REMEDIAL INVESTIGATION/FEASIBILITY STUDY WORK PLAN

Prepared on behalf of:
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PITTSFIELD, MASSACHUSETTS

for the:
VON ROLL ISOLA USA, INC. FACILITY
SCHENECTADY, NEW YORK

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1.0 INTRODUCTION

1.1 PURPOSE

This work plan has been developed on behalf of the General Electric Company (GE). The purpose of this work plan is to describe the scope of the Remedial Investigation/Feasibility Study (RI/FS) which will be conducted at Von Roll Isola USA, Inc.'s (VRI's) Riverview Facility. The Riverview Facility is currently listed in the New York State Department of Environmental Conservation (NYSDEC) Registry of Inactive Hazardous Waste Disposal Sites (Site No. 447005) as a Class 2 site, for which further investigation is required.

A project-specific Health and Safety Plan (HASP), a Sampling and Analysis Plan (SAP) which includes both the Field Sampling Plan (FSP) and Quality Assurance Project Plan (QAPP), and a Citizen Participation Plan (CPP) have also been developed for use with this work plan. Each of these support plans (i.e., HASP, SAP, and CPP) is presented under separate cover.

The project-specific HASP documents the steps to be taken to protect the health and safety of the workers and immediate community during performance of the RI. The SAP details the specific sampling procedures and outlines the data quality objectives and analytical protocols to document that the data collected during the RI are of sufficient quality to support remedial decisions. The CPP outlines activities to support involvement of the community in the remedial process.

1.2. FACILITY BACKGROUND

1.2.1 FACILITY DESCRIPTION

The Riverview Facility is located off the north side of West Campbell Road in the Town of Rotterdam near the border of the City of Schenectady. The property consists of approximately 52 acres, with 25 acres in active use as a liquid and solid insulation manufacturing facility. The active production area is fenced as shown on the attached Plate 1. The Facility is bounded on the north by a steep embankment and the Delaware and Hudson (D&H) Railroad, the D&H Railroad and Rotterdam Square Mall to the west, Campbell Road and the Town of Rotterdam publicly owned treatment works (POTW) and Campbell Plastics to the south, and residential areas to the east.

The Riverview Facility is situated on a high, flat plateau about 80 feet above the Mohawk River Valley. The ground surface drops off quickly to the north-northeast toward the Mohawk River and more gently to the west and south. Soils underlying the Facility are composed primarily of medium to fine grained silty sand and are characterized as deep, coarse textured and well drained.

A broad line of insulating materials and composites for electrical insulating systems are produced at the Riverview Facility. The liquids manufacturing line at the Facility involves production of alkyd and polyester resins and formulation of epoxies, phenolic and acrylate resin solutions in reactors. The Facility also produces solid tapes that are composed of various substrates such as polyester-glass, paper, mica and polyester. The tapes are laminated with varnishes including polyester, epoxy, acrylate, latex and silicone. Following lamination, the tapes are cured in ovens, slit to correct widths and packaged.

Large quantities of liquid and solid raw materials, products and intermediates are stored on site. Under Resource Conservation and Recovery Act (RCRA), the Facility is currently operating as a less than 90-day storage facility for hazardous wastes generated on site. Hazardous wastes are stored in tote tanks and 55-gallon drums in building RV-42 and are hauled by an outside contractor to a hazardous waste disposal facility.

1.2.2 FACILITY HISTORY

Prior to GE purchasing the Facility in the early 1940s, the property was occupied by a harness racing track and also used for agricultural purposes. GE purchased the property in 1942 and constructed radar development and testing facilities. GE operated the Facility as a radar development plant until GE Insulating Materials group moved into the Riverview Facility and began operating in 1959 or 1960. In March 1988, GE sold the Facility and it was renamed Insulating Materials Incorporated (IMI). Following the purchase of the Facility, IMI continued to produce electrical insulation products and the operations generally remained consistent with GE operations. The Facility was subsequently purchased by VRI in 1995.

A chronology of Spills at the Riverview Facility is included in a report prepared by O'Brien & Gere entitled "Summary Report Riverview Facility Schenectady, New York" dated July 13, 1998.

The Facility was originally classified as a 2A (additional data necessary to fully classify the Facility) based primarily on a 1979 report of a hillside seep north of the

Facility that was described as a reddish oxidated iron leachate with a light oily sheen. In January of 1988, the NYSDEC notified GE that the status of the Riverview Facility had been revised to a Class 2 Inactive Hazardous Waste Disposal Site (Site Code No. 447005) designation.

Based on the September 1989 Assessment of Environmental Conditions Report, NYSDEC requested that GE develop a work scope to complete an additional subsurface assessment of the Facility. GE complied with the request, and a work scope for additional field investigation was compiled and approved by NYSDEC for implementation. The approved work scope was prepared by GTI and is titled " Field Investigation Work Scope" dated December 5, 1991. Subsequently Order-on-Consent, Index No. A4-0240-90-07 between GE and NYSDEC was executed on March 23, 1992. That scope of work was implemented by GTI and reported in the GTI Field Investigation Report dated January 26, 1993.

1.2.3 PREVIOUS INVESTIGATIONS

Numerous environmental studies, investigations, assessments and remedial actions have been undertaken by GE, VRI, and IMI at the Riverview Facility. O'Brien & Gere prepared a report entitled "Summary Report Riverview Facility Schenectady, New York", dated July 13, 1998, that assimilated the information from the previous studies into a concise report that summarized the environmental conditions at the Riverview Facility. Facility information was reviewed from NYSDEC central office files, files supplied by VRI, and off-site files supplied by GE Power Systems of Schenectady. This information was examined to identify the source, nature and extent of contamination at the Riverview Facility and to identify significant data gaps in the existing information that could be filled through further investigations at the Facility.

Using the information collected in the file review, the Summary Report summarized the analysis and interpretation of Facility conditions. Available information and data on the Facility background, including information on buildings, underground tanks, utilities, known past and present hazardous waste treatment or disposal areas were summarized. Available information on the nature and extent of chemicals at the Facility were assembled along with available information on geology, hydrogeology and sampling information for the Facility. Remedial measures undertaken at and in the vicinity of the Facility were also documented.

The Summary Report briefly addressed the Facility history and layout, and also presented a description of the Facility environmental setting. Maps, drawings, and

tables from previous reports were utilized to illustrate the Facility-wide environmental settings.

The reader is referred to the Summary Report for additional details regarding previous investigations and the environmental setting (i.e., site geology, hydrogeology, groundwater quality, and surface water quality) at the Riverview Facility.

2.0 REMEDIAL INVESTIGATION

2.1 GENERAL

As presented in the 1998 Summary Report, considerable investigation activities have been completed at the Riverview Facility. These activities have developed information on soil and groundwater quality for many of the potential areas of concern at the Riverview Facility. In addition, remedial activities have been completed at some of the potential areas of concern.

