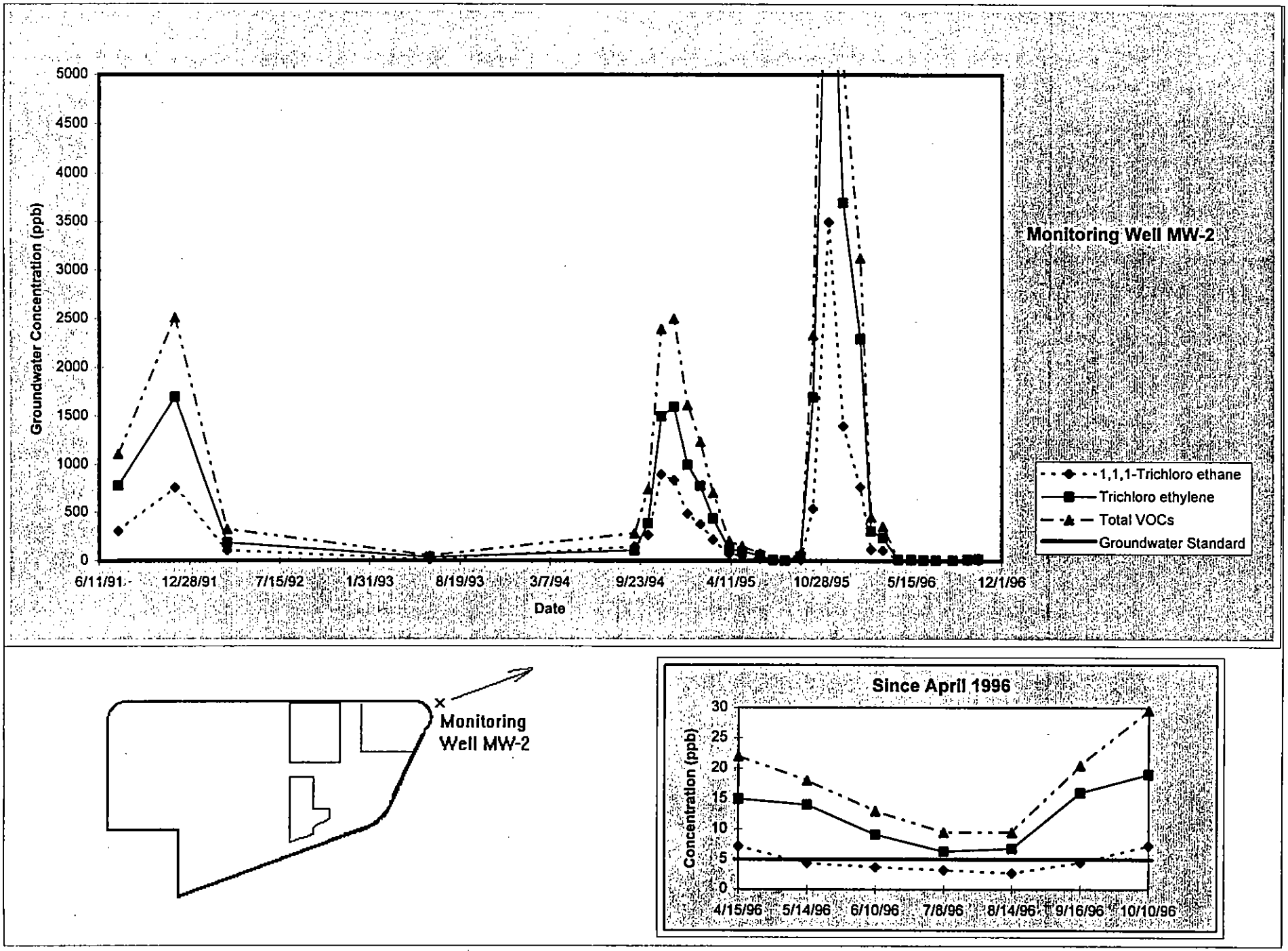


Figure 4: Bulova Watch Factory
IRM Monitoring Results - MW-2



The IRM has proven to be effective in reducing VOC concentrations in site groundwater and soil. From the time of the system start-up through March 1996, the overall concentrations of VOCs in the site groundwater have decreased significantly. The analytical results from periodic groundwater monitoring in the source and downgradient areas are displayed in Figures 3 and 4 respectively.

In July 1996, another Interim Remedial Measure was performed to address soil contamination in the Interior Courtyard area. This action was taken in response to concerns about future residential exposure to contaminants in surficial soils. The top 12 inches of soil, contaminated primarily with lead and chromium, comprising approximately 60 cubic yards, was excavated and removed from portions of the area. Twelve inches of clean soil were placed over the entire Interior Courtyard area. As a result of this action, metals concentrations in surficial soils of the Interior Courtyard are now below soil cleanup guidelines.

3.3 Summary of Human Exposure Pathways

This section describes the types of human exposures that may present added health risks to persons at or around the site. A more detailed discussion of the health risks can be found in Appendix E of the RI Report ("Risk Assessment").

An exposure pathway is the route by which an individual may come into contact with a site contaminant. The five elements of an exposure pathway are 1) the source of contamination; 2) environmental media and transport mechanisms; 3) the point of exposure; 4) the route of exposure; and 5) the receptor population. These elements of an exposure pathway may be based on past, present, or future events.

The former Watch Case Factory building is currently a vacant industrial structure. A fence surrounds the property. Based on current development plans, the building is likely to be renovated for future residential occupancy. The site is supplied by municipal drinking water; groundwater at the site is not used as a drinking water source.

Identified Exposure Pathways and Receptors

Current Use:
Under current land use the site is vacant and access is restricted by fencing. Although contaminants have been detected in the soil, groundwater, and indoor air, there are no identified receptors under current use.

Future Use:
Under future land use the Bulova building will remain in place and will be converted into condominiums. Potential receptors include residents, on-site construction workers and visitors. Potential exposure points are soil, groundwater and air.

Using the future residential exposure scenario, the carcinogenic and non-carcinogenic risks to potential human receptors were estimated for the levels of contaminants of concern found at the site. For child and adult residents, inhalation of vapors in indoor air produced carcinogenic risks of 3.0×10^{-6} and 4.0×10^{-6} (3 and 4 in one million), respectively. This risk is due entirely to the contaminant trichloroethylene, which is present in groundwater beneath the site. The risks due to contact (both skin contact and incidental ingestion) with surface soils are estimated to be 5×10^{-7} and 8×10^{-7} (5 and 8 in

ten million) for child and adult receptors, respectively. For on-site construction workers, the risk due to contact with subsurface soil is estimated to be 8.0×10^{-9}. The primary contaminant associated with these risks is benzo(a)pyrene.

These estimated risks are evaluated in comparison to the New York State Department of Health health risk goal of one excess cancer in one million (1×10^{-6}). Although the risk associated with indoor air exposure exceeds the guideline by a small amount, it should be noted that trichloroethylene was detected in only one of four indoor air samples at a concentration of 2.4 ppbv. Also, future operation of the groundwater IRM system and replacement of the building floors are expected to further reduce the potential for airborne exposure. The risk associated with exposure to surface soils is within acceptable goals.

Non-carcinogenic risks are evaluated by calculating the Hazard Index, which is an estimate of effects such as organ damage or reproductive effects. Hazard Indexes for the exposure scenarios discussed above are well within acceptable limits.

3.4 Summary of Environmental Exposure Pathways

This section summarizes the types of environmental exposures which may be presented by the site. The Environmental Assessment included in Appendix E of the RI presents a more detailed discussion of the potential impacts from the site to fish and wildlife resources.

The site is located in a developed area and provides little habitat value. Thus, the amount of fish and wildlife resources in the vicinity is limited. Freshwater aquatic life will not be impacted by contaminants in groundwater since there are no freshwater bodies downgradient of the site. Potential exposure was evaluated for marine life, which may be impacted by contaminants as groundwater migrates towards Sag Harbor, the nearest downgradient saline water body. Because a remedial action is already in place, the groundwater plume is not expected to further migrate. A fate and transport model demonstrated that chemicals at the site are not anticipated to impact Sag Harbor Cove.

SECTION 4: ENFORCEMENT STATUS

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

Orders on Consent

Date	Index	Subject
07/11/94	W1-0674-94-01	IRM
09/11/95	W1-0674-94-01	RI/FS/RA

The NYSDEC and the Bulova Corporation entered into a Consent Order on September 11, 1995. The Order obligates the Responsible Party to perform a full remedial program, consisting of a Remedial Investigation (RI), Feasibility Study (FS) and Remedial Action (RA). Upon issuance of the Record of

Decision, the Bulova Corporation will implement the selected remedy in compliance with this Order on Consent.

SECTION 5: SUMMARY OF THE REMEDIATION GOALS AND SELECTED REMEDY

Goals for the remedial program have been established through the remedy selection process stated in 6 NYCRR Part 375-1.10. The overall remedial goal is to meet all Standards, Criteria, and Guidance (SCGs) and to be protective of human health and the environment.

At a minimum, the remedy selected should eliminate or mitigate all significant threats to public health and to the environment presented by the hazardous waste disposed at the site through the proper application of scientific and engineering principles.

The goals selected for this site are:

- Eliminate the potential for direct human or animal contact with the contaminated soils on site.
- Mitigate the impacts of contaminated groundwater to the environment.
- Provide for attainment of SCGs for groundwater quality at the site boundary, to the extent practicable. The SCGs for the groundwater quality are provided in 6NYCRR Part 703.5.

The selected remedy should be protective of human health and the environment, be cost effective, comply with other statutory laws and utilize permanent solutions, alternative technologies or resource recovery technologies to the maximum extent practicable.

At the Bulova Watch Factory Site, four remedial measures have already been employed or are currently in operation. Drywells, catch basins, sumps, and drains have been cleaned out and contaminated soils have been excavated, which addressed the majority of site soil contamination. A Soil Vapor Extraction/ Air Sparging (SVE/AS) system is currently operating as an IRM. This remediation system consists of two SVE/AS systems to treat VOCs at the site. One system is located in the Interior Courtyard, which addresses the source of site groundwater contamination. The second system is located in the Northwest Courtyard, which addresses VOCs in the downgradient portion of the site, and prevents groundwater contaminants from migrating off-site. In July 1996, surficial soils across one-third of the Interior Courtyard were removed and the entire courtyard was covered with 12 inches of clean soil.

The remedial measures which have been implemented or which are currently in operation have been demonstrated to effectively remediate contaminants associated with the site. Based on this effectiveness and the factors described below, the NYSDEC determined that it was not necessary to develop and evaluate additional remedial alternatives in a Feasibility Study.

- The SVE/AS system will continue to operate, under the NYSEDC's review, until groundwater quality standards are achieved or it is determined that it is not practical or feasible to remove additional VOCs from the soil and groundwater.
- Groundwater at the site and downgradient of the site is not used as a drinking water source.

- Contaminants in the groundwater are not expected to migrate off site in significant concentrations due to the SVE/AS remedial system currently operating.

- The offsite groundwater sampling detected infrequent occurrences and low levels of VOCs.

- The computer model used to forecast future groundwater flow showed no potential for migration of site contaminants to private water supplies located to the east, west and south of the site.

