REPORT

01-0441
SDMS 275752

# *Removal Design/Removal Action Work Plan for the Future City Recreational Area*

General Electric Company
Pittsfield, Massachusetts

December 2001

BBL
BLASLAND, BOUCK & LEE, INC.
engineers & scientists

01-0441

Corporate Environmental Programs
General Electric Company
100 Woodlawn Avenue, Pittsfield, MA 01201

SDMS 275752

*Transmitted Via Federal Express*

December 13, 2001

Mr. Bryan Olson
EPA Project Coordinator
U.S. Environmental Protection Agency
EPA New England
One Congress Street, Suite 1100
Boston, Massachusetts 02114-2023

**Re: GE-Pittsfield/Housatonic River Site**
**East Street Area 2-South (GECD150),**
**Future City Recreational Area**
**RD/RA Work Plan**

Dear Mr. Olson:

Enclosed is GE's *Removal Design/Removal Action Work Plan for the Future City Recreational Area* (Work Plan), located within the East Street Area 2-South portion of the GE Plant in Pittsfield, Massachusetts. Using the soils data available for this area, this document evaluates the need for response actions to achieve the applicable Performance Standards established in the Consent Decree for the GE-Pittsfield/Housatonic River Site and Statement of Work for Removal Actions Outside the River.

Based on the evaluations summarized in this Work Plan, it appears that no response actions are necessary to achieve the applicable Performance Standards for PCBs and other constituents in the existing soils in this area. Therefore, the only response action to be conducted within the Future City Recreational Area involves the placement of a 1-foot (minimum thickness) soil cover within this area. Details related to evaluations of the existing soils and the design of the soil cover are presented in the enclosed document.

As explained within the enclosed document, there are several activities that remain to be performed before proceeding with construction. First, additional soil sampling and analyses will be performed to: 1) further assess certain volatile and semi-volatile organic constituents in soil for which a number of the existing sample results showed non-detected concentrations but which had elevated analytical reporting limits; and 2) obtain pre-design soil data for an area outside of the Future City Recreational Area that will likely be used for an access road. The results of this sampling, and any related assessments regarding the need for any further evaluations, will be included in a Supplemental Soil Sampling Report to be provided to EPA by March 1, 2001.

Separate from the supplemental sampling activities described above, GE is currently discussing with the City of Pittsfield several items related to the Future City Recreational Area, including the final lease area, configuration of the ballfield area within the leased area, and ancillary components (e.g., parking areas, access road, etc.). The outcome of these discussions, the results of the supplemental soil sampling described

above (and any further evaluations), and remaining construction-related topics will be provided in an Addendum to this Work Plan.

Please call John Novotny or me if you have any questions regarding this document.

Sincerely,

Andrew T. Silfer, P.E.
GE Project Coordinator

Enclosure
U:/MEG01/7081ltr.doc

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# 1. Introduction

## 1.1 General

On October 27, 2000, a Consent Decree (CD) executed in 1999 by the General Electric Company (GE), the United States Environmental Protection Agency (EPA), the Massachusetts Department of Environmental Protection (MDEP), and several other government agencies was entered by the United States District Court for the District of Massachusetts. The CD requires (among other things) the performance of Removal Actions to address polychlorinated biphenyls (PCBs) and other hazardous constituents present in soils, sediment, and groundwater in several Removal Action Areas (RAAs) located in or near Pittsfield, Massachusetts. These RAAs are part of the GE-Pittsfield/Housatonic River Site (the Site). For each Removal Action, the CD and accompanying *Statement of Work for Removal Actions Outside the River* (SOW) (Appendix E to the CD) establish Performance Standards that must be achieved, as well as specific work plans and other documents that must be prepared to support the response actions for each RAA.

Separate from the CD, GE entered into a Definitive Economic Development Agreement (DEDA) with the City of Pittsfield and the Pittsfield Economic Development Authority (PEDA), effective upon entry of the CD. As part of the DEDA, GE agreed to construct a youth athletic field, for lease to the City, within an area of the GE Plant Area designated as the East Street Area 2-South RAA. The specific portion of East Street Area 2-South subject to the construction of this athletic field is referred to as the Future City Recreational Area and is shown on Figure 1-1. This approximately 4-acre area is bounded by East Street to the north, Newell Street to the east, and other parts of East Street Area 2-South to the west and south. This area is currently grass-covered, with no buildings or pavement present (Figure 1-2). The Housatonic River is located approximately 400 feet south of the Future City Recreational Area and the 100-year floodplain of the river meanders along the southern boundary of this area.

To accommodate the agreement between the City and GE, the CD and the SOW establish several specific Performance Standards for the Future City Recreational Area. In addition, based on the general timeframe established in the DEDA, the construction of the Future City Recreational Area and the necessary pre-construction response actions are to be completed prior to the performance of any response actions associated with the remainder of East Street Area 2-South. As a result, GE has expedited its performance of several activities within and adjacent to the Future City Recreational Area (relative to the performance of response

actions for the remainder of East Street Area 2-South). To date, these activities have primarily involved the performance of soil sampling and analyses and related pre-design activities. The results of GE's pre-design investigations were presented in the *Pre-Design Investigation Report for Portion of East Street Area 2-South: Future City Recreational Area* (Pre-Design Investigation Report), which was submitted in April 2001 and approved by EPA by letter of July 16, 2001. Based on these activities, GE has prepared this *Removal Design/Removal Action Work Plan for the Future City Recreational Area* (RD/RA Work Plan) to identify the response actions necessary to achieve the applicable Performance Standards identified for the Future City Recreational Area, both for PCBs and for the other constituents listed in Appendix IX of 40 CFR Part 264 (excluding pesticides and herbicides), plus three additional constituents -- benzidine, 2-chloroethylvinyl ether, and 1,2-diphenylhydrazine (Appendix IX+3). Additional information concerning the contents of this document is provided below.

## 1.2 Scope and Format of RD/RA Work Plan

Given the relatively straightforward nature of the response actions specified for the Future City Recreational Area in the CD and SOW, GE previously indicated in the Pre-Design Investigation Report that it would omit the submittal of a Conceptual RD/RA Work Plan and instead submit a final RD/RA Work Plan for this area. Consistent with that approach, GE has developed this RD/RA Work Plan. As discussed further below, however, given the need for certain additional soil sampling, as well as the current status of discussions with the City of Pittsfield regarding the final planning and design of the Future City Recreational Area and ancillary components, it is not possible at this time to present final details within this RD/RA Work Plan. In these circumstances, this RD/RA Work Plan provides evaluations concerning the need for and scope of response actions to achieve the Performance Standards for the Future City Recreational Area, as well as a preliminary design for those response actions. It also provides for the subsequent development and submission of an Addendum to this RD/RA Work Plan to provide further design and implementation details relating to this project, as discussed below.

Section 3.4 of the SOW requires that, in circumstances where a Conceptual RD/RA Work Plan is not submitted, the final RD/RA Work Plan should, in general, address the following information:

- Results of pre-design studies/investigations;

- An evaluation of the areas and depths (if any) subject to response actions to meet the applicable PCB-related Performance Standards set forth in the CD and the SOW;

- An evaluation of the need for additional response actions to address non-PCB constituents and (if needed) the type of such response actions;

- An evaluation of other issues that may affect the type and extent of response actions [e.g., groundwater, non-aqueous phase liquid (NAPL)];

- An identification of Applicable or Relevant and Appropriate Requirements (ARARs) in accordance with Attachment B to the SOW;

- Design assumptions and parameters;

- Detailed design of the response actions;

- Process for selection of Remediation Contractor;

- Description of other implementation details concerning performance of the Removal Action;

- Identification of Removal Action team including key personnel, roles and responsibilities, lines of authority;

- Construction Quality Assurance Plan;

- Schedule;

- Project closeout requirements; and

- Summary of anticipated post-removal site control activities following completion of the Removal Action.

However, as noted above, the contents of this RD/RA Work Plan for the Future City Recreational Area are somewhat abbreviated (relative to the contents of a Final RD/RA Work Plan for a larger RAA) and do not contain all the information listed above for the following reasons:

- The Performance Standards established in the CD and SOW for the Future City Recreational Area are limited and straightforward. They require the installation of a 1-foot-thick (minimum) soil cover over the surface of the Future City Recreational Area, together with achieving specified numerical cleanup levels for PCBs and other constituents in the next 2 feet of soil (i.e., the uppermost 2 feet of existing soil). Response actions for soils at greater depths are to be determined as part of the response actions for the remainder of East Street Area 2-South. As discussed in Sections 3 and 4 of this RD/RA Work Plan, the existing soil data indicate that there is no need for response actions for the uppermost 2 feet of existing soils in the Future City Recreational Area to achieve the applicable Performance Standards for that depth increment (i.e., the future 1- to 3-foot depth increment). As a result, it appears likely that the only necessary response action will involve the installation of a 1-foot-thick (minimum) soil cover over the Future City Recreational Area. As discussed below, this activity involves a relatively straightforward design.

- As discussed in Section 4 of this RD/RA Work Plan, review of the currently available non-PCB Appendix IX+3 data for the Future City Recreational Area indicates that response actions to address such constituents in soil are not necessary. However, to confirm this determination, a supplemental soil sampling program will be performed for certain Appendix IX+3 constituents for which the existing results have elevated detection limits. That supplemental soil sampling will be completed before final design of the response actions for this area can be completed.

- Although the required soil cover has been incorporated in the evaluations presented herein, planning related to certain aspects of the Future City Recreational Area (i.e., the final boundary/fenceline of the area, the final soil cover and grading plan, location of various support facilities, etc.) is currently under discussion with City officials, and hence final information on those aspects is not yet available.

- Certain of the planning discussions between GE and the City have been related to the location and configuration of an access road and vehicle parking associated with the future ballfield area. At the present time, it is anticipated that the parking area will be located within the limits of the Future City Recreational Area. However, access to that parking area will likely require the installation of a gravel access road within a portion of East Street Area 2-South that is located south of the Future City Recreational Area. Section 5.3 of this RD/RA Work Plan provides additional information related to the anticipated access road, including Performance Standards for the affected area and the need for additional pre-design soil investigations in that area.

In these circumstances, certain components of a final RD/RA Work Plan are not currently addressed herein, including information related to the selection of a Remediation Contractor and other implementation-related details. To address these remaining items and to provide EPA with an update related to the final configuration of the Future City Recreational Area, GE will submit an Addendum to this RD/RA Work Plan, as further discussed in Section 6 of this document.

It should also be noted that groundwater-related issues within the Future City Recreational Area are being addressed separately as part of GE's groundwater-related activities for the Plant Site 1 Groundwater Management Area (GMA 1) pursuant to the CD and SOW. At the present time, these activities consist of the performance of a baseline monitoring program in accordance with GE's *Baseline Monitoring Program Proposal for Plant Site 1 Groundwater Management Area,* as conditionally approved by EPA.

The remainder of this RD/RA Work Plan is presented in five sections and several tables, figures, attachments, and appendices. Section 2 presents a summary of pre-design activities performed by GE to support the preparation of this RD/RA Work Plan. Sections 3 and 4 present evaluations of the need for response actions to address PCBs and other Appendix IX+3 constituents, respectively, in the soil of the Future City Recreational Area. Section 4 also includes a description of the supplemental soil sampling to be conducted for certain Appendix IX+3 constituents for which the existing results have elevated detection limits. Section 5 describes preliminary design and related information for the soil cover to be installed at the Future City Recreational Area, and includes a description of the additional pre-design soil sampling to be performed for the anticipated access road area. Finally, Section 6 describes future submittals relating to this area and sets forth a proposed schedule for future activities.

# 2. Summary of Pre-Design Activities

## 2.1 General

Prior to the submittal of this RD/RA Work Plan, GE conducted certain pre-design investigations and other activities related to the Future City Recreational Area. This section provides a summary of those pre-design activities. These activities primarily involved the performance of soil sampling and analyses at and adjacent to the Future City Recreational Area in accordance with the investigation requirements contained in the CD and SOW. In addition, GE has collected other relevant site information to supplement the soil characterization program and to support the evaluations presented herein. A summary is provided below.

## 2.2 Pre-Design Soil Investigations

Between January 17 and February 1, 2001, GE performed pre-design soil investigations for the Future City Recreational Area in accordance with an EPA-approved document entitled *Pre-Design Investigation Work Plan for Portion of East Street Area 2-South Removal Action - Future City Recreational Area* (Pre-Design Work Plan). These activities were designed to comply with the applicable pre-design investigation requirements contained in Section 2.2.3 and Attachment D of the SOW (as modified based on subsequent discussions with EPA), taking into account the information available from prior investigations within this area. The Pre-Design Work Plan summarized the previously existing soil data from within and near this area and the proposed additional soil sampling and analysis to satisfy the applicable soil characterization requirements. Within the Future City Recreational Area, the pre-design investigations included the collection of soil samples within a 100-foot grid sampling pattern, with sample collection to a depth of 14 feet below existing ground surface (samples were generally collected at the 0- to 2- foot, 2- to 5-foot, and 5- to 14-foot depth increments at each location). Each sample was analyzed for PCBs, while certain additional samples were analyzed for other Appendix IX+3 constituents (excluding pesticides and herbicides). The collection and analysis of the pre-design soil samples at the Future City Recreational Area were conducted in accordance with the procedures set forth in GE's approved *Field Sampling Plan/Quality Assurance Project Plan* (FSP/QAPP).

In addition to soil sampling and analysis within the Future City Recreational Area, GE elected to collect some soil samples from locations outside of and adjacent to this area. These samples were collected in accordance

with the grid pattern and depth increments specified in the SOW for the rest of East Street Area 2-South. The resulting data were considered (where relevant) in the design of response actions for the Future City Recreational Area and will also be utilized, at a later date, in the RD/RA evaluations for the remainder of East Street Area 2-South.