The objective of this RI is to identify the nature and extent of contamination so that a rational and cost-effective remedial program can be developed. With the overall objective of identifying the nature and extent of contamination at the Riverview Facility, a site characterization program has been developed which focuses on obtaining the additional data necessary for the development and evaluation of remedial alternatives during the FS. Recommendations for investigation activities were presented in the 1998 Summary Report. Based on the recommended investigation activities, and further negotiations with NYSDEC, the scope of the proposed activities for this RI were developed.

The following items are considered the primary components of the RI activities:

- Soil boring and sampling program;
- Groundwater evaluation; and
- Hillside seep sampling.

The remainder of Section 2.0 defines the scope and objectives of the components of the RI activities. Detailed descriptions and procedures which will be used to implement the RI activities are provided in the SAP which was developed under separate cover for use in conjunction with this RI/FS Work Plan.

2.2 SOIL BORING AND SAMPLING PROGRAM

2.2.1 GENERAL

To further evaluate the nature and extent of contamination at potential areas of concern at the Riverview Facility, a soil boring and sampling program is proposed. Sixteen soil borings and six surface soil samples are proposed to be performed at locations across the Facility. The proposed soil boring and surface soil sample locations are shown on

Plate 1. Figures 2.1, 2.2, 2.3, and 2.4 present a more focused view of each of the proposed soil boring and sampling locations. However, the final sampling locations may be modified based on field observations.

Soil boring and surface soil samples will be collected from the following potential areas of concern:

RV-14 VARNISH ROOM LEACHFIELD/DRY WELL (SWMU #6)

Two soil borings (U6-SB-1 and U6-SB-2) are proposed for the immediate vicinity of the RV-14 varnish room leach field / dry well (Figure 2.1) to evaluate the extent of contaminants in the soil. The specific locations of the borings will be identified in the field.

RV-14 FORMER SUPERIOR BOILER FUEL OIL UST (SWMU #8)

Four soil borings (U8-SB-1, U8-SB-2, U8-SB-3, and U8-SB-4) will be advanced in the immediate vicinity of the former superior boiler fuel oil UST (Figure 2.1).

RV-37 FORMER RCRA TANK (SWMU #19)

Three soil borings (U19-SB-1, U19-SB-2, and U19-SB-3) will be advanced in the immediate vicinity of the former RCRA tank (Figure 2.2).

RV-33 RAW MATERIAL TANK FARM (SWMU #18)

Four soil borings (U18-SB-1, U18-SB-2, U18-SB-3, and U18-SB-4) will be advanced in the RV-33 raw material tank farm (Figure 2.3).

FORMER RCRA DRUM STORAGE AREA (SWMU #25)

Three soil borings (U25-SB-1, U25-SB-2, and U25-SB-3) will be advanced in the immediate vicinity of the former RCRA drum storage area (Figure 2.2).

RV-16 SPILL BETWEEN BUILDING RV-16 AND RV-16 CATCH BASIN

Six surface soil samples (B16-SS-1, B16-SS-2, B16-SS-3, B16-SS-4, B16-SS-5, and B16-SS-6) will be collected in the immediate vicinity of the previous spill between Building RV-16 and the RV-16 catch basin (Figure 2.4).

2.2.2 DRILLING PROGRAM

Soil borings will be advanced to minimum 20-foot depth and extend below evidence of impacts or to the groundwater table (approximately 65 feet). Drilling will be performed using direct push or hollow-stem auger drilling techniques and soil samples will be collected in 2-foot intervals according to American Society for Testing and Materials (ASTM) Method D-1586-84. Soil samples will be screened for the presence of volatile organic compounds (VOCs) with a portable photoionization detector (PID).

Soil samples will be logged and retained on site for geotechnical analysis, if necessary. Test boring logs describing subsurface materials encountered in each of these borings will be prepared by the on-site geologist or hydrogeologist. Descriptions of soil sample texture, composition, color, consistency, moisture content, and recovery will also be recorded. Soil samples from these borings will also be screened with a portable PID.

2.2.3 SOIL SAMPLE COLLECTION AND ANALYSIS

Two soil samples will be collected from each soil boring location. In areas where there was a known or potential surface spill, one soil sample will be collected from the 2 to 4-foot below ground surface depth interval and one will be collected at depth (i.e., deepest 2-foot interval). In areas where there was a known or potential release from an underground tank or drywell, one soil sample will be collected from the 2-foot interval beginning at the approximate depth corresponding to the bottom of the underground tank or drywell; the other soil sample will be collected at depth. However, in either situation, if field observations (i.e., visual or PID readings) indicate contamination in other depth intervals, other than the upper sample intervals described above, then the interval exhibiting the greatest suspected contamination will be submitted for laboratory analyses. As described above, soil borings will be advanced to minimum 20-foot depth and extend below evidence of impacts or to the groundwater table (approximately 65 feet).

The soil boring and surface soil samples will be collected during the drilling program in accordance with the SAP and will be submitted for laboratory analyses. The samples will be analyzed for Target Compound List (TCL) VOCs, TCL semi-volatile organic compounds (SVOCs), phenols, PCBs, and total petroleum hydrocarbons (TPH) in accordance with SW-846 methods.

2.2.4 DECONTAMINATION

The soil boring and surface soil sampling program will include decontamination procedures to prevent potential contaminants from being introduced into the borehole or transferred across the Facility. Details regarding decontamination procedures are presented in the SAP. Decontamination water will be collected and stored for subsequent characterization and off-site disposal in accordance with the SAP.

2.3 GROUNDWATER EVALUATION

2.3.1 GENERAL

In order to further evaluate the hydrogeologic setting at the Riverview Facility, a groundwater evaluation will be performed. The following items are considered the primary components of the groundwater evaluation:

- Rehabilitation of existing monitoring wells;
- Well abandonment program;
- Water level measurements;
- Drilling and installation of additional monitoring well;
- Decontamination procedures;
- Well development;
- Groundwater sampling; and
- Hydraulic conductivity testing.

Seven new shallow unconsolidated unit monitoring wells, one new double-cased deep monitoring well and two replacement monitoring wells are proposed for locations across the Riverview Facility. Three existing monitoring wells will be rehabilitated, and three monitoring wells and fifteen vapor extraction wells will be decommissioned. The existing and proposed new well locations are shown on Plate 1. However, the final location of the proposed new wells may be modified based on the results of the soil sampling program and field observations.