Concerns of the community regarding the RI Report and the Proposed Remedial Action Plan have also been evaluated. The Responsiveness Summary included as Appendix A presents the public comments which were received and the Department's response to the concerns which were raised. One written comment was received during the comment period, and this supported the proposed remedy and congratulated the public and private organizations which made the project a success. Most of the verbal comments raised during the public meeting were questioners seeking more detailed justifications for the protectiveness of the proposed remedy. These justifications are provided in Appendix A.

Based on these factors, the NYSDEC has selected no further action as the preferred remedial alternative for contamination associated with hazardous waste disposal at the site. This selection is based upon the demonstrated ability of the ongoing IRM to effectively reduce the concentrations of site contaminants. VOC contamination in soils and groundwater are expected to be reduced below cleanup goals as a result of the soil vapor extraction and air sparging systems currently operating at the site. Residual petroleum contamination associated with leaking underground storage tanks will be addressed by the current site owner pursuant to the NYSDEC Spill Response Program.

The selected remedy does not incur any costs in addition to those associated with the completed and ongoing Interim Remedial Measures. The estimated present worth cost to implement the IRMs is $753,300. The cost to construct the soil vapor extraction system was $200,000, and the cost of the soil excavation IRM was $70,000. The average operation, maintenance and monitoring cost of the soil vapor extraction system is approximately $100,000 per year. The present worth cost estimate is based on construction and three years' past operation of the SVE/AS system, and two years of future operation. This estimated duration is provided solely for the purposes of estimating costs, and does not necessarily represent the DEC's expectation that the remedial goals will be achieved in such a time frame.

The elements of the selected remedy are as follows:

- Continued operation of the ongoing soil and groundwater remediation system, consisting of two air sparging and soil vapor extraction systems to treat VOCs at the site. One system is located in the Interior Courtyard to remediate the source area, and the other is located in the Northwest Courtyard to prevent contaminants from leaving the site property. These systems will be operated until the remediation goals established for the site are achieved, or until it is demonstrated that achieving such goals is not technically praticable.

- Monitoring the performance of the remediation system to ensure that the remediation goals are met.

- Reclassification of the site from a Class 2 to a Class 4 on the New York State Registry of Inactive Hazardous Waste Disposal Sites. A Class 4 inactive hazardous waste disposal site is "a site that has been properly closed but that requires continued operation, maintenance, and/or monitoring".

SECTION 6: HIGHLIGHTS OF COMMUNITY PARTICIPATION

As part of the remedial investigation process, a number of Citizen Participation (CP) activities were undertaken in an effort to inform and educate the public about conditions at the site and the potential remedial alternatives. The following public participation activities were conducted for the site:

- A repository for documents pertaining to the site was established in the John Jermain Memorial Library in Sag Harbor.

- A site mailing list was established, which included nearby property owners, local political officials local media and other interested parties.

- A public meeting was held in April 1994 to present the Interim Remedial Measures Work Plan to the public and to receive comments.

- Fact sheets were mailed out in December 1993, April 1994, October 1995 and September 1996 to keep the public apprised of activities occurring at the site.

- In October 1996 a public meeting was held to present the Proposed Remedial Action Plan (PRAP) to the public and receive comments.

- In November 1996 a Responsiveness Summary was prepared and made available to the public, to address the comments received during the public comment period for the PRAP.

Table 1
Nature and Extent of Contamination

MEDIA	CLASS	CONTAMINANT OF CONCERN	CONCENTRATION RANGE (ppb)	FREQUENCY of SCG EXCEEDANCE	SCG (ppb)
Groundwater	Volatile Organic Compounds (VOCs)	Benzene	ND to 6	6 of 34	0.7
		1,1-Dichloroethane	ND to 860	2 of 34	5
		1,1-Dichloroethene	ND to 1100	6 of 34	5
		1,1,1-Trichloroethane	ND to 21000	11 of 34	5
		1,1,2-Trichloroethane	ND to 70	3 of 34	5
		1,2-Dichloroethene	ND to 7000	6 of 34	5
		cis -1,2-Dichloroethene	ND to 180	4 of 21	5
		Chloroform	ND to 31	2 of 34	7
		Naphthalene	ND to 920	2 of 19	10
		Trichloroethene	ND to 29000	18 of 34	5
		Ethyl benzene	ND to 120	4 of 34	5
		Vinyl Chloride	ND to 120	3 of 34	2
		Meta+ Para-Xylenes	ND to 440	3 of 13	5
	Semivolatile Organic Compounds (SVOCs)	Acenaphthene	ND to 32	1 of 10	20
		Naphthalene	ND to 280	1 of 10	10
	Pesticides & Polychlorinated Biphenyls (PCBs)	4,4'-DDE	ND to 0.57	1 of 11	ND
		Endrin	ND to .05	1 of 11	ND
		4,4'-DDD	ND to .051	1 of 11	ND
	Metals	Cadmium	ND to 13.4	1 of 11	10
		Manganese	ND to 493	1 of 11	300
		Iron	ND to 780	1 of 11	300

MEDIA	CLASS	CONTAMINANT OF CONCERN	CONCENTRATION RANGE (ppm)	FREQUENCY of SCG EXCEEDANCE	SCG (ppm)
Soils	Semivolatile Organic Compounds (SVOCs)	Benzo (a)anthracene	ND to 2.8	5 of 12	0.224
		Chrysene	ND to 3.1	4 of 12	0.40
		Benzo(b) fluoranthene	ND to 3.4	3 of 12	1.1
		Benzo(k) fluoranthene	ND to 2.4	3 of 12	1.1
		Benzo(a)pyrene	ND to 2.5	7 of 12	0.061
		Phenol	ND to 0.34	1 of 12	0.030
		Dibenzo(a.h)anthracene	ND to 0.52	3 of 12	0.014
	Inorganics	Arsenic	ND to 33	2 of 12	7.5 or SB
		Mercury	ND to 2.7	4 of 12	0.10
		Barium	2.3 - 130	0 of 12	300 or SB
		Cadmium	ND to 8	0 of 12	10 or SB
		Chromium	2.4 - 2600	5 of 12	50 or SB
		Lead	41 - 900	5 of 12	SB (260)
		Silver	ND to 74	6 of 12	SB (5.1)
		Selenium	ND to 2.7	6 of 12	2 or SB
Air	VOCs	Trichloroethene	ND to 2.4	1 of 4	0.084

ND - Non-Detectable
SB - Site Background
SCG - Standard, Criteria or Guidance

APPENDIX A:
Responsiveness Summary

Apart from verbal and written comments received during the public meeting, no written comments were received during the public comment period. The single written comment received during the meeting was supportive of the proposed remedy, and offered congratulations to the public and private organizations for conducting a successful project. Therefore, this responsiveness summary will entirely address the verbal comments and questions which were raised during the October 17, 1996 public meeting.

Questions Relating to Development of the Site and Future Habitation of the Building

Q. How will the building be converted into condominiums?

A. The DEC has not received any information concerning the development plans for the site. However, the cleanup levels which were achieved for surface soils are consistent with any future residential activities at the site.

Q. What is the potential for future residential exposure to contaminants adhered to the interior surfaces of the building?

A. The DEC required Bulova to evaluate the potential for exposure to contaminants in indoor air by obtaining indoor air samples at four locations over a 24-hour period. These sample locations were selected based on areas where solvents were known to have been used. Because site contaminants are volatile, any contaminants present on the wall surfaces would have been detected in indoor air samples. Three of these samples contained no detectable levels of contaminants. The fourth contained a concentration of trichloroethylene (2.4 ppb_v) which was only slightly greater than the detection limit of the analysis (2.0 ppb_v). These results indicate that indoor air contamination is not a threat to future residents of the building.

Q. What is the potential for the release of soil gases during future construction at the site?

A. Areas in which subsurface soils were contaminated with volatile organic chemicals are being remediated with the soil vapor extraction (SVE) system. This SVE system is also extracting contaminants that were in groundwater and which are being volatilized by the air sparging (AS) system. Typically, soil contaminants are more easily extracted by SVE systems than those in groundwater, and the DEC believes that most volatile soil contaminants have now been removed. The contaminants currently being collected by the SVE system are those which are volatilized from groundwater by the air sparging system. As a result, construction which disturbs the top 12 to 14 feet of soils above the water table would have a minimal potential for releasing soil gases.

Q. When will operation of the Interim Remedial Measure (IRM) be complete so that construction of residences in the building can begin? Is the site habitable now, even though the soil vapor extraction system is in operation? Can DEC give an expected date for termination of the vapor extraction system?

A. The DEC cannot give a firm estimate as to when the operation of the IRM may be complete. Based on trends in the groundwater monitoring results, operation of the system in the Interior Courtyard, the source area, may be terminated prior to that in the Northwest Courtyard. As explained in more detail below, the DEC will allow Bulova to shut off the Interior Courtyard system for one month to observe the response. This may allow a better estimate of the IRM duration in that area. However, the DEC believes that construction in the building may proceed while the IRM is in operation, provided that such construction does not interfere with that operation. The DEC and State Department of Health (DOH) believe that, with respect to prior hazardous waste contamination, the site is safe for construction and habitation in its present condition.

Q. Will the Suffolk County Department of Health have a problem with issuing a building permit and allowing residential occupation of the building?

A. The DEC cannot speak for the Suffolk County Department of Health, particularly if they may have concerns unrelated to prior hazardous waste contamination. As stated above, the DEC and DOH believe that hazardous waste contamination at the site has been remediated to levels that are safe for future residential occupation.

Q. Can someone live in the building with the vapor extraction pumps running? Is there a noise concern?

A. The vapor extraction pumps, which are located in a room adjacent to the Interior Courtyard, are quite noisy. The DEC presumes that future development of the site would include measures to mitigate this noise.

Q. Can Mr. Malloy go to construction tomorrow?

A. With respect to the site's status as an inactive hazardous waste site, provided that the IRM system is not disturbed, construction could begin immediately.

Q. When will the site be reclassified? How long will the site remain a Class 4 Inactive Hazardous Waste Site?

A. Shortly after the Record of Decision is issued, the DEC will begin the process of reclassifying the site to a Class 4. The DEC expects that this process will be complete by the next annual issuance of the Registry of Inactive Hazardous Waste Sites in April 1997. The DEC cannot give a firm estimate as to how long the site would remain as a Class 4. Even after the air sparge and soil vapor extraction systems are discontinued, the site will require continued monitoring to ensure that residual concentrations of contaminants remain at acceptable levels.

Q. Within 6 months to a year, will it be safe for people to inhabit the site, have vegetable gardens and use a playground?

A. As stated above, the DEC and DOH believe that hazardous waste contamination at the site has been remediated to levels that are safe for future residential occupation. With specific regard to

gardens and playgrounds, the cleanup guidelines which were applied to the soil IRMs were established with these activities in mind. The exposure scenarios for ingestion of soils, which produced the site-specific cleanup goals, account for these uses. Because the soil cleanup goals were achieved, the site is considered to be safe for future residential occupation.

Questions Relating to the Air Sparge / Soil Vapor Extraction System and Other IRMs

Q. What measures were taken during the soil removal to prevent dust emissions and associated contaminant exposures to the public?

A. During the soil removal, dust emissions were monitored, and a contingency plan was in place if dust levels reached an unacceptable level. This plan called for control measures and work stoppage if the threshold value of 150 micrograms per cubic meter was exceeded. This did not occur.