The results of these investigation activities were summarized in GE's April 2001 Pre-Design Investigation Report. The pre-design soil sampling effort conducted within and adjacent to the Future City Recreational Area involved the collection of soil samples from 47 locations. These sample locations are shown on Figure 1-2. A total of 106 soil samples were analyzed for PCBs. In addition, 39 samples (approximately one-third of the number of PCB samples) were analyzed for Appendix IX+3 constituents (excluding pesticides and herbicides). The analytical results for those samples that are relevant to this RD/RA Work Plan are summarized in Table 2-1 for PCBs and Table 2-2 for other Appendix IX+3 constituents. As described in the Pre-Design Investigation Report, all pre-design sample results have undergone data validation in accordance with the FSP/QAPP. The data validation report, presented in Appendix B of the Pre-Design Investigation Report, indicated that all pre-design data meet the data quality objectives (DQOs) set forth in the FSP/QAPP.

## 2.3 Other Soil Investigations

In the Pre-Design Investigation Report, GE proposed to perform additional soil investigations to address certain soil data needs within the northwest portion of the Future City Recreational Area. Specifically, the pre-design investigations identified elevated levels of certain semi-volatile organic compounds (SVOCs) (which are consistent with coal-tar-related wastes) in the soil sample collected from the 5- to 14-foot depth increment at sample location CRA-3 (Figure 2-1). Although sample results from that depth increment will be subject to evaluation as part of the remainder of East Street Area 2-South, these results indicated the potential for elevated levels of SVOCs to be present in the overlying soils at this location, and specifically in the soils associated with the Future City Recreational Area. As a result, soil sampling from the 0-to 2-foot depth increment at sample location CRA-3 was performed on April 27, 2001, and the sample was analyzed for SVOCs.

The analytical results for the sample from location CRA-3 (including the sample and a duplicate) were provided in a letter to EPA dated May 15, 2001, and have been incorporated into Table 2-2 of this RD/RA Work Plan. In addition, since that time, GE has completed a data quality review of those sample results in accordance with

GE's FSP/QAPP and has determined that the data are of acceptable quality for use in technical RD/RA evaluations. The findings of this data quality review are presented in Appendix A of this document.

In addition to the pre-design activities performed by GE and summarized above, soil data from certain prior investigation activities within and adjacent to the Future City Recreational Area are available for use in the evaluations of this area. The PCB and Appendix IX+3 analytical data for these samples are presented in Tables 2-3 and 2-4, respectively. As previously discussed in Section 4.2 of the Pre-Design Work Plan and Section 2.4 of the Pre-Design Report, the data for polychlorinated dibenzo-p-dioxins (PCDDs) and polychlorinated dibenzofurans (PCDFs) from one of those samples (from location X-17) are not suitable for use in RD/RA evaluations because the sample was analyzed only for total PCDD/PCDF homologues, not for 2,3,7,8-substituted congeners. Hence, an additional sample was collected at that location for PCDD/PCDF analyses during the pre-design investigations. The remaining prior data summarized in Tables 2-3 and 2-4 have been subject to a data quality assessment. The results of that assessment are included in Appendix B of this document. That assessment indicates that these data are suitable for use in the RD/RA evaluations for this area. As a result, these data have been included in the evaluations presented herein.

## 2.4 Site Survey and Mapping

At the time the Pre-Design Investigation Report was submitted to EPA (April 2001), the current mapping available for the Future City Recreational Area was not sufficient to support the detailed evaluations needed as part of an RD/RA Work Plan. As a result, subsequent to the submittal of that report, GE developed detailed site mapping of the Future City Recreational Area to include the following information:

- paved and unpaved areas;
- surface elevations and topography;
- 100-year floodplain (where applicable);
- property boundaries and easements;
- certain utilities (e.g., manholes, catch basins, etc.)
- soil sample locations; and
- other site features.

Upon receipt of the detailed site mapping, it was determined that the approximate limits of the Future City Recreational Area as depicted in the Pre-Design Investigation Work Plan and Pre-Design Investigation Report (which were based on the approximate limits shown in the SOW) differ slightly from those identified in the DEDA. As a result, the figures presented in this report have been modified to depict the limits identified in the DEDA. Based on these revised limits, some of the pre-design soil sampling locations that were previously considered to be just outside the limits of the Future City Recreational Area now appear to fall within those limits. These sample locations are now shown on the figures presented in this report to be situated within the Future City Recreational Area, and the sample results from them have been considered in the evaluations presented herein. With these changes, the site mapping serves as the basis for the PCB, Appendix IX+3, and design-related evaluations presented in the remainder of this RD/RA Work Plan.

However, it should be noted that these limits are still under discussion with the City. Based on the discussions to date, it appears that the western and southern boundaries of the Future City Recreational Area, as shown on the figures in this Work Plan, may be shifted slightly to the east and north, respectively. To the extent that the limits of the Future City Recreational Area are modified based on these discussions with the City, the evaluations presented herein will be correspondingly revised if the modified limits would change those evaluations.

# 3. PCB Soil Evaluations

## 3.1 General

This section of the RD/RA Work Plan summarizes the results of evaluations regarding PCBs in soils associated with the Future City Recreational Area, and provides an assessment of the need for response actions to achieve the applicable PCB Performance Standards established in the CD and SOW. Included in this section is an overview of the applicable PCB-related Performance Standards, an evaluation of the existing PCB soil data, and a summary of findings related to the need for response actions to address PCBs.

## 3.2 Overview of PCB-Related Performance Standards

The soil-related Performance Standards for the GE Plant Area, including the Future City Recreational Area, are set forth in Paragraph 25 of the CD and Section 2.2.2 of the SOW. Those that are relevant to PCBs in soil at the Future City Recreational Area are summarized as follows:

- In support of the construction of the Future City Recreational Area, GE shall install a 1-foot-thick (minimum) soil cover in this area in accordance with the general requirements for such covers set forth in the SOW, and shall remove and replace soils in the next 2 feet below that 1-foot cover as necessary to achieve a spatial average PCB concentration at or below 15 ppm in that 2-foot depth.

- Response actions for depths greater than 3 feet within this area shall be determined as part of the response actions for the overall averaging area within East Street Area-2 South where the Future City Recreational Area is located (i.e., the Former Gas Plant/Scrap Yard Area), taking into account the anticipated performance of the above-described response actions for the top 3 feet. The pertinent Performance Standards for that overall averaging area include the following:

  -- If the spatial average PCB concentration in the 1- to 6-foot depth increment exceeds 200 ppm, GE shall: (a) for areas within the 100-year floodplain of the Housatonic River, remove and replace soils to achieve the foregoing spatial average PCB concentration in that depth increment; and (b) for areas outside that 100-year floodplain, undertake a combination of removal and replacement of soils in unpaved areas and/or enhancement of existing pavement/concrete surfaces in paved areas as necessary to ensure the

removal or covering by enhanced pavement of the PCB concentrations causing the spatial average to exceed 200 ppm.

-- If subsurface utilities are present and the spatial average PCB concentration in the corresponding utility corridor exceeds 200 ppm in the 1- to 6-foot depth increment, GE shall evaluate whether any additional response actions are necessary. In addition, if subgrade utilities are installed, repaired, or replaced in the future, GE shall ensure that the backfill material used has a spatial average PCB concentration at or below 25 ppm.

-- If the spatial average PCB concentration in the 0- to 15-foot depth increment at the averaging area exceeds 100 ppm after incorporating the anticipated performance of the response actions described above, GE shall install an engineered barrier (as described in the SOW) over the areas causing such exceedance, and provide flood storage compensation as described in the SOW.

## 3.3 Summary of PCB Evaluation Procedures

The procedures used to calculate PCB spatial average concentrations are established in Attachment E to the SOW (Protocols for PCB Spatial Averaging) and generally involve the preparation of several detailed maps and computer spreadsheets. For each area and depth subject to PCB spatial average calculations, a detailed site plan is first developed to illustrate the following:

- property/area boundaries;
- surface topography;
- soil sampling locations within and adjacent to area;
- presence of roadways, utilities, easements, etc.;
- presence of buildings, pavement, and other permanent structures; and
- other significant site features.

The next step in the evaluation process is the development of Theissen polygon maps for each averaging area and depth interval. Theissen polygon mapping involves the use of computer software to draw perpendicular bisector lines between adjacent sample locations to create two-dimensional, sample-specific polygon areas. Certain boundary conditions impact the generation of Theissen polygons, such as the boundaries of the area

subject to averaging, presence of paved and unpaved areas, easement boundaries, building footprints, property lines, etc. As appropriate, the computer-generated Theissen polygons are modified to reflect actual site conditions, presence/absence of soil at a given depth, locations of property ownership lines, or other specific or unique site considerations. Once the Theissen polygon mapping is complete, all of the soil areas and depths potentially subject to response actions are adequately characterized for use in subsequent evaluations. After generation of the Theissen polygons, polygon identification numbers are assigned to each polygon and the surface area of each polygon is calculated.

The next step in the calculation of spatial average PCB concentrations is the development of computer spreadsheets to combine information obtained from the Theissen polygon mapping (i.e., polygon ID and area for each polygon) with the analytical results of soil sampling to provide a three-dimensional characterization of the soils associated with each polygon. The volume of soil associated with each polygon is based on the surface area of the polygon multiplied by the corresponding depth of soil for which samples were collected. Using the information described above, a spatial average PCB concentration is derived by multiplying the volume of each polygon by its assigned PCB concentration, summing the results of this calculation for each polygon involved in the evaluation, and then dividing that sum by the cumulative soil volume associated with all of the polygons. This procedure yields a spatial average PCB concentration that incorporates both volume- and area-weighted considerations.

Following the development of these spatial average PCB concentrations, those concentrations are compared to the applicable numerical PCB Performance Standards established in the CD and SOW to determine whether response actions are necessary. For areas where the spatial average PCB concentration exceeds the applicable numerical Performance Standard, the type of response action required (e.g., soil removal, installation of a surface cover, etc.) will depend on specific site characteristics as described in the SOW (e.g., presence of pavement, location of floodplain, etc.).

## 3.4 Summary of PCB Evaluations

This section summarizes the results of the PCB spatial average calculations and comparison to the applicable Performance Standards for the Future City Recreational Area. As discussed above, the Performance Standards for this area require the installation of a 1-foot-thick (minimum) soil cover and the achievement of a spatial average PCB concentration at or below 15 ppm in the next 2 feet. Hence, the first step in the evaluation was to calculate the spatial average PCB concentration for the uppermost 2 feet of existing soil in this area (which will

become the 1- to 3-foot depth increment after the installation of the soil cover). In fact, however, as discussed in Section 6 of this RD/RA Work Plan, the thickness of the proposed soil cover as currently envisioned exceeds 1 foot in many areas, since an increased thickness in the southern portion of the ballfield area is necessary to account for the existing site topography and to provide a relatively level recreational area. Nevertheless, in performing the PCB evaluation for the next 2 feet below the cover, GE has conservatively assumed that the final soil cover would have a thickness of only 1 foot. The result of this assumption is a tendency to overestimate the PCB concentration associated with the future 1- to 3-foot depth increment. For example, for areas where the final soil cover has a thickness greater than 1 foot, the actual future 1- to 3-foot depth increment would include some "clean" soil that would lower the PCB concentration for that specific depth increment.

Based on the conservative assumption that the soil cover would be only 1-foot-thick and that the future 1- to 3-foot depth increment is represented by the existing top 2 feet of soil, the spatial average PCB concentration for that depth increment has been calculated. To support that calculation, the following materials have been prepared and are included in Attachment A:

- Site mapping identifying specific Theissen polygons for the existing 0- 0.5-foot, 0.5- to 1-foot, and 1- to 2-foot depth increments;

- Computer spreadsheets to incorporate the results of the Theissen polygon mapping (i.e., Theissen polygon size) and the corresponding PCB analytical data; and

- Calculations of the spatial average PCB concentration for the existing 0- to 2-foot depth increment.

To account for the various depth increments associated with the existing PCB soil data set, the evaluation process for the 0- to 2-foot depth increment first involved the calculation of existing PCB spatial average concentrations for three intermediate depth increments within the Future City Recreational Area (i.e., the 0- to 0.5-foot, 0.5- to 1-foot, and 1- to 2-foot depth increments). These individual PCB spatial average concentrations were then combined (in a depth-weighted manner) to derive the overall PCB spatial average concentration for the existing 0- to 2-foot depth increment.

As presented in Attachment A, the spatial average PCB concentration for the existing 0- to 2-foot depth increment at the Future City Recreational Area is approximately 3 ppm. Since this existing PCB spatial average concentration is well below the corresponding Performance Standard of 15 ppm for this depth increment, no

response actions are necessary to address PCBs in the existing 0- to 2-foot depth increment (future 1- to 3-foot depth increment) at the Future City Recreational Area.

With respect to future PCB evaluations to be conducted for the overall averaging area within East Street Area 2-South that contains the Future City Recreational Area (the Former Gas Plant/Scrap Yard Area), GE anticipates that the evaluation of the 1- to 6-foot depth increment in this area will consider the actual depth of clean soil that is installed within the Future City Recreational Area, and specifically those areas where the thickness of the soil cover exceeds 1 foot. (As-built construction drawings for the response actions performed for the Future City Recreational Area will provide the information necessary to support these evaluations.)

Although not directly related to the Future City Recreational Area, GE has also considered certain other PCB Performance Standards related to East Street Area 2-South, to determine whether such standards may result in the need for response actions within the Future City Recreational Area. Specifically, as presented in Section 3.2 of this RD/RA Work Plan, if the spatial average PCB concentration in an existing subsurface utility corridor exceeds 200 ppm PCBs in the 1- to 6-foot depth increment, GE is required to evaluate whether additional response actions are necessary. For the majority of the Future City Recreational Area, subsurface utilities are not present. However, as shown on Figure 2-1, there is an 18-inch pipeline along the western boundary of the Future City Recreational Area that conveys rainfall runoff from East Street to GE's 64X Oil/Water Separator. There is also an 8-inch pipeline located along the northern boundary of the Future City Recreational Area that conveys recovered groundwater from GE's East Street Area 1-North Oil Recovery System to GE's 64G Groundwater Treatment Facility. Based on review of the available PCB soil data from within, adjacent to, and beneath the Future City Recreational Area for depths between 1 and 6 feet (71 samples), the maximum discrete PCB concentration is 42 ppm, which is well below the 200 ppm (spatial average) PCB Performance Standard for utility corridors. Therefore, no further evaluations concerning subsurface utilities within or related to this portion of the East Street Area 2-South RAA are necessary.