The eight new monitoring wells will be installed at the following locations:

- Two new shallow monitoring wells (VRI-1 and VRI-2, Plate 1) will be installed west of the western Facility fence line, northwest of building RV-33 to investigate

groundwater to the west of building RV-33 and west of wells GT-6 and GT-13. Additionally, water level data will be provided to better define groundwater flow in the northwestern portion of the Facility;

- Two new shallow monitoring wells (VRI-3 and VRI-4, Plate 1) will be installed between existing wells GT-14 and GT-15 to investigate groundwater quality downgradient of the RV-33 north tank farm area;
- Two new shallow monitoring wells (VRI-6 and VRI-7, Plate 1) will be installed in the northeastern portion of the Facility to investigate potential groundwater impacts from the RV-14 varnish room dry well/leach field, RV-14 former Superior Boiler oil storage tanks and RV-14/15 boiler dry well. One well will be located immediately north of building 13 and one well will be located southeast of Building 13.
- One new upgradient shallow monitoring well (VRI-8, Plate 1) will be installed near the entrance road to provide additional background water quality data, especially inorganic parameters; and
- One new deep double-cased monitoring well (VRI-5, Plate 1) will be installed adjacent to existing well GT-15 to further evaluate the hydrogeology of the VRI Riverview Facility and its relationship with the groundwater on the GE Power Systems Main Site. This deep well will also be used to evaluate vertical hydraulic gradients and deeper overburden groundwater quality.

Additionally, monitoring wells GT-2 and GT-9 will be replaced by new wells if well GT-2 cannot be repaired and well GT-9 cannot be located.

2.3.2 EXISTING MONITORING WELL REHABILITATION AND ABANDONMENT PROGRAM

2.3.2.1 MONITORING WELL REHABILITATION

Based on the examination of the existing monitoring well network at the Riverview Facility performed as part of the Summary Report, each of the existing monitoring wells at the Facility will be redeveloped to remove fine-grained materials from the well. Well development will be done in accordance with the procedures outlined in the SAP.

Attempts will be made to repair well GT-2. If it is not possible to repair the well it will be properly abandoned in accordance with the procedures described in the SAP.

The protective casing for monitoring wells GT-3 and GT-15 will be replaced and a locking cap will be installed on monitoring well GT-7.

2.3.2.2 MONITORING WELL ABANDONMENT

Based on field observations, existing monitoring wells GT-6 and GT-11 cannot be repaired and will be properly decommissioned by grouting the well from the bottom with a cement/bentonite grout in accordance with the procedures described in the SAP. Additionally, the 15 existing vapor extraction wells will be similarly decommissioned by grouting.

2.3.3 WATER LEVEL MEASUREMENTS

To further evaluate VRI Riverview Facility groundwater flow directions, groundwater elevation measurements will be obtained from all existing monitoring wells at the Facility. The first round of water level measurements will be obtained from the existing monitoring well network at the Facility. This first event will be performed following the completion of the well redevelopment program and will be collected to confirm previous results. In addition, a full round of groundwater elevation measurements will be obtained from the new and existing monitoring wells following the completion of the well installation program. Additional water level monitoring will be conducted in conjunction with groundwater sampling.

Water level measurements will be obtained in accordance with the procedures presented in the SAP.

2.3.4 DRILLING AND MONITORING WELL INSTALLATION PROCEDURES

2.3.4.1 DRILLING

Soil borings for the shallow water table monitoring wells will be advanced through the unconsolidated deposits utilizing 4 1.4-inch hollow-stem auger drilling techniques. Split-barrel samples will be obtained at each location according to ASTM Method D-1586-84 in advance of the hollow-stem augers. Test boring logs describing subsurface materials encountered in each of these borings will be prepared by the on-site geologist or hydrogeologist. Descriptions of soil sample texture, composition, color, consistency, moisture content and recovery will also be recorded. Soil samples from these borings will also be screened with a portable PID for health and safety purposes.

For the new double-cased deep monitoring well installation, the soil boring will be advanced to a depth of approximately 5 feet into the confining layer utilizing 6 1/4-inch ID hollow-stem augers. The unsaturated and upper water table zones located above the confining layer, which is anticipated to be present at a depth of approximately 90 feet below grade, will be cased off using a 5-inch diameter steel or polyvinyl chloride (PVC) casing grouted into place. A cement-bentonite grout will be tremied into the annulus between the casing and the borehole. As the grout is pumped into the annulus, the tremie pipe will be kept within the grout as it is placed so that a continuous seal is achieved. The cement grout will be allowed to set overnight before further drilling is initiated. Remaining grout inside the casing will be drilled out using a 4-inch diameter roller bit. The deep monitoring well will be drilled to final depth using a 4-inch OD flush joint drive casing.

2.3.4.2 MONITORING WELL INSTALLATION

The monitoring wells will consist of 2-inch ID threaded PVC or fiberglass reinforced, flush joint casing and screens completed approximately 8 to 10 feet into the groundwater. The deep monitoring well will be completed at a depth below the confining layer. Screens will be 10 feet in length and slot openings will be 0.010 inches. The annulus around the screens will be backfilled with an appropriate size of silica sand such as Morie #0 sand to a minimum height of two feet above the top of the screen. A bentonite pellet seal will be placed above the sand pack to form a seal at least 2 feet thick. The seal will be allowed to hydrate before placement of grout above the seal.

The remainder of the annular space will be filled with a cement-bentonite grout to ground surface. The grout will be pumped through a tremie pipe. The grout mixture will be prepared in accordance with ASTM D-5092-90. The new monitoring wells will be completed with either standpipe or flush mounted lockable protective casings. Following installation, each new well will be developed in preparation for groundwater sampling and water level measurements.

2.3.5 DECONTAMINATION PROCEDURES

The monitoring well drilling and installation program will also include decontamination procedures to prevent potential contaminants from being introduced into the borehole or transferred across the Facility.

In addition, well construction materials will be transported to the Facility in factory sealed plastic. In the event the well construction materials are not sealed, they will be decontaminated before installation.

Decontamination water will be collected and stored for subsequent characterization and off-site disposal in accordance with the SAP.

2.3.6 WELL DEVELOPMENT

Following the completion of the monitoring well installation program, each monitoring well will be developed prior to groundwater sampling. Each newly-constructed monitoring well will be developed to:

- Remove fine-grained materials from the sand pack and formation;
- Reduce the turbidity of groundwater samples; and
- Increase the yield of the well to reduce the potential of the well yielding an insufficient volume of water during groundwater sampling.

The monitoring wells will be developed as soon as possible, but not less than 24 hours after installation. Groundwater and surface soil/sediments resulting from the well development will be managed as described in the SAP. The wells will be developed using the procedures presented in the SAP.