Q. Who owns the treatment system?

A. The air sparging and soil vapor extraction system is owned by the Bulova Corporation.

Q. Has the system experienced any breakdowns or accidents?

A. The system has not experienced any accidental release of contaminants to the air, nor any accident involving personal injury. There have been a few breakdowns of system components which have caused temporary shutdowns of the system. On two occasions, a rotary vane in the Interior Courtyard blower system failed, and system operation was briefly terminated. In October 1995, a starter motor to one of the Northwest Courtyard sparge pumps was replaced due to decreasing performance. The same pump later failed, causing a system shutdown, and was replaced in December 1995.

Q. Is there a plan to turn off the vapor extraction system for a month? When? Why would this be done, and what would happen after that?

A. Bulova and their consultant have proposed turning off the Interior Courtyard air sparging and soil vapor extraction system for one month. The Northwest Courtyard system would remain operational. The purpose of this suspended operation is to observe the response in groundwater contaminant concentrations, and to thereby evaluate how much contamination remains sorbed onto soil particles below the water table. Contaminant concentrations in the source area have been relatively constant, at approximately 50 ppb of Total Volatile Organics (TVOCs), since September 1995. This level (50 ppb) is the ambient groundwater standard for TVOCs. After the system operation is suspended, groundwater contaminant concentrations will be measured, and the system will be restarted. If TVOC concentrations remain at 50 ppb after suspended operation, it may be seen as an indication that the source area has been remediated to levels that comply with groundwater standards. If a "spike" in contaminant concentrations is observed, it would be interpreted as evidence that a source of higher contamination exists in the source area that requires further remediation.

Q. With regard to the "spikes" of elevated VOC concentrations that were detected in groundwater, what caused these temporary increases, how long does it take for each spike to drop, and why is the second spike in MW-2 higher than the first? Is the changing ground temperature the cause of these spikes?

A. The temporary increases, or spikes, in VOC concentrations are believed to have been caused by equipment failures and problems in the operation of the air sparge/vapor extraction system in the Northwest Courtyard. These spikes were first observed in monitoring well MW-9 in the Northwest Courtyard, and then appeared the following month in monitoring well MW-2, located at the site boundary. In MW-2, two well-defined spikes occurred in November/December 1994 and November 1995. After both of these occurrences, groundwater concentrations returned to their baseline levels after 4 months. The NYSDEC cannot explain why the spike which occurred in the fall of 1995 was greater than that which occurred in the fall of 1994. Because both groundwater and subsurface soil temperatures are relatively constant throughout the year, it is unlikely that air temperature fluctuations are the cause of these spikes. Evidence for this includes the lack of spikes in the Interior Courtyard during the winter months, and the fact that spikes in MW-9 occurred in the fall, then diminished during the winter months.

Q. Is there air monitoring conducted in connection with operation of the air sparging system? Have the respirator cartridges of the air sparging technicians been checked? What is being released to the air from the air sparging system?

A. Two types of air monitoring are performed monthly. Concentrations of contaminants in air are measured before and after the carbon filter which is used to control emissions from the site. These are measured first using hand-held instruments, and then samples are taken for laboratory analysis, which provides a better level of detection. The laboratory sample results are used to evaluate compliance with the air emissions permit for the site. During inspection and maintenance of the equipment, hand-held instruments are used to measure contaminant concentrations in the work area as part of the health and safety plan for site technicians. These measurements have not indicated the need for technicians to wear respirators, and so no analysis of respirator cartridges has been done. The level of contaminants in the air emissions has been consistently below the detectable limit, so it is difficult to estimate the exact discharge rate. In August 1996, an alternate analytical method was used, which produced a lower detection limit. Based on detections in those samples, the emission rate is estimated to be 1.1 pound per year of total solvents.

Q. How often is the air sparging system monitored?

A. The system is monitored monthly for vapor-phase contaminant concentrations in the influent and effluent from the carbon filter, and for groundwater concentrations in selected monitoring wells. In addition, the system is connected by remote telemetry, which provides an immediate notification to the operator of equipment failure or system shutoff.

Q. Who changes the carbon filters and how often? Where does the spent carbon go?

A. The carbon filters, which control airborne emissions of contaminants, have been replaced twice since the system began operation in September 1994. This was done by Fluor Daniel GTI, on behalf of the Bulova Corporation. The used carbon is shipped back to the supplier, Calgon Corporation, where the solvents are recovered and the carbon is reused.

Questions Relating to Potential Homeowner Drinking Water Wells in the Area

Q. How was the survey of private (homeowner) wells conducted?

A. The survey of homeowner wells was conducted by the Suffolk County Department of Health Services, which compared water billing records to tax map information to determine possible residences not connected to public water.

Q. What if a person finds contamination in a domestic supply well in the future?

A. If contamination in a private well is determined to be related to a specific inactive hazardous waste disposal site, a carbon filter is installed by the DEC as an emergency action. If this contamination persists, arrangements would be made for connection to a public water supply.

Q. Was the water tested at the Elementary School?

A. Water at the Elementary School is provided by public water supply wells located outside of the area potentially impacted by this site. For this reason the schools water was not tested as part of this site investigation. However, the Sag Harbor public water supply is tested at least quarterly by the Suffolk County Water Authority and must meet all NYSDOH drinking water standards.

Questions Relating to Groundwater Contamination

Q. From what depth were groundwater samples taken during the investigation?

A. Groundwater samples were generally taken from the top of the aquifer (water table wells), with the following exceptions. Wells MW-5 and MW-10, located on-site, are screened 50' below the water table. Groundwater samples taken from Geoprobe™ points GW-2D and GW-3D were taken from a depth of 27' below ground surface, or about 15' below the water table.

Q. How big is the groundwater plume under the site? Where does it start and where does it go?

A. The groundwater plume is approximately 500 feet long and 100 feet wide beneath the site. It begins in the interior courtyard area (MW-4) and ends at the site boundary (MW-2).

Q. Where was the highest detection of contaminants found off-site?

A. The highest detection contaminants in groundwater off site was found in GW-2D, where 29 ppb of trichloroethylene was found.

Q. How can it be that there is no evidence of an off-site groundwater plume? How do you know that you have adequately characterized the plume? Why didn't on-site contaminants continue to migrate off-site?

A. At the time of the off-site investigation, October 1995, the NYSDEC found only sporadic detections of contaminants off site. At that particular point in time, no evidence of an off-site plume was found. If significant releases occurred from the site historically, it is possible that a plume once existed and passed under the Village and out into the Harbor. Since 1994, however, the groundwater treatment system has controlled the off-site migration of contaminants.

Q. Did historical off-site groundwater contamination flow out into the Harbor?

A. Based on the rate and direction of groundwater flow, historic releases of contaminants would have discharged into the Harbor.

Q. How fast is the groundwater flowing under the site? Based on this velocity, why isn't there a plume under the Village? Also, what happened to the spikes of contamination that occurred in MW-2?

A. Groundwater flow is estimated to be 1 foot per day in the area. Based on that velocity, it would take a molecule of water less than 2 ½ years to reach the Harbor after passing under the Village. Because contaminants in groundwater generally move more slowly than water, contaminant flow is expected to be somewhat less. As discussed above, it is possible that a contaminant plume passed under the Village in the past, but there is currently no evidence of one. Once the treatment system began operation in 1994, the high regional groundwater flow rate may have flushed contaminants out from beneath the Village. The spikes of contamination which occurred in MW-2 would likely have migrated off-site under the Village. Because these were short-term releases, they would have mixed with clean groundwater and been somewhat diluted.

Q. Were the analytical methods and instrumentation the same throughout the studies and investigations?

A. Yes, laboratory methods of analyzing samples were consistent throughout the studies.

Q. What is the chemistry of site contaminants in the subsurface? What do they degrade to, is there a microbial mechanism, and is there complete mineralization?

A. The primary contaminants at the site, trichloroethylene and trichloroethane, are degraded in the subsurface by reductive dechlorination, in which chlorine atoms are removed from the parent molecule. The activity of soil microbes is a primary mechanism for this process. The resulting products are dichlorethylenes and dichloroethanes, which have been found at much lower levels beneath the site. The next step in the degradation of these substances is further dechlorination to vinyl chloride (chloroethylene) and chloroethane. These contaminants were not detected during the site investigation. Although complete mineralization to hydrochloric acid and carbon dioxide is theoretically possible, the absence of vinyl chloride and chloroethane would preclude it at this site.

Q. Has seasonal variation in the acidity of rainwater and groundwater been taken into account?

A. Seasonal variation in rainfall and groundwater acidity has not explicitly been taken into account. This variation would only affect the leaching of metals from site soils, and should not affect the chemistry of organic contaminants. The cleanup standards for metals in soils are established based on conservative assumptions for leachability, and the laboratory method for analyzing metals involves an aggressive acid extraction process. By these means, the variation in rainfall acidity has been implicitly factored into the cleanup standards.

Miscellaneous Questions

Q. What is DEC's and DOH's toll-free number?

A. DEC's toll-free number is 1-800-342-9296. DOH's toll-free number is 1-800-458-1158, extension 305.

APPENDIX B:
Administrative Record Index

1. Index

2. Record of Decision (December 1996), Proposed Remedial Action Plan (October 1996), and Related Correspondence

3. Consent Orders (July 11, 1994, September 11, 1995)

Reports:

4. Summary Report for Closure of Class V Injection Wells (Groundwater Technology, February 1994)

5. Interim Remedial Measure Work Plan (Groundwater Technology, Draft Final/Approved, February 1994)

6. Interim Remedial Measure Work Plan, Appendix H:
Operation and Maintenance Plan (Groundwater Technology, Draft Final/Approved, February 1994)

7. Interim Remedial Measure Work Plan, Appendix I:
Quality Assurance Project Plan (Groundwater Technology, Draft Final/Approved, February 1994)

8. Summary Report of Additional Work for Closure of Class V Injection Wells (Groundwater Technology, August 1994)

9. Interim Remedial Measure Work Plan, Appendix J:
Health and Safety Plan (Groundwater Technology, Draft Final/Approved, November 1994)

10. Interim Remedial Measure Report (Groundwater Technology, December 1994)

11. Remedial Investigation / Feasibility Study Work Plan (Groundwater Technology, Draft/Approved, May 1995)

12. Remedial Investigation / Feasibility Study Work Plan, Appendices A and B:
Summary Tables and Drill Logs (Groundwater Technology, Draft/Approved, August 1995)

13. Remedial Investigation / Feasibility Study Work Plan, Appendix C:
Quality Assurance Project Plan (Groundwater Technology, Draft/Approved, May 1995)

14. Remedial Investigation / Feasibility Study Work Plan, Appendix D:
Field Sampling and Analysis Plan (Groundwater Technology, Draft/Approved, May 1995)

15. Remedial Investigation / Feasibility Study Work Plan, Appendix F:
Citizen Participation Plan (Groundwater Technology, Final, October 1995)

16. Remediation Investigation Report (Groundwater Technology, Final, August 1996)

17. Risk Assessment Report (Groundwater Technology, Final, August 1996)

Correspondence Files

18. Foilable Correspondence

19. Non-Foilable Correspondence

APPENDIX E

Explanation of
Significant Differences

EXPLANATION OF SIGNIFICANT DIFFERENCES
BULOVA WATCH FACTORY SITE
Village of Sag Harbor
Town of Southampton
Suffolk County, New York
Site No.: 1-52-139

1.0 INTRODUCTION

A No Further Action Record of Decision (ROD) was issued by the New York State Department of Environmental Conservation (NYSDEC) in December 1996. The selected remedy was to continue operation of the ongoing soil and groundwater remediation system, consisting of two air sparging and soil vapor extraction (AS/SVE) systems to treat volatile organic compounds (VOCs) at the site. The purpose of this Notice is to describe the change in remedial action activities from the initial actions approved in the 1996 ROD for the Bulova Watch Factory Site. After the Department approved permanent shut down of the AS/SVE systems in 1999, results of monitoring samples indicated the presence of residual VOC contamination in soil gas, soils and groundwater. Based on these results, the Department directed Bulova to conduct additional investigation and remediation of the residual VOC contamination.