# 4. Non-PCB Soil Evaluations

## 4.1 General

The Performance Standards established in the CD and SOW for non-PCB Appendix IX+3 constituents in soil set forth a prescribed process that includes and considers (as needed) several evaluation components. Similar to the PCB soil evaluations, the assessment of non-PCB constituents relies on the data set resulting from the pre-design (and earlier) soil investigations. It also incorporates the anticipated performance of response actions (if any) that have been identified for PCBs. Beyond these initial evaluation components, the activities involved in the assessment of non-PCB constituents vary depending on the specific analytes under consideration, the possible elimination of certain constituents from further evaluation based on numerical screening and/or comparison to background conditions, and the specific risk-based evaluation method.

This section of the RD/RA Work Plan summarizes the Performance Standards and evaluation process established in the CD and SOW concerning non-PCB constituents in soil, and provides an evaluation of such constituents within the Future City Recreational Area and the need for response actions to address them.

## 4.2 Overview of Applicable Performance Standards

As indicated above, the Performance Standards related to Appendix IX+3 constituents in soil consist of several prescribed evaluation steps, as well as numerical standards that are to be applied within the evaluation process. The applicable Performance Standards for Appendix IX+3 constituents in soil at the GE Plant Area, including the Future City Recreational Area, are set forth in Section 2.2.2 and Attachment F of the SOW. Those Performance Standards apply to the same averaging areas and depths as the PCB Performance Standards -- in this case, the uppermost 2 feet of existing soil within the Future City Recreational Area -- and are summarized below. (Note that although no response actions are necessary to address PCBs in soil, that component of the non-PCB evaluation process is included in the discussion below for completeness.)

1. Any data qualifiers for the Appendix IX+3 soil data shall be reviewed to eliminate analytical results that indicate constituent occurrence as a result of laboratory interference or contamination (as indicated by the laboratory blank data).

2. The remaining Appendix IX+3 data shall be screened to take into account the proposed response actions to address PCBs as specified in the PCB-related Performance Standards. Specifically, sample results from soil that will be removed to address PCBs will be eliminated from consideration, and it will be assumed that such soil will be replaced with an equal volume of clean soil containing concentrations of organic constituents at one-half the detection limit and concentrations of inorganic constituents consistent with those detected in representative samples of the backfill material. Similar concentrations for organic and inorganic constituents will be assumed to be present in any soil cover used. For areas where an engineered barrier or pavement enhancement will be installed to address PCBs, the Appendix IX+3 sample results from soil underlying such barrier or enhanced pavement will be eliminated from consideration, and averages will be recalculated for the portion(s) of the areas not subject to such barrier or pavement enhancement (subject to potential modification, if necessary, based on the nature and concentration of volatile constituents for which such barriers/pavement may not provide effective containment).

3. The remaining data shall then be screened further by making the following comparisons for the sample results that were not eliminated in prior steps:

   a. For constituents other than dioxins/furans, the maximum concentration of each detected constituent shall be compared to the EPA Region 9 Preliminary Remediation Goals (PRGs) (set forth in Exhibit F-1 to Attachment F of the SOW), using the residential PRGs for recreational areas, such the Future City Recreational Area. For polycyclic aromatic hydrocarbons (PAHs) for which EPA Region 9 PRGs do not exist, the EPA Region 9 PRGs for benzo(a)pyrene shall be used for carcinogenic PAHs and the Region 9 PRG for naphthalene shall be used for non-carcinogenic PAHs. For other constituents for which EPA Region 9 PRGs do not exist, GE may propose screening concentrations based on either the EPA Region 9 PRGs for chemicals with similar characteristics or on other appropriate risk-based calculations, and upon EPA approval, may use such screening concentrations in this step. (The EPA Region 9 PRGs, together with the PRGs specified above for carcinogenic and non-carcinogenic PAHs for which there are no EPA Region 9 PRGs and any additional screening concentrations proposed by GE and approved by EPA, are hereinafter referred to jointly as "Screening PRGs.") Any constituent whose maximum concentration is at or below the applicable Screening PRGs will be eliminated from further consideration. Any constituents remaining after this step will be subject to further evaluation.

b. For each dioxin/furan sample, a total Toxicity Equivalency Quotient (TEQ) concentration shall be calculated using the Toxicity Equivalency Factors (TEFs) published by the World Health Organization (WHO) (Van den Berg et al., *Environ. Health Perspectives*, Vol. 106, No. 12, Dec. 1998). Then, for the relevant averaging area and depth increment, either the maximum TEQ concentration or the 95% upper confidence limit on the mean (95% UCL) of TEQ concentrations, whichever is lower, shall be compared to the applicable PRG established by EPA for dioxin TEQs. For recreational areas (such as the Future City Recreational Area), these PRGs are 1 ppb in the top foot and 1.5 ppb in the 1- to 3-foot depth interval. If the maximum detected concentration or 95% UCL TEQ concentration is less than the applicable PRG, no further response actions will be necessary to address dioxins/furans. If the maximum detected concentration or 95% UCL TEQ concentration (whichever is used) exceeds the applicable PRG, GE shall develop response actions (as described below) for EPA review and approval to achieve the dioxin PRG(s).

4. For each constituent (other than dioxins/furans) with a maximum concentration that exceeds its Screening PRG, the data set for that constituent (after taking into account any PCB-related response actions) shall be compared with the background data set for that constituent, using either an appropriate statistical method or summary statistics (as described in the MDEP's *Guidance for Disposal Site Risk Characterization*, 1995). For such comparisons, site-specific background data sets approved by EPA shall be used, which may include, at a minimum, soil data from the Housatonic River floodplain collected upstream of releases from the GE Plant Area and soil data from GE's off-site residential property program (excluding samples with detectable PCB concentrations and samples containing visible evidence of non-native fill). Any constituent for which the data set is consistent with the background data set will be eliminated from further consideration. Conversely, any constituent for which the data set is not consistent with the background data set will be subject to further evaluation. (Note: This step may be omitted if all constituents remaining after the PRG screening described in Step 3a above are evaluated in Step 5 below.)

5. For each constituent (other than dioxins/furans) that is not eliminated in the prior steps, an average concentration for the soils (taking into account any PCB-related response actions) shall be calculated and compared to the applicable MCP Method 1 soil standard (S-1, S-2, or S-3). If there is no existing Method 1 soil standard for such a constituent, a Method 2 standard may be derived using the MCP procedures for doing so, and compared to the average concentration. In making these comparisons, separate average concentrations for surface soil and subsurface soil (using depth increments consistent with those evaluated for PCBs) shall be calculated and compared to applicable Method 1 (or 2) standards. Further, the

determination of the applicable set of Method 1 (or 2) standards (i.e., S-1, S-2, or S-3) shall follow the MCP criteria for categorizing soil, and may take into account the ERE that will be imposed on the area in question. If all constituents evaluated in this step have average concentrations at or below the applicable Method 1 (or 2) standards, no further response actions will be necessary to address such constituents. If any such constituent(s) have average concentrations exceeding the applicable Method 1 (or 2) standards, then GE shall either:

a. Develop response actions sufficient to reduce the average concentrations of such constituent(s) to the Method 1 (or 2) standards (or to achieve the Screening PRGs or background levels); or

b. Conduct an area-specific risk evaluation, as described below.

6. If an area-specific risk evaluation will be conducted, that evaluation shall be performed for all constituents that were retained for evaluation prior to Step 5. In such an evaluation, the cumulative Excess Lifetime Cancer Risk (ELCR) and non-cancer risk for all such constituents (excluding PCBs and dioxins/furans) shall be calculated based on the average concentrations of such constituents and the same uses for the area and depth increment in question that were assumed in developing the applicable PCB Performance Standards for such area and depth increment. In such an evaluation, the same exposure assumptions used in Attachment A to EPA's Action Memorandum for Removal Actions Outside the River (Appendix D to the CD) to support the PCB Performance Standards for such area and depth increment shall be used, unless GE proposes and provides an adequate area-specific justification for alternate exposure assumptions for certain specified parameters and EPA approves such alternate assumptions. The toxicity values to be used for cancer- and non-cancer risks in such an evaluation shall be derived from standard EPA sources, and other dose-response information, such as toxicity weighting factors and absorption factors for non-PCB constituents, shall be obtained from EPA and MDEP policies and guidance, except that GE may propose alternate dermal and oral absorption factors and use them if approved by EPA.

   If the resulting cumulative ELCR for the area involved (excluding PCBs and dioxins/furans) does not exceed $1 \times 10^{-5}$ and the non-cancer Hazard Index (excluding PCBs and dioxins/furans) does not exceed 1, no further response actions will be necessary to address these residual Appendix IX+3 constituents. Otherwise, further response actions will be necessary.

7. If the evaluations described above indicate the need for further response actions to address non-PCB constituents, GE shall develop, for EPA review and approval, specific Performance Standards for such response actions. Such Performance Standards shall be based on achieving the following, after taking into account the PCB-related response actions:

   a. For dioxin/furan TEQs, either maximum or 95% UCL TEQ concentrations that do not exceed the EPA dioxin PRGs; and

   b. For other constituents, any combination of the following: (i) maximum concentrations of individual constituents that do not exceed the applicable Screening PRGs; (ii) concentrations of individual constituents that are consistent with background levels (using an appropriate statistical technique or summary statistics); or (iii) for the remaining constituents (if any), either (A) average concentrations that do not exceed the applicable MCP Method 1 (or 2) soil standards, or (B) cumulative risk levels that do not exceed (after rounding) an ELCR of $1 \times 10^{-5}$ and a non-cancer Hazard Index of 1.

   GE shall propose for EPA approval the implementation of further response actions as necessary to achieve those Performance Standards. The specific response actions to be taken to achieve those Performance Standards will be the same as the response actions established by the Performance Standards for PCBs at the area in question, subject to potential modification if necessary based on the nature and concentration of any volatile constituents detected.

## 4.3 Summary of Appendix IX+3 Evaluations

This section applies the Performance Standards and evaluation process summarized in the preceding section to the Appendix IX+3 constituents present in the uppermost 2 feet of existing soils within the Future City Recreational Area (as a conservative surrogate for the future 1- to 3-foot depth increment after installation of the soil cover). As previously demonstrated in Section 3, no response actions are necessary for PCBs within that depth increment, so the evaluation of Appendix IX+3 constituents considered the entire pre-design soil data set. The remaining evaluations summarized below follow the evaluation process outlined in the SOW (and summarized in Section 4.2) and utilize several tables to supplement the discussions presented herein.

### 4.3.1 Review of Data Qualifiers

As previously discussed, all of the soil data available to support the technical RD/RA evaluations for the Future City Recreational Area have been subject to a data quality assessment. For most of these sampling data, the assessment results were provided in the Pre-Design Investigation Report, while the remaining soil data were evaluated as described in Appendices A and B of this RD/RA Work Plan. In several cases, the sampling results have been qualified as indicated in the Appendix IX+3 data summary tables (Tables 2-2 and 2-4). However, no sample results were rejected due to laboratory interference or laboratory contamination.

### 4.3.2 Comparison to "Screening PRGs"

Consistent with the protocols established in the SOW, the next screening step for the non-PCB Appendix IX+3 constituents other than dioxins and furans involves comparison of the maximum concentrations of the detected constituents to the "Screening PRGs." However, Appendix IX+3 pesticides and herbicides were not included in this (or any other) Appendix IX+3 evaluation since they were not considered to be constituents of concern within the Future City Recreational Area and were therefore excluded from the earlier pre-design investigations, with EPA approval.

With one exception (sulfide, discussed below), all of the Appendix IX+3 constituents detected in soils within the Future City Recreational Area have corresponding EPA Region 9 PRGs for residential soils (or, for non-carcinogenic PAHs without such PRGs, surrogate PRGs equivalent to the PRG for naphthalene, as specified in the SOW). For these constituents, the available Appendix IX+3 data for the Future City Recreational Area (Tables 2-2 and 2-4) were reviewed and the maximum detected concentration of each detected constituent was compared to the EPA Region 9 PRG (or surrogate) for residential soils. Table 4-1 presents the results of these comparisons. Based on these comparisons, only seven such constituents were detected in any one soil sample at a concentration exceeding its corresponding Screening PRG for residential soil:

- benzo(a)anthracene;
- benzo(a)pyrene;
- benzo(b)fluoranthene;
- benzo(k)fluoranthene;
- dibenzo(a,h)anthracene;
- indeno(1,2,3-cd)pyrene; and

- arsenic.

These constituents were subject to further evaluation consistent with the protocols outlined in the SOW, as described in Sections 4.3.5 and 4.3.6 of this RD/RA Work Plan. With respect to sulfide, neither an EPA Region 9 PRG nor an MCP Method 1 soil standard exists. Hence, that constituent was evaluated further in relation to background data, as described in Section 4.3.4 below.

In accordance with the protocols established in the SOW, the comparisons to the Screening PRGs were made for the maximum detected concentration of each detected constituent. However, for several volatile organic compounds (VOCs) and SVOCs, there are a number of sample results in which the constituents were not detected but which had elevated detection limits such that one-half the detection limit exceeded the PRG. These constituents (excluding the retained constituents identified above) are listed in Table 4-2. The following comments are provided about these sample results:

- With one exception, none of these constituents were detected in any of the samples within the Future City Recreational Area. In one case (acetophenone), the constituent was detected in one sample at a level below the PRG, while in one other (non-detect) sample, one-half the detection limit exceeded the PRG.