2.3.7 GROUNDWATER SAMPLING

Subsequent to well development activities, two rounds of groundwater samples will be collected from each newly installed well and existing monitoring wells for laboratory analysis using United States Environmental Protection Agency (USEPA) SW-846 methods. The groundwater sampling events will be scheduled such that one round will be obtained during low groundwater level conditions (typically in late summer-early fall) and the other round of measurements will be obtained during a period of relatively high groundwater level conditions (typically late winter-spring time). Round 1 groundwater samples will be analyzed for:

- TCL VOCs;
- TCL SVOCs;
- Target Analyte List (TAL) total metals;

- Total cyanide;
- Total phenols;
- TCL pesticides / PCBs; and
- Total petroleum hydrocarbons (TPH).

Round 2 groundwater samples will be analyzed for:

- TCL VOCs;
- TCL SVOCs;
- TAL total metals; and
- TPH.

The specific laboratory analytical methods are presented in the QAPP portion of the SAP. Prior to the collection of each round of groundwater samples, water level measurements will be collected from the existing and newly installed monitoring wells.

2.3.8 HYDRAULIC CONDUCTIVITY TESTING

Subsequent to groundwater sampling activities, the hydraulic conductivity of the screened interval of each newly installed well and a subset of the existing monitoring wells will be tested. Six of the existing monitoring wells have already been tested during previous investigations (i.e., GT-1, GT-2, GT-3, GT-4, GT-8, and GT-9), and will therefore not be tested again. The hydraulic conductivity testing will be performed in situ by performing slug and / or bail tests. Test procedures are described in the SAP.

2.4 HILLSIDE SEEP SAMPLING

As part of the site investigation, the hillside north of the Riverview Facility will be investigated for seeps previously reported. Two rounds of seep samples of up to five distinct seeps will be sampled. The seeps will be marked in the field and surveyed to accurately determine the locations and elevations. The seep samples will be analyzed for the same parameters as the Round 1 and Round 2 groundwater samples discussed in Section 2.3.7.

2.5 SURVEYING

Each of the newly installed monitoring wells, soil borings, surface soil sample locations, and hillside seep sample locations will be surveyed for horizontal and vertical control and will be incorporated into the existing VRI Riverview Facility base map. Monitoring wells will be surveyed vertically to the nearest 0.01 feet at the top of the riser pipe (measuring point) and top of protective steel casing. Ground surface at each location will be surveyed to the nearest 0.1 feet.

The vertical datum used for surveying will be based on published USGS elevations.

2.6 REMEDIAL INVESTIGATION REPORT

Following the completion of the soil boring program and the Round 1 groundwater sampling event, a data summary report of the RI activities will be provided to the NYSDEC. This draft data summary report will be submitted to NYSDEC approximately 4 weeks after the data validation has been completed. In the event the results of the RI do not adequately characterize the nature and extent of constituents in the investigation areas, the data gaps will be identified and a Phase II SOW will be proposed in the data summary report.

The Final RI Report will present the results of the comprehensive RI. The format of the RI Report will include the following:

- Introduction;
- Investigation description;
- Physical site characteristics;
- Sampling and analysis results;
- Nature and extent of contamination;
- Summary and conclusions;
- References;
- Tables;
- Figures; and
- Appendices.

The delivery schedule is presented in Section 7.0.

3.0 DATA MANAGEMENT PLAN

3.1 DATA MANAGEMENT

Data management procedures are established to effectively process the data generated during the RI/FS such that the relevant data descriptions (sample numbers, methods, procedures, etc.) are readily accessible and accurately maintained. Data will be collected and recorded in a variety of ways during this project. These include standard field forms (such as field data sheets, chain-of-custody forms, and soil boring logs) and laboratory generated data. Each of these original forms will be kept in a file maintained by Conestoga-Rovers & Associates (CRA) throughout the project. Data which lends itself to computerization, such as analytical data, will be placed in a data storage system. The computerized system will be capable of basic data reduction, manipulation, and reporting functions.

Daily progress reports will be made by telephone from the field technicians to CRA's RI Manager or Quality Assurance (QA) Coordinator during the field investigation portions of the project.

NYSDEC will be kept apprised of the progress and results of the investigation through monthly progress reports and, as appropriate, via telephone calls.

3.2 DATA PRESENTATION

Data generated during the RI/FS will be arranged and presented in a report in a clear and logical format using tables, graphs, and figures. Analytical data will be presented on computer-generated summary tables. Various data summaries will include analytical results sorted by sample location.

Graphical displays will present the Facility layout and sample locations. To the extent practical, maps depicting the areal extent of contaminant concentrations will be prepared. Generally, graphical displays will be prepared using computer-aided design/drafting (CADD) techniques.

4.0 PROJECT MANAGEMENT PLAN

4.1 PROJECT ORGANIZATION AND RESPONSIBILITY

An organizational framework and management control system capable of executing the work of the RI/FS will incorporate an integrated structure where each member understands his function and its relationship to the overall project. Lines of communication will be maintained between project personnel and the RI/FS Managers. Communication will also be maintained regularly between the Project Officer, the RI/FS Managers and GE's Project Manager.

While each individual involved in the RI/FS and in the generation of data are implicitly part of the overall project and QA program, certain individuals have specifically designated responsibilities. GE will act as the lead in the RI/FS. Investigation support will be provided to GE by CRA. Within CRA, individuals with specifically designated responsibilities are the Project Officer, the Technical Coordinator, the RI Manager, the FS Manager, the QA Coordinator, the Data Validator(s), and the Environmental Technician(s). Specific laboratory responsibilities will be designated upon selection of a laboratory for this project.

4.1.1 PROJECT OFFICER

The Project Officer will be responsible for the overall corporate management of the investigation and for the completion of work specified in the work plan. It will be his responsibility to provide for the allocation of staff and other resources required to complete the project within the specified schedule and budget.

4.1.2 TECHNICAL COORDINATOR

The Technical Coordinator will provide technical support to the RI Manager regarding the implementation and completion of the tasks identified in the Work Plan and will be responsible for the overall technical quality control of the RI.

4.1.3 REMEDIAL INVESTIGATION MANAGER

The RI Manager will have responsibility for the implementation and completion of each of the tasks identified in the work plan. The RI Manager will manage the technical and

administrative aspects of the project and function as the firm's principal client contact for the project.

4.1.4 FEASIBILITY STUDY MANAGER

The FS Manager will have responsibility for the preparation of the FS and also participate in the RI scoping process to ensure that the collected data will be useful in screening and implementation of remedial alternatives.

4.1.5 QUALITY ASSURANCE COORDINATOR

The QA coordinator will review project plans and revisions to the plans to maintain proper QA throughout the investigation. In addition, the QA coordinator will be responsible for performance and system audits, data processing activities, data processing quality control, data quality review, corrective actions, and coordinating the QA/QC efforts between CRA and the laboratory(ies).

4.1.6 DATA VALIDATOR(S)

The data validator(s) will be responsible for validating analytical data received from the laboratory. Validation reports generated by the validator will be submitted to the QA Coordinator, for review.