This Explanation of Significant Difference (ESD) will become part of the Administrative Record for this site. The information here is a summary of what can be found in greater detail in the following document repositories; although this is not a request for comments, interested persons are invited to contact the Department's Project Manager, Mr. Girish Desai, P.E.

NYSDEC, Region One Headquarters
SUNY @ Stony Brook
50 Circle Road
Stony Brook, NY 11790-3409
Mon-Fri: 8:30 am - 4:45 pm

John Jermain Memorial Library
201 Main Street
Sag Harbor, NY 11963
Mon - Wed: 10:00 am - 7:00 pm
Thursday: 10:00 am - 9:00 pm
Fri - Sat: 10:00 am - 5:00 pm
Sunday: 12:00 pm - 4:00 pm

2.0 SITE DESCRIPTION AND ORIGINAL REMEDY

The Bulova Watch Factory Site is located at 15 Church Street in the Village of Sag Harbor, Town of Southampton, Suffolk County, New York. The site is approximately 2.3 acres in size and presently contains one building. The building is a vacant one to four story brick and timber structure and contains several courtyards. The site is located within the historic district of Sag Harbor in a mixed residential/commercial setting. Bulova Corporation owned and operated the facility between 1936-1981. During this period, unknown quantities of 1,1,1-trichloroethane wastes, semi-volatile organic compounds (SVOCs) and metals were released into the environment. The primary location

of chemical and hazardous waste storage was the interior courtyard and a room adjoining that courtyard. A total of four underground storage tanks (USTs) containing fuel oil existed in the interior courtyard, south court yard and western courtyard and adjacent to the drying furnace and have been removed. The investigation and remediation of petroleum-related contamination are being undertaken by the current property owner pursuant to the NYSDEC's Spill response program. The facility has remained vacant since 1981.

Description of Selected Remedy

A No Further Action ROD was issued in December 1996. The ROD selected continued operation of the air sparging and soil vapor extraction treatment systems to remediate groundwater and soil contamination and monitoring of the performance of these remediation systems to ensure that the remediation goals are met. The elements of the selected remedy approved in the ROD were as follows:

- Continued operation of the ongoing soil and groundwater remediation system, consisting of two air sparge/soil vapor extraction (AS/SVE) systems to treat VOCs at the site. One system is located in the interior courtyard to remediate the source area, and the other is located in the northwest courtyard to prevent contaminants from leaving the site property. These systems will be operated until the remediation goals established for the site are achieved, or until it is demonstrated that achieving such goals is not technically practicable.

- Monitoring the performance of the remediation system to ensure that the remediation goals are met.

- Reclassification of the site from a Class 2 to a Class 4 on the New York State Registry of Inactive Hazardous Waste Disposal Sites. A Class 4 inactive hazardous waste disposal site is "a site that has been properly closed but that requires continued operation, maintenance, and /or monitoring."

3.0 CURRENT STATUS

The NYSDEC sent a letter, dated March 12, 1999, approving the request to permanently shut down and dismantle the AS/SVE system. The letter also strongly advised that all on-site groundwater monitoring wells not be abandoned until the site's classification status was resolved. After the permanent shut down and deactivation request was approved by the Department, additional soil gas and groundwater samples were collected to confirm remedial goals had been met for groundwater objectives and also to investigate the soil gas medium, which had not been a requirement at the time of the initial ROD approval. This additional data helped to better define the areal extent of soil gas contamination and groundwater quality in order to aid the supplemental remedial effort.

In June 1999, VOCs were identified in soil gas near the western portion of the interior courtyard. Findings of the investigation determined an area of the interior courtyard, outside the radius of

influence of the original AS/SVE system, as having high levels of VOCs in soil and groundwater. Two supplemental remedial actions were implemented in October and November 2001 and March 2002 to address the remaining VOC impacts. These actions were 1) excavation of shallow-depth VOC-impacted soils from the western portion of the interior courtyard area completed in October and November 2001; and 2) reconfiguration of the existing AS/SVE system in the interior courtyard to address the presence of VOCs in the deeper impacted soils and groundwater. The reconfigured AS/SVE system began operating on March 1, 2002 and was permanently shut down in June 2005.

Groundwater sampling indicates levels of VOCs in groundwater are at asymptotic levels since 2003. Total VOCs in a monitoring well located in the source area showed 132.5 parts per billion in June 2005. These remedial activities have reached their technological limits, and there are no other cost-effective actions available to achieve further significant reductions in residual VOC concentrations in any of the environmental media. In addition, the off-site soil gas migration is limited and vapor intrusion is not currently a concern for adjacent off-site structures. Although the remedial actions (excavation, air sparging, and soil vapor extraction) have significantly reduced the amount of contamination in the subsurface, both groundwater and soil vapor are still contaminated at the site. In January 2006, the Site was purchased by Sag Development Partners, LLC (SDP) with the intention of redeveloping the Site for residential use in accordance with the prior zoning variance obtained by Watch Case Associates (previous site owner) to permit such use on the site.

4.0 DESCRIPTION OF SIGNIFICANT DIFFERENCES

As previously discussed, the results of post- remedial activities indicated the presence of residual VOC contamination in soil gas and groundwater remaining at the site after the Department approved the permanent shut down of the AS/SVE systems in June 2005. Therefore, the following additional measures are required:

- Engineering controls will be required to prevent soil vapor intrusion into above grade residential structures and to prevent direct contact with soils that present a potential exposure concern. Soils that exceed current state residential cleanup objectives may be present in the subsurface, thus excavation of soils associated with the site development process could present a potential exposure to these soils.

- An active sub-floor depressurization system will be installed above the foundation slab of the existing building as part of the ESD remedy, and will be maintained and operated in accordance with the Site Management Plan (SMP). A vapor barrier membrane will be installed over the entire sub-floor depressurization system and the vapor barrier will be covered by a slab to protect membrane integrity.

- An active sub-slab depressurization system (SSD) will be installed below the proposed garage foundation slab and soil-contact sidewalls of the proposed condominium buildings and maintained and operated in accordance with the SMP. An active ventilation system will

be operating in the subgrade garage level, between the soils and the base of the proposed condominium units to aid in mitigating any soil vapor intrusion.

- A vapor barrier will be installed between the garage roof and the floor and soil-contact sidewalls of the proposed condominium buildings and maintained and operated in accordance with the SMP.

- The garage below the proposed condominium buildings will be vented in accordance with the applicable local building codes. The garage vehicular exhaust venting system will operate at all times.

- A subslab mitigation system and vapor barrier will be installed when any future structures/buildings/pool are built at the site. Performance testing of any mitigation system, which may include indoor air quality testing, will be required inside the existing building and any future buildings on the site.

- All mitigation systems will be tested prior to residential occupation in accordance with the SMP. Active systems will need to demonstrate effectiveness at mitigating soil vapor intrusion prior to cessation of an indoor air quality sampling program.

- The existing building foundation and walls will be examined during the construction to determine if any voids/cracks are present that could present vapor migration pathways. Any voids/cracks will be grouted or properly sealed.

- A demarcation layer must be placed and maintained at the bottom of all excavations beneath all landscaped areas and above all sub-surface areas of undisturbed, regraded, or reused Site soil in accordance with the SMP. Any proposed soil excavation on the property below the demarcation layer, or below the new garage slab, or below the existing building foundation slab, will be conducted in accordance with the SMP. The excavated soil and construction wastewater must be managed, characterized, and properly disposed in accordance with the SMP. Non-landscaped areas (buildings, roadways, parking lots, etc.) will be covered by a paving system or concrete at least 6 inches thick. These actions will eliminate the potential risk of direct contact to soils that exceed residential SCG levels.

- Imposition of an institutional control in the form of an environmental easement that would require (a) limiting the use and development of the property to restricted residential use; (b) compliance with the approved site management plan; (c) restricting the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by NYSDOH; and (d) the property owner to complete and submit to the Department a periodic certification of institutional and engineering controls.

- Development of a site management plan which will include: (a) soil gas monitoring and soil vapor intrusion management, including but not limited to, an active above-slab venting

system in the existing building to prevent soil gas intrusion into the residential spaces, installation of necessary vapor barriers in all on-site buildings and installation of a sub-slab venting system in any future buildings constructed on-site; (b) excavated soil and wastewater will be tested, properly handled to protect the health and safety of workers and the nearby community, and will be properly managed in a manner acceptable to the Department; (c) monitoring of soil gas, groundwater and indoor air; (d) vegetable gardens are prohibited; (e) detached single family homes are prohibited; (f) any proposed soil excavation on the site will be conducted in accordance with the SMP; (g) the garage vehicular exhaust venting system and the existing building active sub-floor depressurization system must operate all times; and (h) provisions for the performance monitoring and continued proper operation and maintenance of the sub-slab depressurization systems, including any required post-installation indoor air quality sampling.

- The property owner would provide a periodic certification of the institutional and engineering controls, prepared and submitted by a professional engineer or such other expert acceptable to the Department, until the Department notifies the property owner in writing that this certification is no longer needed. This submittal will: a) contain certification that the institutional controls and engineering controls put in place are still in place and are either unchanged from the previous certification or are compliant with Department-approved modifications; b) allow the Department access to the site; and c) state that nothing has occurred that would impair the ability of the control to protect public health or the environment, or constitute a violation or failure to comply with the site management plan unless otherwise approved by the Department.

5.0 SCHEDULE AND MORE INFORMATION

The December 1996 ROD, October 2006 Final Remedial Action Report (RAR), and March 13, 2007 Addendum to the Final RAR, contain all of the results of all remedial activities at the site and are available at the local document repositories. This Explanation of Significant Differences will be placed in the document repository and will be mailed to all persons on the site mailing list. The environmental consultant for the responsible party and the site owner has submitted a draft site management plan to the NYSDEC that details all Institutional Controls/Engineering Controls (ICs/ECs) related activities. In accordance with the Department's approved site management plan, these ESD site activities will be implemented.