- For several constituents, the PRG is well below (more than two times lower than) its practical quantitation limit (PQL) as specified in Table 3 of the FSP/QAPP. These constituents are highlighted in Table 4-2. As a result, for these constituents, even if the laboratory achieved the PQL, the results would still not be low enough for comparison to the PRGs, and it may therefore be appropriate to eliminate these constituents on the ground that they were not detected at the PQLs established in the EPA-approved FSP/QAPP.

- As described in Section 2 of this RD/RA Work Plan, all of the pre-design soil data have been subject to a data quality assessment. That assessment determined that the data for the subject VOCs and SVOCs were suitable for technical RD/RA evaluations.

- GE has provided the information summarized in Table 4-2 to the analytical laboratory (CT&E Environmental Services, Inc.) and discussed with the laboratory any unique circumstances or findings related to the elevated analytical reporting limits. The laboratory indicated that the elevated reporting limits were primarily due to interferences present within the soil matrix. With respect to achieving lower reporting limits if new soil samples were collected from the same locations and depths, the laboratory indicated that it

was unsure if lower detection limits could be attained, since the primary cause of the elevated detection limits is related to the soil matrix itself rather than the analytical procedures and methodologies. However, the laboratory did indicate that additional sample preparation prior to laboratory analysis (e.g., gel permeation chromatography) may be helpful in reducing potential soil matrix interferences and achieving lower reporting limits.

In light of these considerations, GE considers it unlikely that the non-detected VOC and SVOC constituents identified in Table 4-2 will dictate the need for any response actions for soils within the Future City Recreational Area. Nevertheless, GE will perform a limited supplemental soil investigation to assess whether and to what extent lower analytical reporting limits can be achieved for these constituents at this area, and will use this information to assess the need for further Appendix IX+3 evaluations. Specifically, GE will collect additional samples at several previously sampled locations where the prior results generally exhibited elevated detection limits for the constituents in question. The specific locations have taken into account the potential future adjustments to the limits of the Future City Recreational Area (as discussed previously in Section 2.4) to make sure that the re-sampling effort occurs within areas that will be part of the final recreational area. Once collected, the samples will be submitted to the analytical laboratory for analysis of the specific VOCs and/or SVOCs that were affected by this issue, with instructions to achieve, to the extent possible, the PQLs specified in Table 3 of the FSP/QAPP. The scope of the re-sampling and analysis effort is described in more detail in Section 4.4, while subsequent evaluations of the resulting data are discussed in Section 4.5.

### 4.3.3 Dioxin/Furan Data Assessment

To assess the need for response actions for dioxins/furans present in soils at the Future City Recreational Area, total TEQ concentrations were calculated for each dioxin/furan soil sample result using the TEFs published by the World Health Organization (WHO). In making these calculations, in accordance with the approach specified in an EPA letter to GE dated October 31, 2001, the concentrations of the individual dioxin/furan compounds that were not detected in a given sample were represented as one-half the analytical detection limit for such compounds. Tables 2-2 and 2-4 present the TEQ concentrations for the soil samples associated with the Future City Recreational Area. Based on this available data set, the maximum TEQ concentration was determined for the existing 0- to 2-foot depth increment at the Future City Recreational Area. That concentration is 0.069 ppb. Since the existing 0- to 2-foot depth increment corresponds to the future (post-cover) 1- to 3-foot depth increment, the applicable dioxin/furan TEQ PRG for this depth increment is 1.5 ppb. The maximum detected TEQ concentration is below that PRG. As a result, there was no need to calculate the

95% UCL for the TEQ concentrations. Based on this analysis, no response actions to address dioxins/furans are necessary at the Future City Recreational Area.

### 4.3.4 Comparison to Background Conditions

The evaluation process established in the SOW includes comparison of the concentrations of Appendix IX+3 constituents (other than PCBs and dioxins/furans) to background conditions. If it can be demonstrated (through appropriate statistical means) that the concentration of a given constituent is consistent with background levels for the same constituent, that constituent can be eliminated from further evaluation. Attachment F of the SOW required that GE develop a background data assessment for soils, and it identified several sources of information (i.e., existing sampling data) to be used in preparing this assessment. GE submitted a *Background Soil Data Assessment for the GE-Pittsfield/Housatonic River Site* (Background Data Assessment) to EPA on December 15, 2000. Following submittal of the Background Data Assessment, and based on subsequent discussions with EPA, GE has elected to defer finalization of that document.

However, for purposes of the present Appendix IX+3 assessment, GE proposes to utilize background data to evaluate one specific constituent: sulfide. As previously mentioned, there is no EPA Region 9 PRG or MCP Method 1 soil standard for sulfide. In this situation, GE has developed a specific background data set for this one constituent, and has compared the available sulfide data from Future City Recreational Area to that background data set. The proposed background data set for sulfide and the justification for using it are described in Section 4.3.4 of GE's *Conceptual RD/RA Work Plan for the 20s, 30s, and 40s Complexes,* which was submitted to EPA on December 7, 2001. The same background data set for sulfide has been used for the Future City Recreational Area.

The maximum and median concentrations for the sulfide data set for the Future City Recreational Area have been compared to the maximum and median concentrations from the background data set using the MDEP's summary statistics approach. This evaluation is summarized in Table 4-3. As shown in this table, neither the maximum nor median sulfide concentration in the 0- to 2-foot depth increment at the Future City Recreational Area exceeds the maximum or median concentration in the background data set. As a result, GE proposes to eliminate sulfide from further evaluation based on considerations related to background conditions.

### 4.3.5 Comparison to MCP Method 1 Soil Standards

For those constituents retained for further evaluation (based on the outcome of the screening and background evaluations summarized in the previous sections of this RD/RA Work Plan), the next component of the evaluation process involved the comparison to MCP Method 1 soil standards. As part of this assessment, it is first necessary to determine the appropriate Method 1 soil category (i.e., S-1, S-2, or S-3), so that corresponding soil standards can be compared to the constituents of interest. In general, under the MCP, the determination of the appropriate Method 1 soil standard(s) considers the physical accessibility of the soils (relative to their depth and presence of pavement and buildings), as well as the current use of the area by adults and children and the relative frequency and intensity of such use (see 310 CMR 40.0933).

For the Future City Recreational Area, despite the fact that the existing 0- to 2-foot depth increment will be covered by a soil cover that will be a minimum of one-foot thick, GE has conservatively selected the MCP Method 1 S-1 soil standards for application to that depth increment, based on the fact that children will be present in this area (although in relatively short-term durations) and will be engaged in recreational activities there. (It should be noted that the numerical values of the Method 1 soil standards can vary depending on the applicable groundwater classification. For the GE Plant Area, the applicable MCP groundwater categories are GW-2 and GW-3. However, for the constituents retained for evaluation, the Method 1 Category S-1 soil standards are the same regardless of which of these groundwater categories is used.)

For the seven constituents retained for evaluation -- benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, dibenzo(a,h)anthracene, indeno(1,2,3-cd)pyrene, and arsenic -- arithmetic average concentrations were calculated using the available data from within the existing 0- to 2-foot depth increment (the same depth increment used in the PCB evaluations summarized in Section 3 of this RD/RA Work Plan). These data included the 0- to 2-foot sample results where available, but for two samples (RAA4-1 and RAA4-8) that were previously believed to lie just outside the Future City Recreational Area but now appear to be within the limits of that area, the data from the existing 0- to 1-foot depth increment (the only Appendix IX+3 data available from those samples) were used to represent the 0- to 2-foot depth increment. In calculating the arithmetic average concentrations for the constituents identified above, all available sample results from within the 0- to 2-foot depth increment were considered, including both results with detectable concentrations and results with non-detect concentrations (which were included in the averaging at a level of one-half the detection limit).

Table 4-4 presents the arithmetic average concentrations of these constituents and a comparison to their corresponding Method 1 S-1 soil standards. As shown in that table, five of these constituents -- benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene) -- had average concentrations exceeding their corresponding Method 1 S-1 soil standards.

Two points should be noted about these comparisons. First, it appears that, for one of these constituents, dibenzo(a,h)anthracene, the exceedance of the Method 1 standard was attributable to elevated detection limits associated with several of non-detect sample results for that constituent. Specifically, the only detected concentration of this constituent was 0.14 ppm in one sample (below the Method 1 standard of 0.7 ppm), while the overall average, using one-half the detection limits for the non-detect samples, was 1.12 ppm. Second, for the remaining constituents that showed exceedances of the existing Method 1 S-1 soil standards, all average concentrations are below the draft revised Method 1 S-1 soil standards that the MDEP has developed, which are expected to be published for public comment within the next few months and finalized in 2002. Those draft revised Method 1 standards are (in ppm):

| | S-1 |
|---|---|
| Benzo(a)anthracene | 6 |
| Benzo(a)pyrene | 2 |
| Benzo(b)fluoranthene | 6 |
| Indeno(1,2,3-cd)pyrene | 6 |

Nevertheless, given the results of the comparisons to Method 1 standards, GE has elected to proceed to the next step of the Appendix IX+3 evaluation process as set forth in the SOW -- namely, the performance of an area-specific risk evaluation. That evaluation is described in the next section.

### 4.3.6 Area-Specific Risk Evaluation

In accordance with the protocols specified in the SOW, an area-specific risk evaluation has been performed for all constituents that were retained for evaluation prior to the comparison to MCP Method 1 standards. This evaluation was based on the average concentrations of such constituents for the existing 0- to 2-foot depth increment, using the same average constituent concentrations as those used in the comparisons to Method 1 standards; thus, the non-detect sample results were represented as one-half the detection limit (even for those results that had elevated detection limits). In conducting this risk evaluation, a review was made of the uses and scenarios assumed by EPA in developing the PCB Performance Standards for recreational areas, as set forth in

EPA's PCB risk evaluation in Attachment A to Appendix D to the CD. Although that EPA evaluation discusses the PCB Performance Standard of 15 ppm for the 1- to 3-foot depth increment in recreational areas, it does not present any specific risk calculations to support that standard. Accordingly, as a conservative measure, even though the existing 0- to 2-foot depth increment at the Future City Recreational Area will be covered by a minimum of one foot of clean soil, the risk evaluation conducted for GE was based on the same use and exposure scenario that was assumed by EPA in supporting the PCB Performance Standard of 10 ppm for the top foot of soil in recreational areas – i.e., the child recreational user scenario. Moreover, this risk evaluation used the same exposure assumptions and parameter values that were used by EPA in Attachment A to Appendix D to the CD for developing the PCB Performance Standard for the top foot of soil in recreational areas, except that for chemical-specific parameters (i.e., oral and dermal absorption factors), the evaluation used default values recommended by EPA or MDEP. The evaluation also used standard EPA cancer and non-cancer toxicity values -- i.e., Cancer Slope Factors (CSFs) and non-cancer Reference Doses (RfDs) -- as set forth on EPA's Integrated Risk Information System (IRIS), together with EPA's recommended TEFs for the carcinogenic PAHs. These EPA-accepted exposure assumptions and toxicity values were used in this evaluation as a conservative measure and to avoid controversy, even though GE does not necessarily agree with those values.

This risk evaluation is described and the results are presented in Appendix C to this RD/RA Work Plan, which was prepared by GE's risk assessment consultants at AMEC Earth and Environmental. As shown there, a cumulative ELCR was calculated for the retained carcinogenic constituents (i.e., benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, dibenzo(a,h)anthracene, indeno(1,2,3-cd)pyrene, and arsenic). The resulting ELCR is $7.3 \times 10^{-6}$, which is below the benchmark of $1 \times 10^{-5}$ set forth in the SOW for cancer risks. In addition, a Hazard Index (HI) was calculated for the only retained constituent with a non-cancer RfD -- arsenic. The resulting HI is 0.027, which is well below the SOW benchmark of an HI of 1.0 for non-cancer impacts.

Thus, based on the risk evaluation described above, it appears at this time that there is no need for response actions to address the non-PCB constituents in soils at the Future City Recreational Area. As noted in Section 2.4, based on discussions with the City, the final limits of the Future City Recreational Area may be modified such that the western and southern boundaries are moved slightly to the east and north, respectively. Based on review of the existing data, such a modification would not change the conclusion that no response actions are necessary, since such a modification would not result in higher, and may result in lower, average concentrations of the Appendix IX+3 constituents evaluated in Section 4.3.5 and this Section 4.3.6.

However, as also noted above and discussed further in Section 4.4 below, a supplemental soil sampling effort will be conducted for specific constituents for which one-half the detection limit exceeded the Screening PRGs. In the event that such sampling shows any constituents with detected concentrations exceeding the PRGs, the Appendix IX+3 evaluations will be revised to include such constituents, as discussed further in Section 4.5 below.

## 4.4 Supplemental Soil Sampling

As discussed in Section 4.3.2, there are a number of sample results for certain VOCs and SVOCs in which the constituents were not detected but which had elevated detection limits such that one-half the detection limit exceeded the Screening PRG. These constituents are listed in Table 4-2 (excluding the constituents that were evaluated in Section 4.3.6). Based on several factors described in Section 4.3.2, GE does not believe that these specific constituents will dictate the need for response actions for soils within the Future City Recreational Area. However, to further assess whether and to what extent lower analytical reporting limits can be achieved by the analytical laboratory, and to support subsequent evaluations regarding these constituents, GE will conduct a limited supplemental soil sampling effort.

The supplemental investigation will involve the collection of soil samples from the 0- to 2-foot depth increment at four different locations within the Future City Recreational Area -- specifically, locations CRA- 7, CRA-14, CRA-18, and 210S, as shown on Figure 4-1. As previously discussed in Section 4.3.2, these locations have been selected based on the locations of previous samples that generally exhibited elevated detection limits, as well as their location relative to the final configuration of the recreational area, and specifically the potential adjustments to this area currently being discussed with the City. Once collected, these samples will be submitted to the analytical laboratory for analysis of the specific VOCs and SVOCs identified for each sample in Table 4-5. The laboratory will be instructed to use the PQLs specified for these constituents in Table 3 of the FSP/QAPP to the extent feasible (or even lower detection limits if possible).