4.1.7 SUPPORT STAFF AND ENVIRONMENTAL TECHNICIANS

The key project personnel identified above will be supported by additional personnel during various phases of the project.

Field implementation of this investigation will be conducted by experienced geologists, hydrogeologists, chemists, engineers, and/or environmental technicians. Their responsibilities will include the documentation of proper sample collection protocols, sample collection, equipment decontamination, and chain-of-custody documentation. Each sampling team will be under the supervision of a team leader. In addition to the responsibilities above, team leader responsibilities include the initializing and accurate verification of field notebooks, chain-of-custody records, sample labels, and other field related documentation.

4.1.8 LABORATORY QUALITY ASSURANCE OFFICER

The Laboratory QA Officer (QAO) will be responsible for laboratory QA/QC activities associated with the project. The specific duties of the Laboratory QAO include determining whether analyses are conducted within the appropriate holding times and that laboratory custody procedures are followed. Moreover, the Laboratory QAO monitors daily precision and accuracy records, maintains detailed copies of all procedures, reschedules analyses based upon unacceptable data accuracy or precision, and identifies and implements corrective actions necessary to maintain QA standards. The Laboratory QAO or his/her designee will conduct initial validations and assessments of analytical data results and report the findings directly to the QA Coordinator. The Laboratory QAO will be identified upon selection of a laboratory for this project.

4.1.9 LABORATORY SAMPLE CUSTODIAN

The Laboratory Sample Custodian's responsibilities include verifying proper sample entry and sample handling procedures by laboratory personnel. The Laboratory Sample Custodian will be identified upon selection of a laboratory for this project.

5.0 FEASIBILITY STUDY

An FS will be performed utilizing a stepwise approach. The first step involves the development of remedial action alternatives. These alternatives are screened, as necessary or appropriate, during the second step. The third and final step involves the detailed analysis of the remaining remedial alternatives according to the selection criteria specified in the National Contingency Plan (NCP). This process culminates in the recommendation of one or more remedial alternatives in the FS Report.

5.1 DEVELOPMENT OF REMEDIAL ALTERNATIVES

The development of remedial alternatives will involve the following six-step process:

- Development of remedial action objectives specifying the constituents and media of interest, exposure pathways, receptors, and acceptable contaminant levels for each exposure route that permits a range of treatment and containment alternatives to be developed;
- Development of general response actions for each medium of interest, defining containment, treatment, excavation, pumping, or other general actions which might satisfy the remedial action objectives;
- Identification of the volume of material and area(s) of contamination to which the general response actions might be applied;
- Identification and screening of technology types applicable to each general response action to eliminate those that are not implementable;
- Identification and screening of process options in terms of effectiveness, implementability and cost to select a representative process for each technology type; and
- Assembly of the technologies and process options into remedial alternatives, preserving a range of treatment and containment choices.

Data gathered during the RI is used to identify and screen technology types and process options. Technologies that could prove difficult to implement, might not achieve the remedial action objectives within a reasonable time frame, or might not be applicable or feasible based on site-specific conditions, are eliminated from further consideration.

5.2 SCREENING OF REMEDIAL ALTERNATIVES

The remedial alternatives developed in the previous task may undergo an initial screening to reduce the number of remedial alternatives for detailed analysis. This screening will be accomplished by evaluating alternatives on the basis of effectiveness, implementability (both technical and administrative) and cost. The range of remedial alternatives will, however, be preserved during the screening. Innovative technologies will be considered throughout the screening process to determine if they provide a potential for better performance, easier implementation, or cost savings relative to demonstrated technologies.

5.3 DETAILED EVALUATION OF REMEDIAL ALTERNATIVES

A detailed evaluation of the remedial alternatives which remain following the preliminary screening will be conducted. This detailed evaluation of the remaining remedial alternatives will be performed according to the criteria specified in the NCP. The seven criteria against which the remedial alternatives will be evaluated are:

- Overall protection of human health and the environment;
- Compliance with legally applicable or relevant and appropriate requirements (ARARs);
- Short-term impacts and effectiveness;
- Long-term effectiveness and permanence;
- Reduction of toxicity, mobility or volume;
- Implementability (technical and administrative); and
- Cost (capital, annual operation and maintenance and present worth).

Following the evaluation of each remedial alternative, a comparative analysis will be performed to determine the relative performance of each remedial alternative against the seven criteria. The remedial alternative(s) that rank the best against the evaluation criteria will be recommended as the preferred alternative(s) in the FS Report.

Two additional evaluation criteria, state and community acceptance, must be addressed by the NYSDEC in the Proposed Remedial Action Plan (PRAP) and/or the Record of Decision (ROD).

5.4 FEASIBILITY STUDY REPORT

The results of the evaluation of remedial alternative will be documented in an FS Report. The report will be submitted to the NYSDEC for review and comment.

The following proposed outline will be generally followed during completion of the FS Report.

1. Introduction
    - 1.1 General Background
    - 1.2 Project Objectives
    - 1.3 Report Organization
2. Site Background
    - 2.1 Site Location
    - 2.2 Site History
    - 2.3 Remedial Investigation Summary
        - 2.3.1 Geology
        - 2.3.2 Hydrogeology
        - 2.3.3 Constituents in Groundwater
        - 2.3.4 Constituents in Soil
3. Development of Alternatives
    - 3.1 Remedial Action Objective Development
        - 3.1.1 Exposure Pathways
        - 3.1.2 Migration Pathways
        - 3.1.3 Remedial Action Objectives
    - 3.2 General Response Actions
    - 3.3 Volumes and Areas of Media Identification and Screening of Remedial Technologies and Process Options
    - 3.5 Evaluation of Process Options
    - 3.6 Remedial Alternatives
4. Identification of ARARs
5. Detailed Analysis of Alternatives
    - 5.1 Individual Analysis of Alternatives
        - 5.1.1 Overall Protection of Human Health and the Environment

6.0 SCHEDULE

A tentative project schedule for the RI/FS is presented on Figure 6.1. In preparing the schedule, it is assumed that the NYSDEC will comment on reports. Therefore, 45 days has been allotted for the NYSDEC's review of report submittals. In addition, it is assumed that no delays will occur in obtaining access to adjacent properties, if necessary. The schedule may need to be modified during the course of the investigation. The completion of tasks that are subsequent to the RI, including the FS, will be contingent upon the completion schedule of the RI. Schedule modifications will be proposed to NYSDEC and incorporated as amendments to this work plan.

7.0 REFERENCES

O'Brien & Gere Engineers, Inc., July 13, 1998. Summary Report, Riverview Facility, Schenectady, New York.