6/13/07
Date

Girish Desai

Girish Desai, P.E.
Project Manager
Region One

6/13/07
Date

Walter Parish, P.E.
Regional Hazardous Waste Remediation Engineer
Region One

6/13/07
Date

Chittibabu Vasudevan, Ph.D., P.E.,
Director, Remedial Bureau A
Division of Environmental Remediation

6/13/07
Date

Sal Ervolina, P.E.
Assistant Division Director
Division of Environmental Remediation

JUN 14 2007
Date

Dale A. Desnoyers
Director
Division of Environmental Remediation

APPENDIX F

Pre-Excavation

Soil Characterization Sampling

Work Plan

REMEDIAL ENGINEERING, P.C.
ENVIRONMENTAL ENGINEERS

209 SHAFTER STREET
ISLANDIA, NEW YORK 11749
TEL: 631-232-2600
FAX: 631 232-9898

January 27, 2009

Mr. Girish Desai
Environmental Engineer 2
New York State Department of Environmental Conservation
Building 40 – SUNY
Stony Brook, New York 11790-2356

Re: Pre-Excavation Soil Characterization Sampling Work Plan
Former Watchcase Factory
15 Church Street
Sag Harbor, New York
Index No. W1-1130-08-12
Site No. 1-52-139

Dear Mr. Desai:

Roux Associates, Inc., (Roux Associates), on behalf of Sag Development Partners, LLC (SDP) and Bulova Corporation (Bulova), has prepared this Pre-Excavation Soil Characterization Sampling Work Plan (Work Plan) for the Former Watchcase Factory (Site) located at 15 Church Street in the Village of Sag Harbor, New York. This Work Plan describes the procedures for the collection of soil samples and protocol for their analysis that will be implemented to satisfy the soil characterization requirements of Section 4.1 of the Site Management Plan (SMP) dated November 15, 2007.

The objectives of performing the pre-excavation soil characterization are as follows:

- Evaluate the quality of soils to be excavated from the Site;
- Determine the appropriate offsite treatment and disposal facility(s) and/or re-use options for soils to be excavated during the redevelopment of the Site; and
- Satisfy the analytical requirements of prospective soil treatment and disposal facilities.

This Work Plan will be implemented prior to beginning excavation/redevelopment of the Site. This will allow time for the NYSDEC, SDP, Bulova, and Roux Associates to review the results of the soil characterization and samples and determine the appropriate soil management procedures and handling logistics.

The protocol presented below is based on the requirements of several potential disposal facilities including, but not limited to, Soil Safe, Inc. in Logan, New Jersey and Clean

Earth of Philadelphia, Inc. in Philadelphia, Pennsylvania. These and other potential disposal facilities each have unique sampling requirements and specific analyses to be performed based on the volume of soil to be disposed. This Work Plan is also based on the following assumptions:

- Approximately 28,000 cubic yards (based on in-place estimates) of soil will be disposed from the Site; and

- Additional sampling may be required based on the analytical results from these samples, the requirements of the specific disposal facilities used during the project, and/or the requirements of NYSDEC.

Soil Characterization Sampling

A total of 45 soil borings will be installed at the Site. Waste characterization soil samples will be collected from each of the soil borings installed. The soil boring locations have been laid out in a grid pattern across each of the proposed excavation areas (Figure 1).

Prior to commencement of intrusive activities, geophysical techniques will be utilized to screen for the presence of utilities and other subsurface objects, unless determined not to be necessary by the NYSDEC. In addition, boring locations will be cleared for the presence of utilities using one or more of the following methods at the discretion of the supervising field geologist or engineer:

- Review of Site utility maps; and

- Manual clearing using a post-hole digger or shovel.

The borings will be installed using a track-mounted Geoprobe™ drill rig or hand tools (for shallow soil borings installed in areas that will be landscaped). In order to properly characterize the soils, 25 soil borings will be installed in the garage area[1], eight soil borings that will be installed in the storm water drainage areas[2] and 12 soil borings will be installed in the landscape areas[3].

Soil samples will be collected continuously in four-foot increments[4] (macrocore) using a Geoprobe™ from land surface to the proposed final depths in each area (Figure 1) as indicated below:

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1 The following borings shown on Figure 1 will be installed in the garage area: WC 1, WC 2, WC 3, WC 4, WC 5, WC 6, WC 7, WC 8, WC 9, WC 10, WC 11, WC 12, WC 13, WC 14, WC 15, WC 16, WC 17, WC 38, WC 39, WC 40, WC 41, WC 42, WC-43, WC-44 and WC-45.

2 The following borings shown on Figure 1 will be installed in the stormwater drainage area: WC-18, WC-19, WC-20, WC-21, WC-32, WC-33, WC-34, and WC-35.

3 The following borings shown on Figure 1 will be installed in the landscaped areas: WC-22, WC-23, WC-24, WC-25, WC-26, WC-27, WC-28, WC-29, WC-30, WC-31, WC-36, and WC-37.

4 Only one sample from the upper two feet of soil will be collected from each boring location in the landscape areas.

- **Garage Area** – to a depth corresponding to an elevation of approximately 9 feet relative to mean sea level (ft rmsl), which is the proposed elevation of the bottom of the garage area excavation. Depending on location, an elevation of 9 ft rmsl corresponds to depths ranging from approximately 5 to 25 feet below land surface (ft bls) due to variations in topography;

- **Stormwater Drainage Areas** – to a depth of approximately one foot above the water table (approximately 12 ft bls) in the stormwater drainage areas; and

- **Landscape Areas** – to approximately two ft bls.

Five of the soil borings to be installed within the proposed garage area will be installed between the two concrete retaining walls adjacent to Sage and Church Streets[5] to depths ranging from 18 to 24 ft bls, which correspond to the 9 ft rmsl bottom of excavation elevation in those locations. The greater depths of the borings at these locations reflect the higher elevations of land surface between the concrete retaining walls relative to the rest of the Site. The retaining walls and the soil between them and the property boundaries along Church and Sage Streets will be removed during excavation of the Site.

Each of the four-foot macrocore samples will be divided into two 2-foot intervals. The soil samples (including the 2-foot samples collected from the landscape areas) will be examined in the field for suspect physical characteristics (i.e., odor, sheen, unusual staining, etc.) and screened in the field for volatile organic compounds (VOCs) using a photoionization detector (PID) equipped with an 11.7 eV lamp. Observations and PID readings will be recorded in a field notebook.

Composite samples will be collected from each soil boring using soil from each of the respective 2-foot sample intervals, at the frequencies indicated in Table 1 and analyzed as described below. Additionally, grab samples will be collected from each soil boring and analyzed as described below. The specific grab sample intervals to be analyzed will be selected based on field screening and observations. The interval(s) from each soil boring showing suspect physical characteristics and/or elevated PID readings will be selected as grab sample intervals. Additional grab samples may be collected as necessary based on field observations, PID reading or as directed by NYSDEC. In addition, a surficial soil sample (i.e., from 0 to 2-inch interval) will be collected and analyzed from any areas where surficial soil is to be left in place.

All cuttings generated from the construction of boreholes will be contained in New York State Department of Transportation (NYSDOT) approved 55-gallon drums. Following the review of the waste characterization analytical data and after receiving approval from the NYSDEC, the cuttings will be transported off-site for treatment and/or disposal at a permitted facility.

[5] The following borings shown on Figure 1 will be installed in the area between the two retaining walls along Sage and Church Streets: WC-, WC-2, WC-43, WC-44 and WC-45.

Laboratory Analyses

The soil samples will be stored on ice in a cooler at 4°C and transported under chain of custody procedures to a New York State Department of Health (NYSDOH) Environmental Laboratory Approval Program (ELAP) certified environmental laboratory for analyses.

Composite soil samples will be analyzed as indicated in Table 1 for the following parameters using the test methods indicated:

- Total petroleum hydrocarbons (TPH) by Method SW-846 8015 (diesel range organics);
- the Target Compound List (TCL)+15 of volatile organic compounds (VOCs) by Method SW-846 8260B;
- the TCL+30 list of semi-volatile organic compounds (SVOCs) by Method SW-846 8270C;
- the Target Analyte List (TAL) of metals including mercury (Method SW-846 6010B/7471), cyanide (SW-846 9012B), and hexavalent chromium (Method SW-846 7196A);
- Toxicity Characteristic Leaching Procedure (TCLP) for VOCs (Method SW-846 1311/8260B), SVOCs (Method SW-846 1311/8270C), pesticides (Method SW-846 1311/8081A), herbicides (Method SW-846 1311/8151A) and metals (Method SW-846 1311/6010B/7470);
- polychlorinated biphenyls (PCBs) (Method SW-846 8082), pesticides (Method SW-846 8081A) and herbicides (Method SW-846 8151A);
- total sulfur (Method SW-846 9038) and total oxygenated halides (TOX) (Method SW-846 9023);
- ignitability (Method SW-846 1030), reactivity (Method SW-846 Chapter 7), corrosivity (Method SW-846 9045); and
- paint filter test (Method SW-846 9095A).

Additionally, the grab samples collected from each soil boring will be analyzed for TPH, the TCL+15 list of VOCs and TCLP VOCs. All analyses will be performed in accordance with the applicable USEPA methods listed above.

The analytical results of the soil samples will be reviewed by Roux Associates and compared to the acceptance requirements of several potential disposal facilities. Based on the evaluation of these results, the appropriate disposal facility(s) will be selected. If

the analytical data indicate that little or no impacts to soil are present, the potential onsite or offsite re-use options will be discussed with and determined by NYSDEC.

A Data Usability Summary Report (DUSR) will be prepared for all analytical data generated during the implementation of this work plan following the NYSDEC guidance for DUSRs. The current resumé of the preparer of any DUSR will be submitted to the NYSDEC for approval.

The results of all waste characterization soil samples will be provided to the NYSDEC for its review. Additional waste characterization sampling may be performed prior to or during excavation activities, if warranted or as required by the NYSDEC.

In addition, an appropriate post-excavation sampling plan will be developed and submitted for NYSDEC review based on the results of the pre-excavation soil sampling.

Sincerely,

ROUX ASSOCIATES, INC.