## 4.5 Evaluation of Supplemental Soil Sampling Data

Once the supplemental soil investigation described above is completed, GE will submit a Supplemental Soil Sampling Report presenting the investigation results and a proposed course of action concerning these constituents. There are several potential outcomes that could result from this supplemental investigation. If the analytical results indicate that, for some constituents, it is possible to achieve lower reporting limits than those

previously achieved, so as to allow comparison to the PRGs, the future activities will depend on the results. For example, if those results are still non-detect (or below the applicable PRGs), GE may either: (a) propose to eliminate those constituents from further evaluation; or (b) propose to conduct additional sampling for those constituents at additional locations, using the lower reporting limits, so as to allow a more comprehensive comparison to the PRGs. If the results indicate detected concentrations of any constituents in excess of the PRGs, GE may either: (a) revise the Appendix IX+3 evaluations presented above to include those constituents; or (b) conduct additional sampling for those constituents at additional locations, using the lower reporting limits, so as to obtain additional data to support a revision of the Appendix IX+3 evaluations. On the other hand, if the results indicate that, for some constituents, it is not possible to achieve significantly lower detection or reporting limits, and the results are still non-detect, GE may propose to eliminate those constituents from further consideration, on the ground that the constituents were not detected using the lowest analytical detection limits that can feasibly be achieved in the circumstances. Other outcomes or combinations of outcomes are also possible.

In the event that the supplemental soil sampling results and evaluations presented in the Supplemental Soil Sampling Report indicate that the constituents in question can be eliminated from consideration, then the Appendix IX+3 evaluations described above will not need to be revised. In the event that the supplemental soil sampling results and evaluations presented in that report indicate a need for further sampling or evaluation of particular constituents, the report will propose such activities and a schedule for them, and the results will be presented in the Addendum to this RD/RA Work Plan (as described in Section 6.2). If warranted, that Addendum will include a revised evaluation of the Appendix IX+3 constituents; and if that revised evaluation indicates a need for response actions to address certain Appendix IX+3 constituents in soil in the existing 0- to 2-foot depth increment at the Future City Recreational Area, the Addendum will describe the scope of such response actions and include the necessary design and implementation details.

# 5. Preliminary Design Information

## 5.1 General

Based on the results of the PCB and non-PCB soil evaluations presented in Sections 3 and 4 above (and subject to revision, if necessary, based on the results of the supplemental soil investigation described in Section 4.4), there appears to be no need for any soil removal at the Future City Recreational Area to achieve the applicable soil-related Performance Standards. As a result, it appears likely that the only response action for this area will involve the placement of a 1-foot-thick (minimum) soil cover over the surface of the approximately 4-acre Future City Recreational Area. This section of the RD/RA Work Plan provides preliminary information relating to the design and installation of that soil cover, as well as a description of additional soil sampling to be conducted in the area of the anticipated access road to the south of the Future City Recreational Area.

## 5.2 Configuration of Soil Cover

Figure 5-1 presents preliminary information regarding the location, configuration, and surface contours of the Future City Recreational Area. To supplement Figure 5-1, several topographic cross-sections of the existing site and proposed Future City Recreational Area are depicted on Figure 5-2. Together, these figures identify the response actions that will be performed by GE to install the soil cover required under the CD and SOW. As illustrated on Figure 5-1, the Future City Recreational Area will encompass an area of approximately 4 acres, located mostly to the north of the 100-year floodplain of the Housatonic River. This area will be fenced to control access to the area and to restrict access to the adjacent GE-owned areas. Other details shown on this figure that are relevant to the required response action include information concerning the current and anticipated surface contours within the Future City Recreational Area.

Figure 5-2 presents several topographic cross-sections through the Future City Recreational Area. These cross-sections have been prepared to illustrate the differences between the current ground surface elevations and those that are expected to result following construction of the Future City Recreational Area. As shown on these cross-sections, the minimum thickness of soil cover over the existing ground surface will be 1 foot in accordance with the applicable Performance Standard. However, in several places, the thickness of the soil cover will be greater than 1 foot, as necessary to accommodate the current topography of the area and to provide a final surface that is relatively level, but promotes drainage of rainfall runoff (i.e., a downward slope of

approximately 1.5% to 2%). Regarding the information presented in Figures 5-1 and 5-2, the following points should be noted:

-- The exact limits and configuration of the Future City Recreational Area, including the final boundaries and the location of the ballfield and other related features, as well as ancillary features such as the parking area and access road, are subject to modification based on future discussions between GE and the City.

-- Similar to the above, the soil cover and grading plans shown on the figures are also subject to future modification. However, a minimum soil cover thickness of 1 foot will be maintained regardless of any changes.

-- Implementation of a 1-foot soil cover over the entire Future City Recreational Area will include the placement of some cover materials within limited portions of the 100-year floodplain of the Housatonic River, as illustrated in Figure 5-1. The installation of a 1-foot-thick soil cover over the portions of the Future City Recreational Area located within the 100-year floodplain would result in some loss of floodplain storage volume. As specified in the CD and SOW, where a surface cover will be installed in the floodplain, GE is required to provide flood storage compensation for the loss of flood storage capacity. As further discussed below, specific details regarding the volume of flood storage compensation required in this case and identification of the area(s) from which and method by which that compensatory volume will be obtained will be provided in the Addendum to this RD/RA Work Plan.

## 5.3 Access Road Considerations

As shown on Figure 5-1, the current design of the Future City Recreational Area calls for the installation of a gravel access road between the parking area within the recreational area and the point of access along Newell Street near the Newell Street bridge. This current configuration was identified by the City based on considerations related to traffic flow at the Newell Street/East Street intersection, as well as off-street parking concerns for the businesses located along Newell Street. As shown on Figure 5-1, a portion of the anticipated access road is located outside of the Future City Recreational Area and within the remainder of East Street Area 2-South. For this particular section of the access road, it was necessary to determine the applicable Performance

Standards. In addition, based on the anticipated timing for the construction of the Future City Recreational Area, it will be necessary to expedite (and expand) the performance of pre-design soil investigation for that area. Additional information is presented below.

Based on discussions with EPA, it was determined that, since the access road will not be part of the ballfield area, installation of a 1-foot soil cover is not necessary. At the same time, based on the anticipated recreational use of the access road, the commercial/industrial Performance Standards that would otherwise be applicable to this portion of East Street Area 2-South would not apply to the top 3 feet of soil in the access road area. In these circumstances, GE and EPA have agreed that the uppermost 3 feet of soil within the access road area will be subject to the Performance Standards for that depth increment at other GE-owned recreational areas within the CD Site (e.g., those set forth in Paragraphs 25.d(iv) and 26.b(i) of the CD). For PCBs, these Performance Standards require soil removal and replacement as necessary to achieve spatial average PCB concentrations of 10 ppm in the 0- to 1-foot depth increment and 15 ppm in the 1- to 3-foot depth increment. For other Appendix IX+3 constituents, the applicable Performance Standards for the uppermost 3 feet of soil will be those set forth in the SOW for recreational areas, as described in Section 4.2 above. For purposes of these evaluations, the uppermost 3 feet of soil in the access road area will be considered a separate averaging area.

It was also agreed that the area associated with the access road, as generally shown on Figure 5-1, will be demarcated through the installation of fencing to separate it from the remainder of East Street Area 2-South. Separate from any response actions to be performed under the CD and SOW, GE will work with the City to modify the DEDA to incorporate the access road area into the lease arrangement associated with the Future City Recreational Area.

Finally, it was agreed that soils present at depths greater than 3 feet in the access road area will continue to be addressed as part of the rest of East Street Area 2-South. Any response actions for depths greater than 3 feet will be determined as part of the evaluations conducted for the overall East Street Area 2-South averaging area within which the access road will be located (i.e., the Former Gas Plant/Scrap Yard Area), and will take into account the anticipated performance of any response actions for the uppermost 3 feet of the access road area.

Based on the above requirements, additional pre-design soil sampling is necessary in the access road area, and hence GE will conduct an expanded scope of soil sampling in that area. The scope of such sampling incorporates the pre-design investigations that have been previously identified for this area of East Street Area 2-South (as described in *GE's Pre-Design Investigation Work Plan for the East Street Area 2-South Removal*

*Action*, dated October 2001). In addition, the pre-design investigation for this particular area has been expanded to include additional PCB soil sampling consistent with the requirements established in the CD and SOW for recreational areas (i.e., the collection of soil samples from the uppermost foot within a 50-foot grid), and to include additional soil sampling and analysis for Appendix IX+3 constituents (due to an increase in the number of PCB samples to be collected from within the access road area). In light of the timing associated with construction of the Future City Recreational Area, the pre-design investigation for the access road area will be expedited over the sampling for the remainder of East Street Area 2-South, as discussed further in Section 6.

Figure 5-3 identifies the locations and depths for the pre-design soil sampling within or in close proximity to the access road area. In total, GE will collect 18 soil samples from 9 new or previous sample locations in this area. Each of these samples will be analyzed for PCBs. In addition, for non-PCB constituents, four of the soil samples collected from the uppermost 3 feet will also be analyzed for Appendix IX+3 constituents, excluding pesticides and herbicides. With these samples, the overall number of Appendix IX+3 samples (combining new and existing samples) will be approximately one-third of the PCB samples associated with the uppermost 3 feet; these Appendix IX+3 samples (new and existing) will be evenly distributed between the 0- to 1- and 1- to 3-foot depth increments. All field and analytical procedures will be conducted in accordance with the FSP/QAPP.

The results of the pre-design soil investigation for the access road area will be combined with the results of the supplemental Appendix IX+3 soil sampling for the Future City Recreational Area (described in Section 4.4 above) and will be submitted to EPA in a Supplemental Soil Sampling Report. Related to the access road, that report will also include an evaluation concerning the need for response actions to address the Performance Standards for the access road area, as described above. Any identified response actions will then be incorporated into the forthcoming Addendum to this RD/RA Work Plan, as discussed in Section 6.2.

## 5.4 Technical Plans and Specifications

In large part, the technical design and related construction activities associated with the installation of the soil cover within the Future City Recreational Area are addressed by the contents of this RD/RA Work Plan (i.e., the design drawings presented as Figures 5-1 and 5-2), together with certain of the documents contained within GE's Project Operations Plan (POP). In December 2000 and January 2001, GE provided to EPA the components of the POP in accordance with Attachment C to the SOW. Subsequently, following discussions with EPA, an addendum to the POP was provided to the EPA on October 19, 2001, and was verbally approved by EPA on November 7, 2001. The POP contains a series of plans that address several common aspects of the

Removal Actions Outside the River and apply to various activities to be conducted as part of those Removal Actions, ranging from initial pre-design activities to the performance and completion of remediation activities. Collectively, these plans describe the minimum requirements, general activities, protocols, and methodologies that are applicable to these Removal Actions. The POP includes a Construction Quality Assurance Plan (CQAP), which provides technical requirements related to items such as backfill, topsoil, seeding, mulch, etc. In addition, the CQAP specifies activities that are relevant to certain of the construction activities, such as soil placement and grading/compaction, survey control, etc.

However, in addition to the technical information provided in the CQAP and other components of the POP (as well as this RD/RA Work Plan), several remaining technical details associated with the construction of the soil cover within the Future City Recreational Area will be developed by GE as part of its efforts to procure a Remediation Contractor. For example, GE will prepare information related to items such as fencing, site access and security, traffic control, removal of existing surface features (e.g., former rail sections located in portions of the area), various components and appurtenances related to the ballfield, parking area/access road construction, etc. This information, while not specifically related to the scope of the required response actions, is relevant to the implementation of the project and, along with the information identified below, will be provided to EPA as part of the Addendum to this RD/RA Work Plan.

## 5.5 Implementation Planning

While the POP provides information and details sufficient to support various aspects of the response actions, there are several instances where the information presented in the POP is general and requires more site-specific information. Several such items are listed below and will be developed once GE retains a Remediation Contractor to construct the Future City Recreational Area:

- Contractor Health and Safety Plan;
- Contractor Contingency and Emergency Procedures Plan;
- Identification of backfill material and soil cover sources, and incorporation of chemical and geotechnical data into technical design as appropriate; and

- Organizations, roles, and responsibilities involved in construction quality assurance.

Once the Remediation Contractor is selected, GE will work with the Remediation Contractor to develop information necessary to address the above items. This information will be provided to EPA in the Addendum to this RD/RA Work Plan, as discussed below.

## 5.6 Applicable or Relevant and Appropriate Requirements

Since it appears that the response action for soils within the Future City Recreational Area will be limited to installation of a soil cover, this response action will be subject to the ARARs relating to such surface cover activities. Attachment B to the SOW identifies several chemical-, action-, and location-specific ARARs for the Removal Actions Outside the River. Based on the current scope of the response action for the Future City Recreational Area, it appears that the only such ARARs that will pertain to this response action are those listed in Section C of Table 2 of Attachment B to the SOW (relating to "Surface Cover Activities"). As part of the preparation of the Addendum to the RD/RA Work Plan, the specific application of these ARARs will be considered and provisions included as necessary in the technical design and implementation planning.

## 5.7 Anticipated Post-Removal Site Control Activities

Following completion of the construction of the response action (i.e., surface cover) at the Future City Recreational Area, GE will perform Post-Removal Site Control activities at that area. These activities will include the inspection, maintenance, and repair activities (I/M activities) required under Technical Attachment J to the SOW to ensure that the completed response action is performing as designed. Under GE's Lease Agreement with the City of Pittsfield for the Future City Recreational Area (which is attached to and incorporated in the DEDA), the City is responsible for general maintenance of that area (including the soil cover), but GE will be responsible for any repairs to the cover that are required under the CD and SOW. Accordingly, GE will conduct the necessary periodic I/M activities, including needed repair and replacement of cover materials and associated vegetation, required by Attachment J to the SOW. These I/M activities are described generally below. More details will be provided in a Post-Removal Site Control Plan for the Future City Recreational Area, which will be submitted in the Addendum to this RD/RA Work Plan.