Conestoga-Rovers & Associates, July 2001. Health and Safety Plan, Riverview Facility, Schenectady, New York

Conestoga-Rovers & Associates, July 2001. Sampling and Analysis Plan, Riverview Facility, Schenectady, New York

Conestoga-Rovers & Associates, July 2001. Citizen Participation Plan, Riverview Facility, Schenectady, New York

NO	Revision	Date	Initial

LEGEND

- GT-12 — EXISTING GROUND WATER MONITORING WELL
- RV14-1 — EXISTING SOIL VAPOR EXTRACTION WELL
- SMH — MANHOLE
- CB — CATCH BASIN
- PROPERTY BOUNDARY LINE
- CHAIN LINK FENCE
- VRI-3 — PROPOSED GROUND WATER MONITORING WELL
- U8-SB-1 — PROPOSED SOIL BORING
- VRI-1 — PROPOSED HILLSIDE SEEP SAMPLING LOCATION
- SB98-7 — PROPOSED SURFACE SOIL SAMPLE

SCALE VERIFICATION

THIS BAR MEASURES 1" ON ORIGINAL. ADJUST SCALE ACCORDINGLY.

Approved

DRAWING STATUS

Status	Date	Initial

VRI-RIVERVIEW FACILITY
Schenectady, New York

SITE MAP

CONESTOGA-ROVERS & ASSOCIATES

Source Reference:			
Project Manager: J.P.	Reviewed By:	Date: JULY 2001	
Scale: AS SHOWN	Project N°: 18631-99	Report N°: 001	Drawing N°: PLATE 1