Christopher Battista
Senior Construction Manager

REMEDIAL ENGINEERING PC

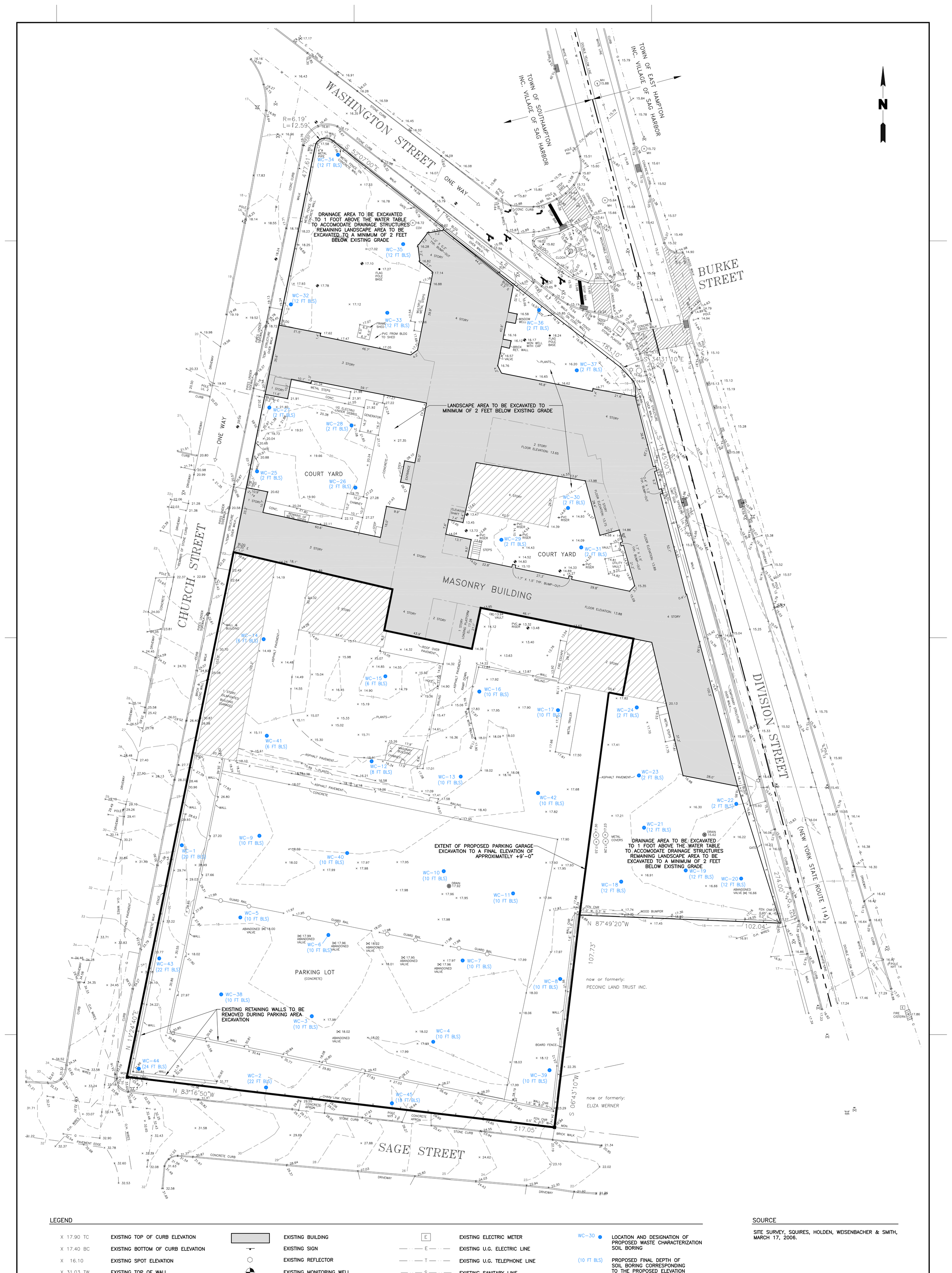
Charlie McGuckin, P.E.
Principal Engineer

cc: Bob Weber, Bulova Corporation
Mitchell Bernstein, Van Ness Feldman
Erik Gustafson, Shaw Environmental
Alf Naman, Sag Development Partners, LLC
Craig Wood, Sag Development Partners, LLC
John McMullen, Sag Development Partners, LLC
David Kronman, Sag Development Partners, LLC
Christine Leas, Sive, Paget & Riesel, P.C.
Mark Chertok, Sive, Paget & Riesel, P.C.
Nathan Epler, Roux Associates, Inc.

Table 1: Summary of Proposed Soil Characterization and End Point Soil Sampling Analyses
6 NYCRR Table 375-6.8(b) VOCs, SVOCs, PCB/Pesticides and Inorganics
Former Watchcase Factory, Sag Harbor, New York

Soil Boring Designation	Soil Boring Location	Final Depth (feet bls)	Composite Sample Interval for SVOCs, PCB/Pesticides and Inorganics Analyses (feet bls)	# Grab Samples per Soil Boring for VOC Analyses	# Grab Samples for VOCs, SVOCs and Metals from Below Proposed Excavation Elevation
WC-1	Garage Area	20	0' – 10' / 10' – 20'	2	NA
WC-2	Garage Area	20	0' – 10' / 10' – 20'	2	NA
WC-3	Garage Area	7	0' – 7'	1	NA
WC-4	Garage Area	7	0' – 7'	1	NA
WC-5	Garage Area	7	0' – 7'	1	NA
WC-6	Garage Area	7	0' – 7'	1	NA
WC-7	Garage Area	7	0' – 7'	1	NA
WC-8	Garage Area	7	0' – 7'	1	NA
WC-9	Garage Area	7	0' – 7'	1	NA
WC-10	Garage Area	7	0' – 7'	1	NA
WC-11	Garage Area	7	0' – 7'	1	NA
WC-12	Garage Area	7	0' – 7'	1	NA
WC-13	Garage Area	7	0' – 7'	1	NA
WC-14	Garage Area	7	0' – 7'	1	NA
WC-15	Garage Area	7	0' – 7'	1	NA
WC-16	Garage Area	7	0' – 7'	1	NA
WC-17	Garage Area	7	0' – 7'	1	NA
WC-18	Stormwater Drainage Area	12	0' – 12'	1	NA
WC-19	Stormwater Drainage Area	12	0' – 12'	1	NA
WC-20	Stormwater Drainage Area	12	0' – 12'	1	NA
WC-21	Stormwater Drainage Area	12	0' – 12'	1	NA
WC-22	Landscape Area	2	Composite sample to be created using soil from WC-22 through WC-24	1	NA
WC-23	Landscape Area	2		1	NA
WC-24	Landscape Area	2		1	NA
WC-25	Landscape Area	2	Composite sample to be created using soil from WC-25 through WC-28	1	NA
WC-26	Landscape Area	2		1	NA
WC-27	Landscape Area	2		1	NA
WC-28	Landscape Area	2		1	NA
WC-29	Landscape Area	2	Composite sample to be created using soil from WC-29 through WC-31	1	NA
WC-30	Landscape Area	2		1	NA
WC-31	Landscape Area	2		1	NA
WC-32	Stormwater Drainage Area	12	0' – 12'	1	NA
WC-33	Stormwater Drainage Area	12	0' – 12'	1	NA
WC-34	Stormwater Drainage Area	12	0' – 12'	1	NA
WC-35	Stormwater Drainage Area	12	0' – 12'	1	NA
WC-36	Landscape Area	2	Composite sample to be created using soil from WC-36 and WC-37	1	NA
WC-37	Landscape Area	2		1	NA
WC-38/PX-1	Garage Area	12	0' – 10'	1	1
WC-39/PX-2	Garage Area	12	0' – 10'	1	1
WC-40/PX-3	Garage Area	12	0' – 10'	1	1
WC-41/PX-4	Garage Area	12	0' – 10'	1	1
WC-42/PX-5	Garage Area	12	0' – 10'	1	1

Notes:
bls - below land surface
VOCs - Volatile Organic Compounds
SVOC - Semivolatile Organic Compounds
PCB - Polychlorinated Biphenyls
NA - Not Applicable



LEGEND

X 17.90 TC	EXISTING TOP OF CURB ELEVATION		EXISTING BUILDING	E	EXISTING ELECTRIC METER
X 17.40 BC	EXISTING BOTTOM OF CURB ELEVATION		EXISTING SIGN	E	EXISTING U.G. ELECTRIC LINE
X 16.10	EXISTING SPOT ELEVATION		EXISTING REFLECTOR	T	EXISTING U.G. TELEPHONE LINE
X 31.03 TW	EXISTING TOP OF WALL		EXISTING MONITORING WELL	S	EXISTING SANITARY LINE
X 29.93 BW	EXISTING BOTTOM OF WALL	MH	EXISTING MANHOLE	G	EXISTING GAS LINE
69.0'	EXISTING BUILDING DIMENSION	COV	EXISTING COVER	G	EXISTING GAS VALVE
17	EXISTING CONTOUR		EXISTING UTILITY POLE	WV	EXISTING WATER VALVE
	EXISTING CONCRETE CURB		EXISTING LIGHT POLE	W	EXISTING WATER MAIN
	EXISTING CONCRETE WALK		EXISTING UNDERGROUND PIPE	W	EXISTING WATER METER
	EXISTING EDGE OF PAVEMENT		EXISTING VALVE		EXISTING HYDRANT
	EXISTING GUIDERAIL	PVC RISER	EXISTING PVC RISER	IS	EXISTING IRRIGATION SPRINKLER
X	EXISTING CHAIN LINK FENCE		EXISTING SINGLE INLET CATCH BASIN		EXISTING STRUCTURE TO BE REMOVED DURING SITE REDEVELOPMENT
	EXISTING SURVEY MONUMENT	DRAIN	EXISTING DRAIN		

WC-30 ● LOCATION AND DESIGNATION OF PROPOSED WASTE CHARACTERIZATION SOIL BORING

(10 FT BLS) PROPOSED FINAL DEPTH OF SOIL BORING CORRESPONDING TO THE PROPOSED ELEVATION OF EXCAVATION BOTTOM IN THAT LOCATION

FT BLS FEET BELOW LAND SURFACE

SOURCE

SITE SURVEY, SQUIRES, HOLDEN, WEISENBACHER & SMITH, MARCH 17, 2006.

Title:

PROPOSED SOIL BORING LOCATIONS FOR WASTE CHARACTERIZATION SAMPLING

FORMER WATCHCASE FACTORY SITE
SAG HARBOR, NEW YORK

Prepared For:

SAG DEVELOPMENT PARTNERS, LLC

ROUX ASSOCIATES, INC.
Environmental Consulting and Management

Compiled by: C.B.	Date: 1JAN09	FIGURE	
Prepared by: G.M.	Scale: AS SHOWN		1
Project Mgr: C.B.	Project: 1262.0010Y000		
File: 1012502.DWG			

N

DIVISION STREET

STORMWATER
DRAINAGE AREA

LANDSCAPE
AREA

LANDSCAPE
AREA

EXISTING FACTORY BUILDING

STORMWATER
DRAINAGE
AREA

LANDSCAPE
AREA

GARAGE

SAGE STREET

CHURCH STREET

LEGEND

- EXCAVATION TO 2 FEET BELOW EXISTING GRADE FOR LANDSCAPE AREA
- EXCAVATION TO A FINAL ELEVATION OF APPROXIMATELY +9'-0" FEET RELATIVE TO MEAN SEA LEVEL
- EXCAVATION TO 1 FOOT ABOVE THE WATER TABLE TO ACCOMODATE DRAINAGE STRUCTURES. REMAINING STORMWATER DRAINAGE AREA AREAS TO BE EXCAVATED TO 2 FEET BELOW EXISTING GRADE

16' 0 16'

NOTES:

1. LANDSCAPE AREAS TO CONTAIN DEMARCATION LAYER AND TWO FEET OF CLEAN FILL AND TOPSOIL FOR LANDSCAPING.
2. STORMWATER DRAINAGE AREAS TO BE COVERED WITH DEMARCATION LAYER AND TWO FEET OF CLEAN FILL IN ALL AREAS WHERE DRAINAGE STRUCTURES WILL NOT BE PRESENT WITHIN THE UPPER TWO FEET OF FINAL GRADE.

SOURCE FILE PROVIDED BY BEYER BLINDER BELLE ARCHITECTS AND PLANNERS LLP.