### 5.7.1 Inspection and Repair Activities for Soil Cover

The soil cover at the Future City Recreational Area will be inspected approximately one month after completion of the final restoration activities to visually identify potential problems associated with the cover, such as settlement or the presence of stressed vegetation. Thereafter, the soil cover will be inspected at least every 6 months for the first year after implementation and annually thereafter (subject to EPA approval of a different frequency). Additional inspections of the soil cover will be conducted following severe storms (those with 10- to 20-year return periods) to verify that the cover system has not sustained significant damage. Following these inspections, the cover materials will be repaired or replaced as necessary at areas exhibiting deficiencies or potential problems.

Additionally, during the two-year period following the planting and installation of vegetative material, the vegetated areas will be inspected in April and October of each year to ensure that the vegetation is growing as anticipated and is providing the necessary erosion control. If needed, additional planting will be done to replace dead or dying vegetation. Specific details regarding the standards for replacement of vegetation and a schedule for the evaluation and, if necessary, replacement of such vegetation will be presented in the Post-Removal Site Control Plan for this area (mentioned above).

It should also be noted that certain ancillary features of the Future City Recreational Area, such as the fencing, the parking area, and the access road, are not part of the response action for this area (unless response actions should be necessary for the access road, as discussed above). As such, the requirements of Attachment J to the SOW for I/M activities for ancillary components of the response action do not apply to these features. Further, under GE's Lease Agreement with the City, the City has agreed to maintain the structures and facilities associated with the Future City Recreational Area. Nevertheless, GE will cooperate with the City in inspecting and maintaining these components of the Future City Recreational Area as appropriate and as agreed with the City.

### 5.7.2 Documentation

Inspection reports on Post-Removal Site Control activities will be prepared every 6 months at a minimum (subject to subsequent EPA approval of a different frequency). As required by Attachment J to the SOW, these reports will include the following information (as relevant):

- A description of the type and frequency of inspection and/or monitoring activities conducted;

- A description of any significant modifications to the inspection and/or monitoring program made since the submission of the preceding monitoring report;

- A description of any conditions or problems noted during the inspection and/or monitoring period which are or may be affecting the performance of the response action;

- A description of any measures taken to correct conditions which are affecting the performance of the response action;

- The results of sampling analyses and screening conducted as part of the monitoring and/or inspection program (if any); and

- A description of any measures that may need to be performed to correct any conditions affecting the performance of the response action.

# 6. Future Submittals and Schedule

## 6.1 Supplemental Soil Sampling Report

As previously described, GE will perform supplemental soil investigations to further evaluate the presence of PCBs and Appendix IX+3 constituents in soils associated with the Future City Recreational Area and to support the preparation of the forthcoming Addendum to this RD/RA Work Plan. Two separate investigations have been identified herein. The first (described in Section 4.4) involves the collection of soil samples from prior pre-design sampling locations within the Future City Recreational Area to further evaluate certain VOCs and SVOCs that were not detected in prior sampling but had elevated detection limits. The second investigation (described in Section 5.3) involves the performance of additional pre-design investigations in an area south of the Future City Recreational Area where an access road is currently planned. In order to: i) expedite the evaluation of the sampling results, ii) conduct the necessary evaluations, iii) prepare the appropriate documentation for submittal to EPA, and iv) be in position to construct the ballfield during the 2002 construction season, GE will commence these sampling activities shortly after submittal of this Work Plan. Following these investigations, GE will submit a Supplemental Soil Sampling Report presenting the investigation results and a proposed course of action concerning each investigation component. To the extent that future actions include additional soil sampling or other evaluations, the Supplemental Soil Sampling Report will include a proposal for such activities.

## 6.2 Addendum to RD/RA Work Plan

As previously indicated, GE also intends to submit to EPA an Addendum to this RD/RA Work Plan to provide remaining details concerning the required response actions and to provide other information related to the overall project. GE will submit the Addendum upon completion of the following activities:

- The completion of any additional soil sampling proposed in the Supplemental Soil Sampling Report and any resulting revisions to the response action evaluations;

- Discussions with the City related to the final limits and configuration of the Future City Recreational Area and related appurtenances;

-- The preparation of technical information to facilitate the selection of a Remediation Contractor; and

-- The procurement of a Remediation Contractor and the subsequent preparation of various implementation plans by or in conjunction with the Remediation Contractor.

Based on completion of the above activities, GE anticipates that the forthcoming Addendum will address, among other items, the following topics:

- Modifications (if any) to the limits and/or configuration of the Future City Recreational Area and any necessary revisions to the evaluations presented herein that result from such modifications;

- Results of any additional soil sampling proposed in the Supplemental Soil Sampling Report;

- Any resulting revisions to the evaluation of Appendix IX+3 constituents at the Future City Recreational Area;

- If such revised Appendix IX+3 evaluations are necessary and indicate a need for soil remediation in the existing 0- to 2-foot depth increment at the Future City Recreational Area, a description of the scope of such response actions and the necessary design and implementation details;

- Specific details regarding the volume of flood storage capacity that will be lost by the installation of the soil cover in the portions of the Future City Recreational Area within the 100-year floodplain and a description of how GE will obtain sufficient flood storage compensation to offset this loss of capacity, including the area from which such compensation will be obtained and related details;

- Final details concerning ancillary facilities, such as the parking area and access road;

- In the event that the soil sampling in the access road area indicates a need for response actions to achieve the Performance Standards in that area, a description of the proposed response actions for that area;

- Finalization of technical specifications and drawings (e.g., selection of materials for the construction of the Future City Recreational Area);

- Description of remaining implementation details, including a discussion of methods to ensure achievement of the pertinent ARARs (described in Section 5.6);

- A detailed Post-Removal Site Control Plan;

- Identification of Removal Action team, including key personnel, roles and responsibilities, lines of authority;

- Implementation schedule;

- Any necessary updates or supplements to the CQAP; and

- Project closeout requirements.

## 6.3 Schedule

For planning purposes, GE has targeted construction of the Future City Recreational Area to occur in mid-2002, subject to EPA approval of this RD/RA Work Plan and subsequent follow-up activities -- e.g., the supplemental soil investigations and preparation and approval of the RD/RA Work Plan Addendum. Based on this general target timeframe for construction, GE has developed the following schedule for performance of the upcoming activities.

GE will perform the supplemental soil investigation described in Sections 4.4 and 5.3 of this RD/RA Work Plan and submit a Supplemental Soil Sampling Report presenting the results of those investigations and a proposed course of action by March 1, 2002. Thereafter, GE will submit the Addendum to the RD/RA Work Plan, as described in Section 6.2. GE proposes to submit that RD/RA Work Plan Addendum within 3 months after EPA has approved both this RD/RA Work Plan and the Supplemental Soil Sampling Report. This schedule is subject to change in response to a number of factors, including weather-related delays, delays with the City in finalizing the ballfield configuration, unexpected results from the supplemental soil investigations, etc. If such activities occur that may delay GE's submittal of the Addendum within the timeframe established above, GE will so advise EPA and propose a revised date for submission of the Addendum.

# Tables

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engineers & scientists

TABLE 2-1

GENERAL ELECTRIC COMPANY
PITTSFIELD, MASSACHUSETTS
RD/RA WORK PLAN FOR FUTURE CITY RECREATIONAL AREA

PRE-DESIGN INVESTIGATION SOIL SAMPLING RESULTS FOR PCBs

(Results in ppm dry weight)

| Sample ID | Depth(Feet) | Date Collected | Aroclor-1016, -1221, -1232, -1248 | Aroclor-1242 | Aroclor-1254 | Aroclor-1260 | Total PCBs |
|---|---|---|---|---|---|---|---|
| CRA-1 | 0-2 | 1/17/01 | ND(0.044) | ND(0.044) | 0.54 | 0.74 | 1.28 |
| CRA-2 | 0-2 | 1/17/01 | ND(0.047) | ND(0.047) | 0.49 | 0.70 | 1.19 |
| CRA-3 | 0-2 | 1/17/01 | ND(0.46) | ND(0.46) | ND(0.46) | ND(0.46) | ND(0.46) |
| CRA-4 | 0-2 | 1/18/01 | ND(0.051) | ND(0.051) | 0.10 | 0.10 | 0.20 |
| CRA-5 | 0-2 | 1/18/01 | ND(0.049) | ND(0.049) | 0.35 | 0.49 | 0.84 |
| CRA-6 | 0-2 | 1/18/01 | ND(0.047) | ND(0.047) | 0.064 | 0.22 | 0.284 |
| CRA-7 | 0-2 | 1/18/01 | ND(0.048) | ND(0.048) | 0.048 | 0.063 | 0.111 |
| CRA-8 | 0-2 | 1/22/01 | ND(2.2) | ND(2.2) | ND(2.2) | ND(2.2) | ND(2.2) |
| CRA-9 | 0-2 | 1/22/01 | ND(0.24) | ND(0.24) | ND(0.24) | 5.6 | 5.6 |
| CRA-10 | 0-2 | 1/22/01 | ND(0.049) | ND(0.049) | 0.28 | 0.45 | 0.73 |
| CRA-11 | 0-2 | 1/23/01 | ND(0.047) | ND(0.047) | 0.28 | 0.78 | 1.06 |
| CRA-12 | 0-2 | 1/23/01 | ND(0.46) | ND(0.46) | ND(0.46) | 3.4 | 3.4 |
| CRA-13 | 0-2 | 1/23/01 | ND(0.046) | ND(0.046) | ND(0.046) | ND(0.046) | ND(0.046) |
| CRA-14 | 0-2 | 1/19/01 | ND(0.21) | ND(0.21) | 0.61 | 1.2 | 1.81 |
| CRA-15 | 0-2 | 1/19/01 | ND(0.23) | ND(0.23) | 0.80 | 1.5 | 2.3 |
| CRA-16 | 0-2 | 1/19/01 | ND(0.044) | ND(0.044) | 0.32 | 0.57 | 0.89 |
| CRA-17 | 0-2 | 1/19/01 | ND(4.2) | ND(4.2) | ND(4.2) | 42 | 42 |
| CRA-18 | 0-2 | 1/23/01 | ND(0.044) | ND(0.044) | ND(0.044) | 0.32 | 0.32 |
| CRA-19 | 0-2 | 1/23/01 | ND(0.044) | ND(0.044) | 0.14 | 0.24 | 0.38 |
| CRA-20 | 0-2 | 1/31/01 | ND(0.048) | ND(0.048) | 0.026 J | 0.032 J | 0.058 J |
| CRA-21 | 0-2 | 1/31/01 | ND(0.047) | ND(0.047) | ND(0.047) | ND(0.047) | ND(0.047) |
| CRA-22 | 0-2 | 1/31/01 | ND(0.058) | ND(0.058) | 0.43 | 0.52 | 0.95 |
| RAA4-3 | 0-1 | 1/30/01 | ND(0.051) | ND(0.051) | 0.68 | ND(0.051) | 0.68 |
| RAA4-5 | 0-1 | 1/30/01 | ND(0.45) | ND(0.45) | 2.8 | 6.6 | 9.4 |
| RAA4-6 | 0-1 | 1/30/01 | ND(2.5) | ND(2.5) | ND(2.5) | 14 | 14 |
| RAA4-7 | 0-1 | 1/30/01 | ND(0.22) | ND(0.22) | 0.55 | 0.73 | 1.28 |
| RAA4-8 | 0-1 | 1/30/01 | ND(0.22) [ND(0.26)] | ND(0.22) [ND(0.26)] | ND(0.22) [ND(0.26)] | 3.5 [5.4] | 3.5 [5.4] |
| RAA4-9 | 0-1 | 1/30/01 | ND(0.044) | ND(0.044) | 0.44 | 1.2 | 1.64 |
| RAA4-10 | 0-1 | 1/30/01 | ND(0.24) | ND(0.24) | ND(0.24) | 3.9 | 3.9 |
| RAA4-12 | 0-1 | 1/30/01 | ND(0.22) | ND(0.22) | ND(0.22) | 7.9 | 7.9 |
| RAA4-14 | 0-1 | 1/30/01 | ND(0.044) | 0.14 | 0.66 | 0.90 | 1.7 |
| RAA4-17 | 0-1 | 1/29/01 | ND(0.53) | ND(0.53) | 3.3 | 6.8 | 10.1 |

Notes:

1. Samples were collected by Blasland, Bouck & Lee, Inc., and were submitted to CT&E Environmental Services, Inc. for analysis of PCBs.
2. Data validation has been performed on data set as per Field Sampling Plan/Quality Assurance Project Plan, General Electric Company, Pittsfield, Massachusetts, Blasland Bouck & Lee, Inc. (approved October 17, 2000).
3. Duplicate sample results are presented in brackets.
4. ND - Analyte was not detected. The value in parentheses is the associated detection limit.
5. J - Indicates an estimated value less than the Practical Quantitation Limit (PQL).