18631-99/001/GN-W4001 JLR 12/2001

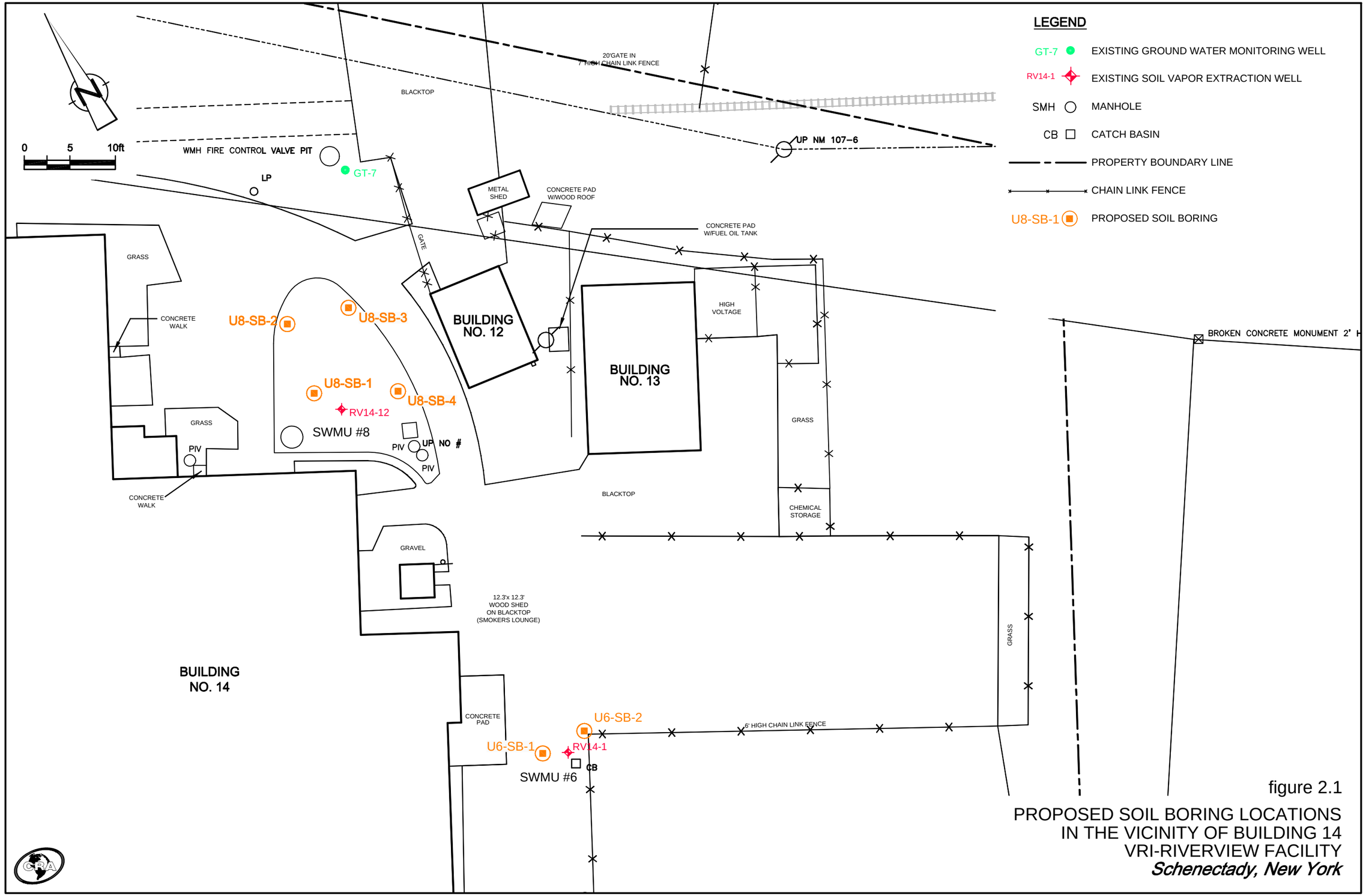

figure 2.1

PROPOSED SOIL BORING LOCATIONS
IN THE VICINITY OF BUILDING 14
VRI-RIVERVIEW FACILITY
Schenectady, New York

18631-99(001)GN-WA005 JUL 12/2001

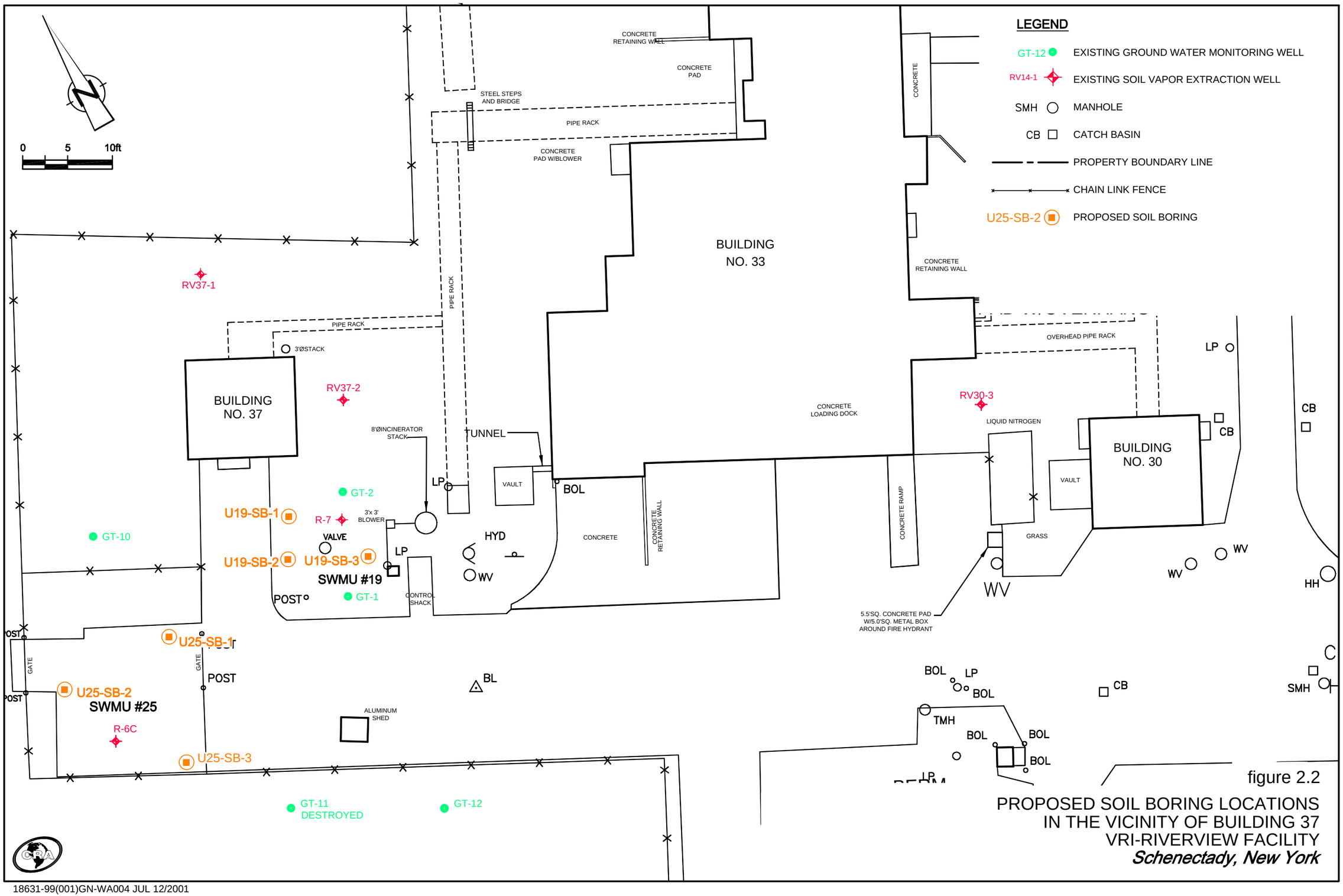

figure 2.2

PROPOSED SOIL BORING LOCATIONS
IN THE VICINITY OF BUILDING 37
VRI-RIVERVIEW FACILITY
Schenectady, New York

18631-99(001)GN-WA004 JUL 12/2001

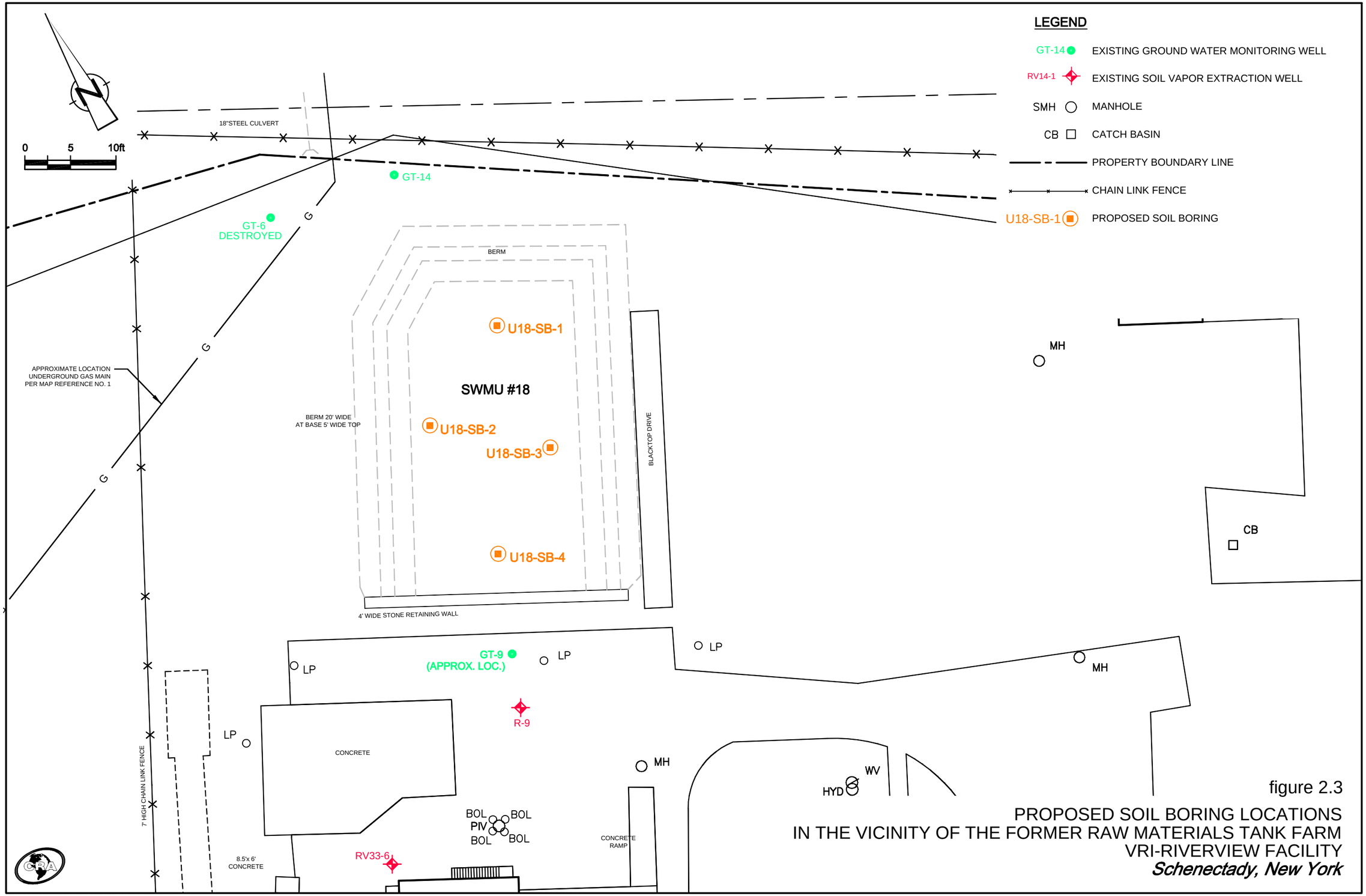

figure 2.3

PROPOSED SOIL BORING LOCATIONS
IN THE VICINITY OF THE FORMER RAW MATERIALS TANK FARM
VRI-RIVERVIEW FACILITY
Schenectady, New York