Title:

SOIL EXCAVATION AREAS DURING SITE CONSTRUCTION

SITE MANAGEMENT PLAN
FORMER WATCHCASE FACTORY

Prepared For:

SAG DEVELOPMENT PARTNERS, LLC

ROUX ASSOCIATES, INC.
Environmental Consulting & Management

Compiled by: JL	Date: 15JAN09	PLATE
Prepared by: GM	Scale: 1/16"=1'-0"	1
Project Mgr: NE	Office: NY	
File No: 1010211	Project: 126210Y	

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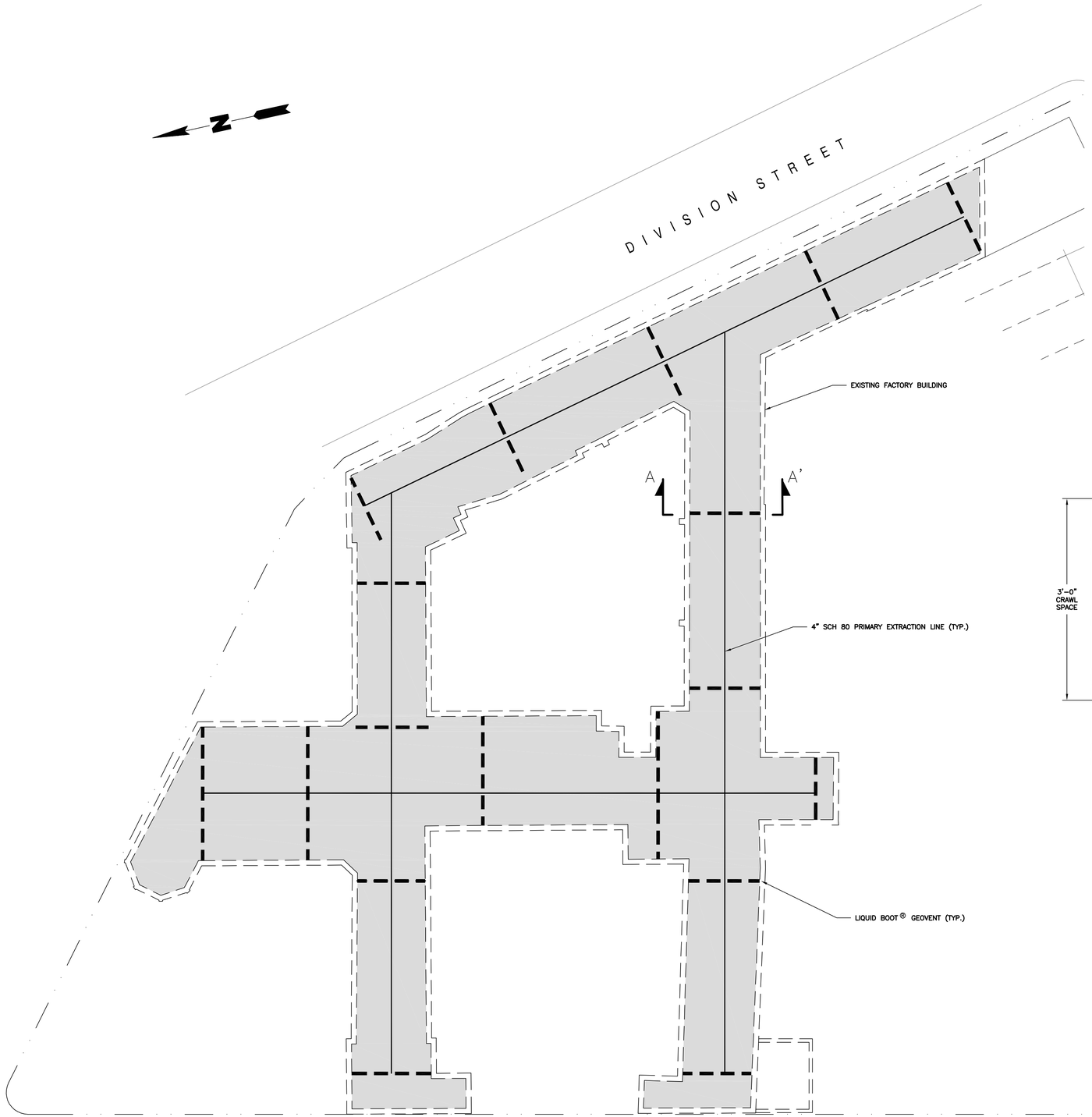
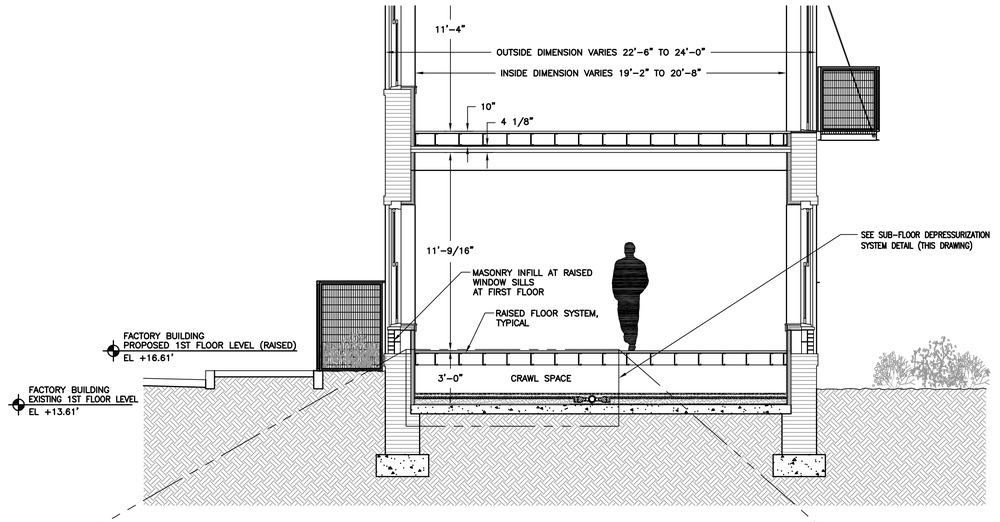


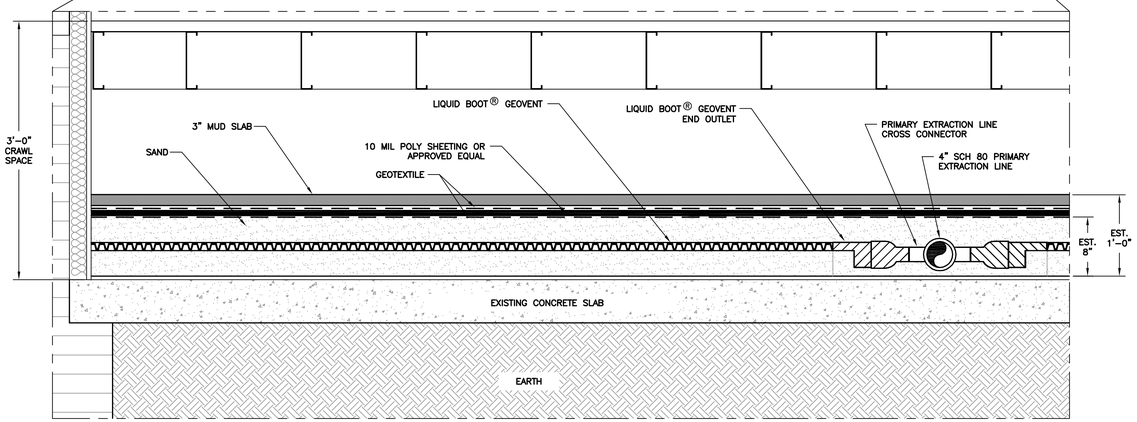
SUB–FLOOR DEPRESSURIZATION SYSTEM LAYOUT
EXISTING FACTORY BUILDING

SCALE: 1/16" = 1'–0"



PROPOSED FACTORY BUILDING SECTION A–A'

SCALE: 1/4" = 1'–0"



SUB–FLOOR DEPRESSURIZATION SYSTEM DETAIL

SCALE: NOT TO SCALE

NOTES:

1. PRIMARY EXTRACTION LINE TO BE CONNECTED TO SUCTION END OF BLOWER FOR SUB–FLOOR DEPRESSURIZATION SYSTEM OPERATION.
2. THE QUANTITY AND LOCATION OF BLOWER UNIT(S) TO BE DETERMINED DURING FINAL SUB–FLOOR DEPRESSURIZATION SYSTEM DESIGN.
3. BLOWER EXHAUST SHALL BE VENTED TO THE ATMOSPHERE A MINIMUM OF 12 INCHES ABOVE THE EAVE OF THE ROOF AND AT LEAST 10 FEET FROM ANY HVAC INTAKE PER NYSDOH FINAL GUIDANCE FOR EVALUATING SOIL VAPOR INTRUSION IN THE STATE OF NEW YORK OCTOBER 2006. VERTICAL EXHAUST PIPE TO BE MOUNTED WITHIN PARTITIONED SECTION OF EXISTING CHIMNEY.
4. FINAL LOCATION OF SUB–FLOOR DEPRESSURIZATION SYSTEM PIPING SHALL BE FIELD ADJUSTED BASED ON FINAL COLUMN FOOTING AND UTILITY LOCATIONS.
5. SYSTEM DEPRESSURIZATION BLOWER TO BE LOCATED IN UTILITY ROOM AS DETERMINED BY ARCHITECT AND PRE–STARTUP PRESSURE FIELD EXTENSION TESTING.
6. PRE–STARTUP PRESSURE FIELD EXTENSION TESTING SHALL CONFIRM FINAL BLOWER SIZE AND CAPACITY TO ACHIEVE A MINIMUM OF 0.004 INCHES OF WATER VACUUM BENEATH THE VAPOR BARRIER.
7. VAPOR BARRIER SHALL COVER THE ENTIRE FLOOR AREA AND BE SEALED AT SEAMS (WITH AT LEAST 12 INCHES OVERLAP) AROUND THE PERIMETER OF INTERIOR PIERS AND TO THE FOUNDATION WALLS.
8. ALL PIPE PENETRATIONS THROUGH THE VAPOR BARRIER SHALL BE SEALED WITH SILICONE SEALANT OR APPROVED EQUAL.
9. DEPRESSURIZATION SYSTEM SHALL INCLUDE VISUAL AND ELECTRONIC MONITORING DEVICES CONSISTING OF A MANOMETER AND AUTODIALER TO BE APPROVED BY ENGINEER.

LEGEND

EXISTING BUILDING FOUNDATION FLOOR SLAB

SOURCE FILE PROVIDED BY BEYER BLINDER BELLE ARCHITECTS AND PLANNERS LLP.