TABLE 2-2

GENERAL ELECTRIC COMPANY
PITTSFIELD, MASSACHUSETTS
RD/RA WORK PLAN FOR FUTURE CITY RECREATIONAL AREA

PRE-DESIGN INVESTIGATION SOIL SAMPLING RESULTS FOR APPENDIX IX+3 CONSTITUENTS

(Results in ppm dry weight)

| Parameter / Sample ID: | CRA-3 | CRA-5 | CRA-7 | CRA-11 | CRA-12 | CRA-14 |
|---|---|---|---|---|---|---|
| Sample Depth(Feet): | 0-2 | 0-2 | 0-2 | 0-2 | 0-2 | 0-2 |
| Date Collected: | 04/27/01 | 01/18/01 | 01/18/01 | 01/23/01 | 01/23/01 | 01/19/01 |
| **Volatile Organics** | | | | | | |
| 1,1,1,2-Tetrachloroethane | NS | ND(0.0074) | ND(0.0072) | ND(0.0070) | ND(0.0069) | ND(0.0064) |
| 1,1,1-Trichloroethane | NS | ND(0.0074) | ND(0.0072) | ND(0.0070) | ND(0.0069) | ND(0.0064) |
| 1,1,2,2-Tetrachloroethane | NS | ND(0.0074) | ND(0.0072) | ND(0.0070) | ND(0.0069) | ND(0.0064) |
| 1,1,2-Trichloroethane | NS | ND(0.0074) | ND(0.0072) | ND(0.0070) | ND(0.0069) | ND(0.0064) |
| 1,1-Dichloroethane | NS | ND(0.0074) | ND(0.0072) | ND(0.0070) | ND(0.0069) | ND(0.0064) |
| 1,1-Dichloroethene | NS | ND(0.0074) | ND(0.0072) | ND(0.0070) | ND(0.0069) | ND(0.0064) |
| 1,2,3-Trichloropropane | NS | ND(0.0074) | ND(0.0072) | ND(0.0070) | ND(0.0069) | ND(0.0064) |
| 1,2-Dibromo-3-chloropropane | NS | ND(0.0074) | ND(0.0072) | ND(0.0070) | ND(0.0069) | ND(0.0064) |
| 1,2-Dibromoethane | NS | ND(0.0074) | ND(0.0072) | ND(0.0070) | ND(0.0069) | ND(0.0064) |
| 1,2-Dichloroethane | NS | ND(0.0074) | ND(0.0072) | ND(0.0070) | ND(0.0069) | ND(0.0064) |
| 1,2-Dichloropropane | NS | ND(0.0074) | ND(0.0072) | ND(0.0070) | ND(0.0069) | ND(0.0064) |
| 1,4-Dioxane | NS | ND(0.20) J | ND(0.20) J | ND(0.20) J | ND(0.20) J | ND(0.20) J |
| 2-Butanone | NS | ND(0.10) | ND(0.10) | ND(0.10) | ND(0.10) | ND(0.10) |
| 2-Chloro-1,3-butadiene | NS | ND(0.0074) | ND(0.0072) | ND(0.0070) | ND(0.0069) | ND(0.0064) |
| 2-Chloroethylvinylether | NS | ND(0.0074) | ND(0.0072) | ND(0.0070) | ND(0.0069) | ND(0.0064) |
| 2-Hexanone | NS | ND(0.015) | ND(0.014) | ND(0.014) | ND(0.014) | ND(0.013) |
| 3-Chloropropene | NS | ND(0.015) | ND(0.014) | ND(0.014) | ND(0.014) | ND(0.013) |
| 4-Methyl-2-pentanone | NS | ND(0.015) | ND(0.014) | ND(0.014) | ND(0.014) | ND(0.013) |
| Acetone | NS | ND(0.10) | ND(0.10) | ND(0.10) | ND(0.10) | ND(0.10) |
| Acetonitrile | NS | ND(0.15) | ND(0.14) | ND(0.14) | ND(0.14) | ND(0.13) |
| Acrolein | NS | ND(0.15) J | ND(0.14) J | ND(0.14) J | ND(0.14) J | ND(0.13) J |
| Acrylonitrile | NS | ND(0.015) | ND(0.014) | ND(0.014) | ND(0.014) | ND(0.013) |
| Benzene | NS | ND(0.0074) | ND(0.0072) | ND(0.0070) | ND(0.0069) | ND(0.0064) |
| Bromodichloromethane | NS | ND(0.0074) | ND(0.0072) | ND(0.0070) | ND(0.0069) | ND(0.0064) |
| Bromoform | NS | ND(0.0074) | ND(0.0072) | ND(0.0070) | ND(0.0069) | ND(0.0064) |
| Bromomethane | NS | ND(0.015) | ND(0.014) | ND(0.014) | ND(0.014) | ND(0.013) |
| Carbon Disulfide | NS | ND(0.010) | ND(0.010) | ND(0.010) | ND(0.010) | ND(0.010) |
| Carbon Tetrachloride | NS | ND(0.0074) | ND(0.0072) | ND(0.0070) | ND(0.0069) | ND(0.0064) |
| Chlorobenzene | NS | ND(0.0074) | ND(0.0072) | ND(0.0070) | ND(0.0069) | ND(0.0064) |
| Chloroethane | NS | ND(0.015) | ND(0.014) | ND(0.014) | ND(0.014) | ND(0.013) |
| Chloroform | NS | ND(0.0074) | ND(0.0072) | ND(0.0070) | ND(0.0069) | ND(0.0064) |
| Chloromethane | NS | ND(0.015) | ND(0.014) | ND(0.014) | ND(0.014) | ND(0.013) |
| cis-1,3-Dichloropropene | NS | ND(0.0074) | ND(0.0072) | ND(0.0070) | ND(0.0069) | ND(0.0064) |
| Dibromochloromethane | NS | ND(0.0074) | ND(0.0072) | ND(0.0070) | ND(0.0069) | ND(0.0064) |
| Dibromomethane | NS | ND(0.0074) | ND(0.0072) | ND(0.0070) | ND(0.0069) | ND(0.0064) |
| Dichlorodifluoromethane | NS | ND(0.015) | ND(0.014) | ND(0.014) | ND(0.014) | ND(0.013) |
| Ethyl Methacrylate | NS | ND(0.015) | ND(0.014) | ND(0.014) | ND(0.014) | ND(0.013) |
| Ethylbenzene | NS | ND(0.0074) | ND(0.0072) | ND(0.0070) | ND(0.0069) | ND(0.0064) |
| Iodomethane | NS | ND(0.0074) | ND(0.0072) | ND(0.0070) | ND(0.0069) | ND(0.0064) |
| Isobutanol | NS | ND(0.30) J | ND(0.29) J | ND(0.28) J | ND(0.28) J | ND(0.26) J |
| Methacrylonitrile | NS | ND(0.015) | ND(0.014) | ND(0.014) | ND(0.014) | ND(0.013) |
| Methyl Methacrylate | NS | ND(0.015) | ND(0.014) | ND(0.014) | ND(0.014) | ND(0.013) |
| Methylene Chloride | NS | ND(0.0074) | ND(0.0072) | ND(0.0070) | ND(0.0069) | ND(0.0064) |
| Propionitrile | NS | ND(0.074) J | ND(0.072) J | ND(0.070) J | ND(0.069) J | ND(0.064) J |
| Styrene | NS | ND(0.0074) | ND(0.0072) | ND(0.0070) | ND(0.0069) | ND(0.0064) |
| Tetrachloroethene | NS | ND(0.0074) | ND(0.0072) | ND(0.0070) | ND(0.0069) | ND(0.0064) |
| Toluene | NS | ND(0.0074) | ND(0.0072) | ND(0.0070) | ND(0.0069) | ND(0.0064) |
| trans-1,2-Dichloroethene | NS | ND(0.0074) | ND(0.0072) | ND(0.0070) | ND(0.0069) | ND(0.0064) |
| trans-1,3-Dichloropropene | NS | ND(0.0074) | ND(0.0072) | ND(0.0070) | ND(0.0069) | ND(0.0064) |
| trans-1,4-Dichloro-2-butene | NS | ND(0.015) | ND(0.014) | ND(0.014) | ND(0.014) | ND(0.013) |
| Trichloroethene | NS | ND(0.0074) | ND(0.0072) | ND(0.0070) | ND(0.0069) | ND(0.0064) |
| Trichlorofluoromethane | NS | ND(0.0074) | ND(0.0072) | ND(0.0070) | ND(0.0069) | ND(0.0064) |
| Vinyl Acetate | NS | ND(0.015) | ND(0.014) | ND(0.014) | ND(0.014) | ND(0.013) |
| Vinyl Chloride | NS | ND(0.015) | ND(0.014) | ND(0.014) | ND(0.014) | ND(0.013) |
| Xylenes (total) | NS | ND(0.0074) | ND(0.014) | ND(0.0070) | ND(0.014) | ND(0.013) |

TABLE 2-2

GENERAL ELECTRIC COMPANY
PITTSFIELD, MASSACHUSETTS
RD/RA WORK PLAN FOR FUTURE CITY RECREATIONAL AREA

PRE-DESIGN INVESTIGATION SOIL SAMPLING RESULTS FOR APPENDIX IX+3 CONSTITUENTS

(Results in ppm dry weight)

| Parameter / Sample ID: / Sample Depth(Feet): / Date Collected: | CRA-3 0-2 04/27/01 | CRA-5 0-2 01/18/01 | CRA-7 0-2 01/18/01 | CRA-11 0-2 01/23/01 | CRA-12 0-2 01/23/01 | CRA-14 0-2 01/19/01 |
|---|---|---|---|---|---|---|
| **Semivolatile Organics** | | | | | | |
| 1,2,4,5-Tetrachlorobenzene | ND(0.44) [ND(0.42)] | ND(0.54) | ND(0.48) | ND(0.47) | ND(0.46) | ND(2.1) |
| 1,2,4-Trichlorobenzene | ND(0.44) [ND(0.42)] | ND(0.54) | ND(0.48) | ND(0.47) | ND(0.46) | ND(2.1) |
| 1,2-Dichlorobenzene | ND(0.44) [ND(0.42)] | ND(0.54) | ND(0.48) | ND(0.47) | ND(0.46) | ND(2.1) |
| 1,2-Diphenylhydrazine | ND(0.44) [ND(0.42)] | ND(0.54) | ND(0.48) | ND(0.47) | ND(0.46) | ND(2.1) |
| 1,3,5-Trinitrobenzene | ND(0.87) [ND(0.84)] | ND(1.1) | ND(0.97) | ND(0.94) | ND(0.92) | ND(4.1) |
| 1,3-Dichlorobenzene | ND(0.44) [ND(0.42)] | ND(0.54) | ND(0.48) | ND(0.47) | ND(0.46) | ND(2.1) |
| 1,3-Dinitrobenzene | ND(2.2) [ND(2.1)] | ND(2.7) | ND(2.4) | ND(2.4) J | ND(2.3) J | ND(10) |
| 1,4-Dichlorobenzene | ND(0.44) [ND(0.42)] | ND(0.54) | ND(0.48) | ND(0.47) | ND(0.46) | ND(2.1) |
| 1,4-Naphthoquinone | ND(2.2) [ND(2.1)] | ND(2.7) | ND(2.4) | ND(2.4) | ND(2.3) | ND(10) |
| 1-Naphthylamine | ND(2.2) [ND(2.1)] | ND(2.7) | ND(2.4) | ND(2.4) | ND(2.3) | ND(10) |
| 2,3,4,6-Tetrachlorophenol | ND(0.44) [ND(0.42)] | ND(0.54) | ND(0.48) | ND(0.47) | ND(0.46) | ND(2.1) |
| 2,4,5-Trichlorophenol | ND(0.44) [ND(0.42)] | ND(0.54) | ND(0.48) | ND(0.47) | ND(0.46) | ND(2.1) |
| 2,4,6-Trichlorophenol | ND(0.44) [ND(0.42)] | ND(0.54) | ND(0.48) | ND(0.47) | ND(0.46) | ND(2.1) |
| 2,4-Dichlorophenol | ND(0.44) [ND(0.42)] | ND(0.54) | ND(0.48) | ND(0.47) | ND(0.46) | ND(2.1) |
| 2,4-Dimethylphenol | ND(0.44) [ND(0.42)] | ND(0.54) | ND(0.48) | ND(0.47) | ND(0.46) | ND(2.1) |
| 2,4-Dinitrophenol | ND(2.2) [ND(2.1)] | ND(2.7) | ND(2.4) | ND(2.4) | ND(2.3) | ND(10) |
| 2,4-Dinitrotoluene | ND(2.2) [ND(2.1)] | ND(2.7) | ND(2.4) | ND(2.4) | ND(2.3) | ND(10) |
| 2,6-Dichlorophenol | ND(0.44) [ND(0.42)] | ND(0.54) | ND(0.48) | ND(0.47) | ND(0.46) | ND(2.1) |
| 2,6-Dinitrotoluene | ND(0.44) [ND(0.42)] | ND(0.54) | ND(0.48) | ND(0.47) | ND(0.46) | ND(2.1) |
| 2-Acetylaminofluorene | ND(0.87) [ND(0.84)] | ND(1.1) | ND(0.97) | ND(0.94) | ND(0.92) | ND(4.1) |
| 2-Chloronaphthalene | ND(0.44) [ND(0.42)] | ND(0.54) | ND(0.48) | ND(0.47) | ND(0.46) | ND(2.1) |
| 2-Chlorophenol | ND(0.44) [ND(0.42)] | ND(0.54) | ND(0.48) | ND(0.47) | ND(0.46) | ND(2.1) |
| 2-Methylnaphthalene | ND(0.44) [ND(0.42)] | ND(0.54) | ND(0.48) | ND(0.47) | ND(0.46) | ND(2.1) |
| 2-Methylphenol | ND(0.44) [ND(0.42)] | ND(0.54) | ND(0.48) | ND(0.47) | ND(0.46) | ND(2.1) |
| 2-Naphthylamine | ND(2.2) [ND(2.1)] | ND(2.7) | ND(2.4) | ND(2.4) | ND(2.3) | ND(10) |
| 2-Nitroaniline | ND(2.2) [ND(2.1)] | ND(2.7) | ND(2.4) | ND(2.4) | ND(2.3) | ND(10) |
| 2-Nitrophenol | ND(0.87) [ND(0.84)] | ND(1.1) | ND(0.97) | ND(0.94) | ND(0.92) | ND(4.1) |
| 2-Picoline | ND(0.44) [ND(0.42)] | ND(0.54) | ND(0.48) | ND(0.47) | ND(0.46) | ND(2.1) |
| 3&4-Methylphenol | ND(0.87) [ND(0.84)] | ND(1.1) | ND(0.97) | ND(0.94) | ND(0.92) | ND(4.1) |
| 3,3'-Dichlorobenzidine | ND(2.2) [ND(2.1)] | ND(2.7) | ND(2.4) | ND(2.4) | ND(2.3) | ND(10) |
| 3,3'-Dimethylbenzidine | ND(2.2) [ND(2.1)] | ND(2.7) | ND(2.4) | ND(2.4) J | ND(2.3) J | ND(10) J |
| 3-Methylcholanthrene | ND(0.87) [ND(0.84)] | ND(1.1) | ND(0.97) | ND(0.94) J | ND(0.92) J | ND(4.1) J |
| 3-Nitroaniline | ND(2.2) [ND(2.1)] | ND(2.7) | ND(2.4) | ND(2.4) | ND(2.3) | ND(10) |
| 4,6-Dinitro-2-methylphenol | ND(0.44) [ND(0.42)] | ND(0.54) | ND(0.48) | ND(0.47) | ND(0.46) | ND(2.1) |
| 4-Aminobiphenyl | ND(0.87) [ND(0.84)] | ND(1.1) | ND(0.97) | ND(0.94) J | ND(0.92) J | ND(4.1) |
| 4-Bromophenyl-phenylether | ND(0.44) [ND(0.42)] | ND(0.54) | ND(0.48) | ND(0.47) | ND(0.46) | ND(2.1) |
| 4-Chloro-3-Methylphenol | ND(0.44) [ND(0.42)] | ND(0.54) | ND(0.48) | ND(0.47) | ND(0.46) | ND(2.1) |
| 4-Chloroaniline | ND(0.87) [ND(0.84)] | ND(1.1) J | ND(0.97) J | ND(0.94) | ND(0.92) | ND(4.1) |
| 4-Chlorobenzilate | ND(2.2) [ND(2.1)] | ND(2.7) | ND(2.4) | ND(2.4) | ND(2.3) | ND(10) |
| 4-Chlorophenyl-phenylether | ND(0.44) [ND(0.42)] | ND(0.54) | ND(0.48) | ND(0.47) | ND(0.46) | ND(2.1) |
| 4-Nitroaniline | ND(2.2) [ND(2.1)] | ND(2.7) | ND(2.4) | ND(2.4) | ND(2.3) | ND(10) |
| 4-Nitrophenol | ND(2.2) [ND(2.1)] | ND(2.7) | ND(2.4) | ND(2.4) | ND(2.3) | ND(10) J |
| 4-Nitroquinoline-1-oxide | ND(2.2) [ND(2.1)] | ND(2.7) J | ND(2.4) J | ND(2.4) J | ND(2.3) J | ND(10) J |
| 4-Phenylenediamine | ND(2.2) [ND(2.1)] | ND(2.7) | ND(2.4) | ND(2.4) | ND(2.3) | ND(10) |
| 5-Nitro-o-toluidine | ND(2.2) [ND(2.1)] | ND(2.7) | ND(2.4) | ND(2.4) | ND(2.3) | ND(10) |
| 7,12-Dimethylbenz(a)anthracene | ND(0.87) [ND(0.84)] | ND(1.1) | ND(0.97) | ND(0.94) | ND(0.92) | ND(4.1) |
| a,a'-Dimethylphenethylamine | ND(2.2) [ND(2.1)] | ND(2.7) | ND(2.4) | ND(2.4) | ND(2.3) | ND(10) |
| Acenaphthene | ND(0.44) [0.63] | ND(0.54) | ND(0.48) | ND(0.47) | ND(0.46) | ND(2.1) |
| Acenaphthylene | ND(0.44) [0.44] | ND(0.54) | ND(0.48) | ND(0.47) | ND(0.46) | ND(2.1) |
| Acetophenone | ND(0.44) [ND(0.42)] | ND(0.54) J | ND(0.48) J | ND(0.47) | ND(0.46) | ND(2.1) |
| Aniline | ND(0.44) [ND(0.42)] | ND(0.54) | ND(0.48) | ND(0.47) | ND(0.46) | ND(2.1) |
| Anthracene | ND(0.44) [1.7] | ND(0.54) | ND(0.48) | 0.10 J | ND(0.46) | ND(2.1) |
| Aramite | ND(0.87) [ND(0.84)] | ND(1.1) J | ND(0.97) J | ND(0.94) J | ND(0.92) J | ND(4.1) J |
| Benzidine | ND(0.87) [ND(0.84)] | ND(1.1) | ND(0.97) | ND(0.94) J | ND(0.92) J | ND(4.1) J |
| Benzo(a)anthracene | 0.60 [3.0] | ND(0.54) | ND(0.48) | 0.56 | ND(0.46) | ND(2.1) |
| Benzo(a)pyrene | 0.60 [2.8] | ND(0.54) | ND(0.48) | 0.49 | ND(0.46) | ND(2.1) |
| Benzo(b)fluoranthene | 0.54 [2.1] | ND(0.54) | ND(0.48) | 0.60 | ND(0.46) | ND(2.1) |
| Benzo(g,h,i)perylene | ND(0.44) [1.9] | ND(0.54) | ND(0.48) | 0.18 J | ND(0.46) | ND(2.1) |
| Benzo(k)fluoranthene | 0.51 [1.9] | ND(0.54) | ND(0.48) | 0.89 | ND(0.46) | ND(2.1) |
| Benzyl Alcohol | ND(0.87) [ND(0.84)] | ND(1.1) | ND(0.97) | ND(0.94) | ND(0.92) | ND(4.1) |