18631-99(001)GN-WA003 JUL 12/2001

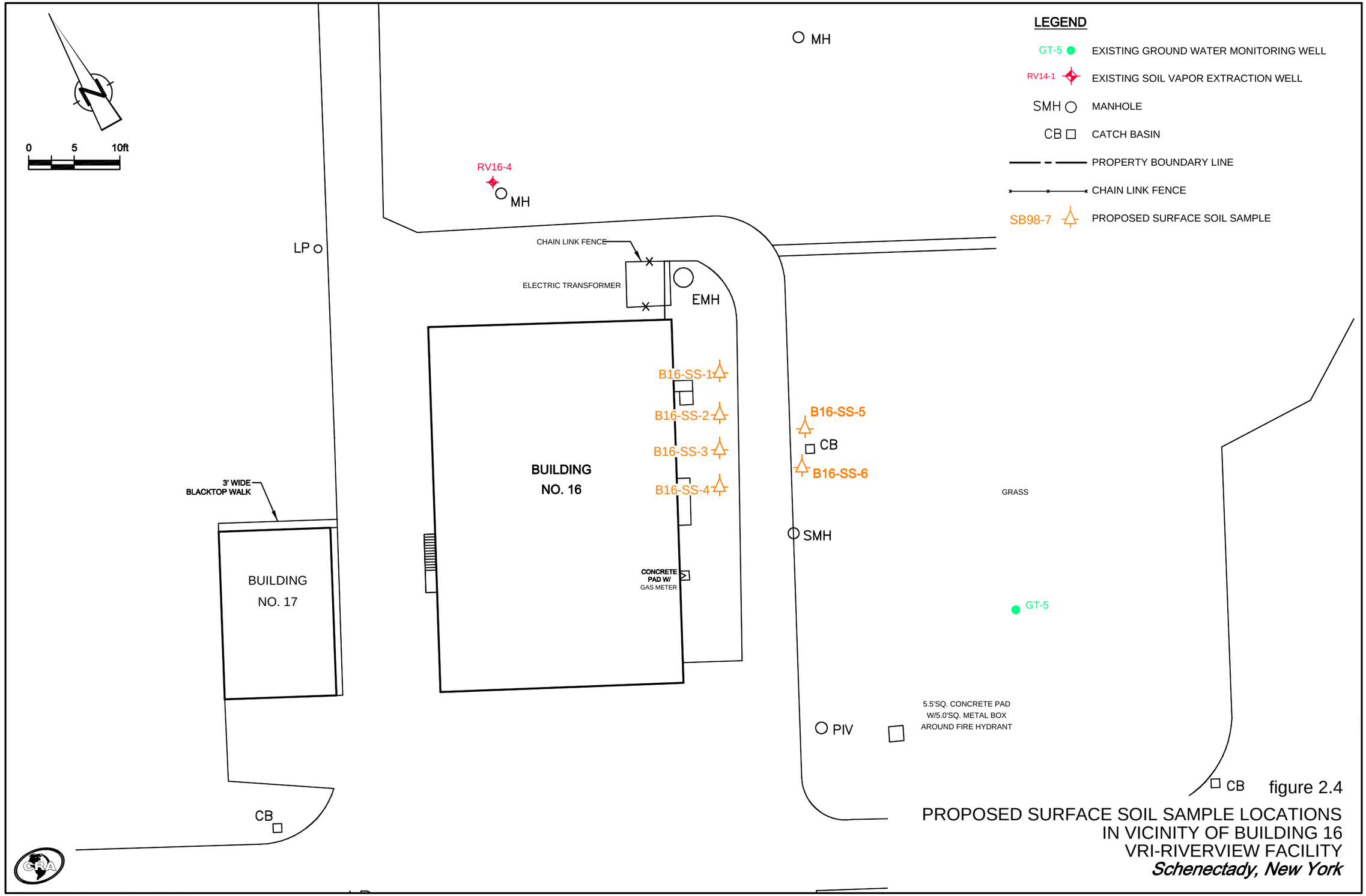

figure 2.4

PROPOSED SURFACE SOIL SAMPLE LOCATIONS
IN VICINITY OF BUILDING 16
VRI-RIVERVIEW FACILITY
Schenectady, New York

	2001						2002												2003											
	JULY	AUG	SEPT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
1) RI/FS WORK PLAN APPROVAL	✱																													
2) REMEDIAL INVESTIGATION (RI)																														
SOIL BORING AND SAMPLING PROGRAM			—	—																										
GROUNDWATER INVESTIGATION																														
- REHABILITATION OF EXISTING MONITORING WELLS			—																											
- WELL ABANDONMENT PROGRAM			—																											
- WATER LEVEL MEASUREMENTS			✱				✱			✱																				
- DRILLING AND INSTALLATION OF ADDITIONAL MONITORING WELLS				—																										
- WELL DEVELOPMENT				—	—																									
- GROUNDWATER AND SEEP SAMPLING (ROUND 1)					—	—																								
- ROUND 1 GROUNDWATER SAMPLING DATA VALIDATION							—																							
- GROUNDWATER AND SEEP SAMPLING (ROUND 2)										—																				
- ROUND 2 GROUNDWATER SAMPLING DATA VALIDATION											—																			
- HYDRAULIC CONDUCTIVITY TESTING					—	—																								
SURVEYING					—	—																								
SUBMIT DATA SUMMARY REPORT									✱																					
PREPARE FINAL RI REPORT											—	—	—	—																
SUBMIT RI REPORT														✱																
NYSDEC REVIEW OF REPORT														—	—	—														
RECEIVE RI REPORT COMMENTS																✱														
REVISE RI REPORT																—	—	—												
RESUBMIT RI REPORT																		✱												
DEC REVIEW OF RI REPORT																		—	—											
RECEIVE RI REPORT APPROVAL																			✱											
3) FEASIBILITY STUDY (FS)																														
DEVELOP ALTERNATIVES																	—	—	—	—										
SCREEN ALTERNATIVES																				—	—									
DETAILED EVALUATION																						—								
PREPARE FS REPORT																							—	—	—					
SUBMIT FS REPORT																										✱				
NYSDEC REVIEW OF REPORT																										—	—			
RECEIVE FS REPORT COMMENTS																												✱		
REVISE FS REPORT																												—	—	
RESUBMIT FS REPORT																													✱	
DEC REVIEW OF FS REPORT																													—	—
RECEIVE FS REPORT APPROVAL																														✱

figure 6.1

PROJECT SCHEDULE
VRI-RIVERVIEW FACILITY
Schenectady, New York