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Title:

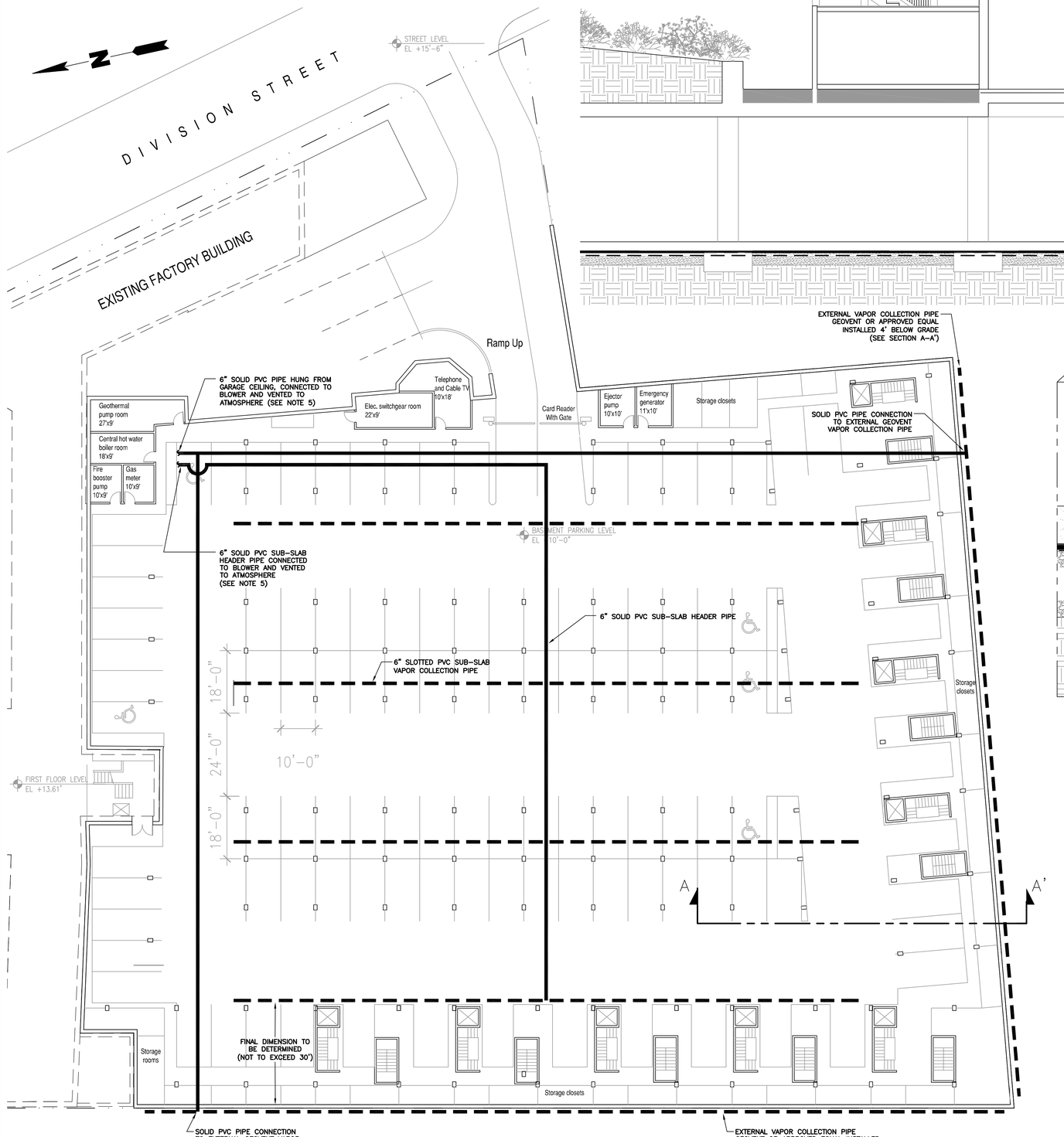
ENGINEERING CONTROLS
FOR EXISTING FACTORY BUILDING

SITE MANAGEMENT PLAN
FORMER WATCHCASE FACTORY

Prepared For:

SAG DEVELOPMENT PARTNERS LLC

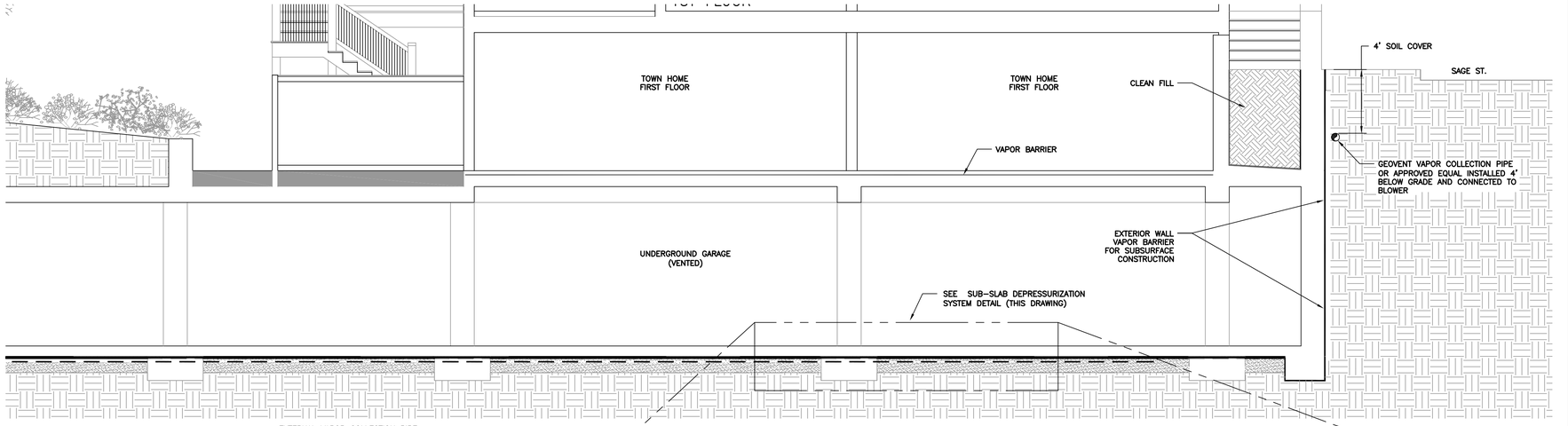
REMEDIAL ENGINEERING, P.C. *ENVIRONMENTAL ENGINEERS*	Compiled by: JL	Date: 15JAN09	PLATE 2
	Prepared by: GM	Scale: AS SHOWN	
	Project Mgr: NE	Office: NY	
	File No: 1010212	Project: 12621OY	



PROPOSED UNDERGROUND GARAGE

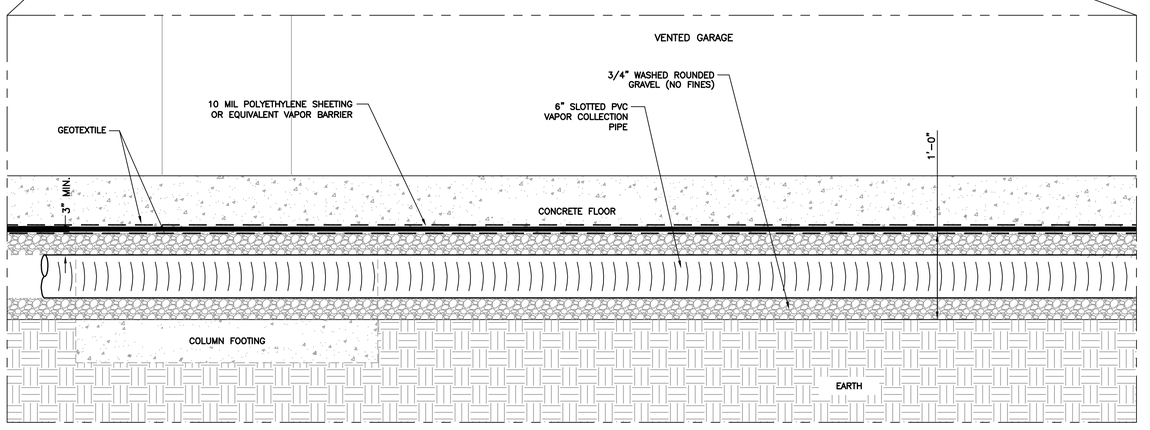
SCALE: 1/16" = 1'-0"

SOURCE FILE PROVIDED BY BEYER BLINDER BELLE ARCHITECTS AND PLANNERS LLP.



PROPOSED UNDERGROUND GARAGE SECTION A-A'

SCALE: 1/4" = 1'-0"



SUB-SLAB DEPRESSURIZATION SYSTEM DETAIL

SCALE: NOT TO SCALE

NOTES:

1. THE UNDERGROUND GARAGE WILL BE MECHANICALLY VENTILATED PER APPLICABLE BUILDING CODES TO REMOVE VEHICLE EXHAUST FROM THE PARKING STRUCTURE.
2. THE TOWNHOUSES WILL BE CONNECTED TO THE UNDERGROUND GARAGE VIA PRIVATE ENCLOSED STAIRWELLS.
3. THE STAIRWELLS WILL BE EQUIPPED WITH CARBON MONOXIDE DETECTORS PER APPLICABLE BUILDING CODES AND WILL BE SEPARATED FROM THE GARAGE BY FIRE RATED SELF CLOSING DOORS.
4. SUB-SLAB VAPOR COLLECTION PIPE SHALL BE INSTALLED WITHIN 1 FOOT WIDE BY 1 FOOT DEEP GRAVEL TRENCH. A MINIMUM OF 3 INCHES OF GRAVEL SHALL UNDERLAY AND OVERLAY VAPOR COLLECTION PIPE.
5. FINAL LOCATION OF VERTICAL PVC EXHAUST PIPE TO BE MOUNTED TO POOLHOUSE EXTERIOR WALL AND VERIFIED WITH ARCHITECT. EXHAUST PIPING SHALL DISCHARGE A MINIMUM OF 12 INCHES ABOVE THE EAVE OF THE ROOF AND AT LEAST 10 FEET FROM ANY HVAC INTAKE PER NYSDOH FINAL GUIDANCE FOR EVALUATING SOIL VAPOR INTRUSION IN THE STATE OF NEW YORK OCTOBER 2006.
6. FINAL LOCATION OF SUB-SLAB DEPRESSURIZATION SYSTEM PIPING SHALL BE FIELD ADJUSTED BASED ON FINAL COLUMN FOOTING AND UTILITY LOCATIONS.
7. SYSTEM DEPRESSURIZATION BLOWER TO BE LOCATED IN GARAGE UTILITY ROOM OR ON POOLHOUSE ROOF AS DETERMINED BY ARCHITECT AND PRE-STARTUP PRESSURE FIELD EXTENSION TESTING.
8. PRE-STARTUP PRESSURE FIELD EXTENSION TESTING SHALL CONFIRM FINAL BLOWER SIZE AND CAPACITY TO ACHIEVE A MINIMUM OF 0.004 INCHES OF WATER VACUUM BENEATH THE SLAB.
9. VAPOR BARRIER SHALL COVER THE ENTIRE FLOOR AREA AND BE SEALED AT SEAMS (WITH AT LEAST 12 INCHES OVERLAP) AROUND THE PERIMETER OF INTERIOR PIERS AND TO THE FOUNDATION WALLS.
10. ALL PIPE PENETRATIONS THROUGH THE VAPOR BARRIER SHALL BE SEALED WITH SILICONE SEALANT OR APPROVED EQUAL.
11. DEPRESSURIZATION SYSTEM SHALL INCLUDE VISUAL AND ELECTRONIC MONITORING DEVICES CONSISTING OF A MANOMETER AND AUTODIALER TO BE APPROVED BY ENGINEER.
12. SOLID PVC PIPES FROM THE SUB-SLAB VAPOR COLLECTION PIPE AND THE TWO SIDEWALL EXTERNAL VAPOR COLLECTION PIPES WILL BE MANIFOLDED INTO A SINGLE BLOWER.

Title:

GARAGE SUB-SLAB DEPRESSURIZATION SYSTEM

SITE MANAGEMENT PLAN
FORMER WATCHCASE FACTORY

Prepared For:

SAG DEVELOPMENT PARTNERS LLC

REMEDIAL ENGINEERING, P.C. *ENVIRONMENTAL ENGINEERS*	Compiled by: J.L.	Date: 15JAN09	PLATE 3
	Prepared by: R.K.	Scale: AS SHOWN	
	Project Mgr: N.E.	Office: NY	
	File No: 1010213	Project: 126210Y	

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