TABLE 2-2

GENERAL ELECTRIC COMPANY
PITTSFIELD, MASSACHUSETTS
RD/RA WORK PLAN FOR FUTURE CITY RECREATIONAL AREA

PRE-DESIGN INVESTIGATION SOIL SAMPLING RESULTS FOR APPENDIX IX+3 CONSTITUENTS

(Results in ppm dry weight)

| Sample ID: / Sample Depth(Feet): / Parameter / Date Collected: | CRA-3 0-2 04/27/01 | CRA-5 0-2 01/18/01 | CRA-7 0-2 01/18/01 | CRA-11 0-2 01/23/01 | CRA-12 0-2 01/23/01 | CRA-14 0-2 01/19/01 |
|---|---|---|---|---|---|---|
| **Semivolatile Organics (continued)** | | | | | | |
| bis(2-Chloroethoxy)methane | ND(0.44) [ND(0.42)] | ND(0.54) | ND(0.48) | ND(0.47) | ND(0.46) | ND(2.1) |
| bis(2-Chloroethyl)ether | ND(0.44) [ND(0.42)] | ND(0.54) | ND(0.48) | ND(0.47) | ND(0.46) | ND(2.1) |
| bis(2-Chloroisopropyl)ether | ND(0.44) [ND(0.42)] | ND(0.54) J | ND(0.48) J | ND(0.47) | ND(0.46) | ND(2.1) J |
| bis(2-Ethylhexyl)phthalate | ND(0.44) [ND(0.42)] | ND(0.54) | ND(0.48) | ND(0.47) | ND(0.46) | ND(2.1) |
| Butylbenzylphthalate | ND(0.87) [ND(0.84)] | ND(1.1) | ND(0.97) | ND(0.94) J | ND(0.92) J | ND(4.1) |
| Chrysene | 0.54 [2.7] | ND(0.54) | ND(0.48) | 1.1 | ND(0.46) | ND(2.1) |
| Diallate | ND(0.87) [ND(0.84)] | ND(1.1) | ND(0.97) | ND(0.94) | ND(0.92) | ND(4.1) |
| Dibenzo(a,h)anthracene | ND(0.87) [ND(0.84)] | ND(1.1) | ND(0.97) | ND(0.94) | ND(0.92) | ND(4.1) |
| Dibenzofuran | ND(0.44) [ND(0.42)] | ND(0.54) | ND(0.48) | ND(0.47) | ND(0.46) | ND(2.1) |
| Diethylphthalate | ND(0.44) [ND(0.42)] | ND(0.54) | ND(0.48) | ND(0.47) | ND(0.46) | ND(2.1) |
| Dimethylphthalate | ND(0.44) [ND(0.42)] | ND(0.54) | ND(0.48) | ND(0.47) | ND(0.46) | ND(2.1) |
| Di-n-Butylphthalate | ND(0.44) [ND(0.42)] | ND(0.54) | ND(0.48) | ND(0.47) | ND(0.46) | ND(2.1) |
| Di-n-Octylphthalate | ND(0.44) [ND(0.42)] | ND(0.54) | ND(0.48) | ND(0.47) | ND(0.46) | ND(2.1) |
| Diphenylamine | ND(0.44) [ND(0.42)] | ND(0.54) | ND(0.48) | ND(0.47) | ND(0.46) | ND(2.1) |
| Ethyl Methanesulfonate | ND(0.44) [ND(0.42)] | ND(0.54) J | ND(0.48) J | ND(0.47) | ND(0.46) | ND(2.1) |
| Fluoranthene | 1.2 [7.0] | ND(0.54) | ND(0.48) | 2.3 | ND(0.46) | ND(2.1) |
| Fluorene | ND(0.44) [0.84] | ND(0.54) | ND(0.48) | ND(0.47) | ND(0.46) | ND(2.1) |
| Hexachlorobenzene | ND(0.44) [ND(0.42)] | ND(0.54) | ND(0.48) | ND(0.47) | ND(0.46) | ND(2.1) |
| Hexachlorobutadiene | ND(0.87) [ND(0.84)] | ND(1.1) | ND(0.97) | ND(0.94) | ND(0.92) | ND(4.1) |
| Hexachlorocyclopentadiene | ND(0.44) [ND(0.42)] | ND(0.54) | ND(0.48) | ND(0.47) | ND(0.46) | ND(2.1) |
| Hexachloroethane | ND(0.44) [ND(0.42)] | ND(0.54) | ND(0.48) | ND(0.47) | ND(0.46) | ND(2.1) |
| Hexachlorophene | ND(0.87) [ND(0.84)] | ND(1.1) J | ND(0.97) J | ND(0.94) J | ND(0.92) J | ND(4.1) J |
| Hexachloropropene | ND(0.44) [ND(0.42)] | ND(0.54) J | ND(0.48) J | ND(0.47) | ND(0.46) | ND(2.1) J |
| Indeno(1,2,3-cd)pyrene | ND(0.87) [2.1] | ND(1.1) | ND(0.97) | 0.20 J | ND(0.92) | ND(4.1) |
| Isodrin | ND(0.44) [ND(0.42)] | ND(0.54) | ND(0.48) | ND(0.47) | ND(0.46) | ND(2.1) |
| Isophorone | ND(0.44) [ND(0.42)] | ND(0.54) | ND(0.48) | ND(0.47) | ND(0.46) | ND(2.1) |
| Isosafrole | ND(0.87) [ND(0.84)] | ND(1.1) | ND(0.97) | ND(0.94) | ND(0.92) | ND(4.1) |
| Methapyrilene | ND(2.2) [ND(2.1)] | ND(2.7) J | ND(2.4) J | ND(2.4) J | ND(2.3) J | ND(10) J |
| Methyl Methanesulfonate | ND(0.44) [ND(0.42)] | ND(0.54) | ND(0.48) | ND(0.47) | ND(0.46) | ND(2.1) |
| Naphthalene | ND(0.44) [0.83] | ND(0.54) | ND(0.48) | ND(0.47) | ND(0.46) | ND(2.1) |
| Nitrobenzene | ND(0.44) [ND(0.42)] | ND(0.54) | ND(0.48) | ND(0.47) | ND(0.46) | ND(2.1) |
| N-Nitrosodiethylamine | ND(0.44) [ND(0.42)] | ND(0.54) | ND(0.48) | ND(0.47) | ND(0.46) | ND(2.1) |
| N-Nitrosodimethylamine | ND(2.2) [ND(2.1)] | ND(2.7) | ND(2.4) | ND(2.3) | ND(2.2) | ND(10) |
| N-Nitroso-di-n-butylamine | ND(0.87) [ND(0.84)] | ND(1.1) J | ND(0.97) J | ND(0.94) | ND(0.92) | ND(4.1) |
| N-Nitroso-di-n-propylamine | ND(0.87) [ND(0.84)] | ND(1.1) | ND(0.97) | ND(0.94) | ND(0.92) | ND(4.1) |
| N-Nitrosodiphenylamine | ND(0.44) [ND(0.42)] | ND(0.54) | ND(0.48) | ND(0.47) | ND(0.46) | ND(2.1) |
| N-Nitrosomethylethylamine | ND(0.84) [ND(0.84)] | ND(0.99) | ND(0.97) | ND(0.94) | ND(0.92) | ND(2.1) |
| N-Nitrosomorpholine | ND(0.44) [ND(0.42)] | ND(0.54) | ND(0.48) | ND(0.47) | ND(0.46) | ND(2.1) J |
| N-Nitrosopiperidine | ND(0.44) [ND(0.42)] | ND(0.54) | ND(0.48) | ND(0.47) | ND(0.46) | ND(2.1) |
| N-Nitrosopyrrolidine | ND(0.87) [ND(0.84)] | ND(1.1) J | ND(0.97) J | ND(0.94) | ND(0.92) | ND(4.1) |
| o,o,o-Triethylphosphorothioate | ND(0.44) [ND(0.42)] | ND(0.54) | ND(0.48) | ND(0.47) | ND(0.46) | ND(2.1) |
| o-Toluidine | ND(0.44) [ND(0.42)] | ND(0.54) | ND(0.48) | ND(0.47) | ND(0.46) | ND(2.1) |
| p-Dimethylaminoazobenzene | ND(2.2) [ND(2.1)] | ND(2.7) | ND(2.4) | ND(2.4) | ND(2.3) | ND(10) J |
| Pentachlorobenzene | ND(0.44) [ND(0.42)] | ND(0.54) | ND(0.48) | ND(0.47) | ND(0.46) | ND(2.1) |
| Pentachloroethane | ND(0.44) [ND(0.42)] | ND(0.54) | ND(0.48) | ND(0.47) J | ND(0.46) J | ND(2.1) |
| Pentachloronitrobenzene | ND(2.2) [ND(2.1)] | ND(2.7) J | ND(2.4) J | ND(2.4) | ND(2.3) | ND(10) |
| Pentachlorophenol | ND(2.2) [ND(2.1)] | ND(2.7) | ND(2.4) | ND(2.4) | ND(2.3) | ND(10) |
| Phenacetin | ND(2.2) [ND(2.1)] | ND(2.7) | ND(2.4) | ND(2.4) | ND(2.3) | ND(10) J |
| Phenanthrene | 0.64 [7.5] | ND(0.54) | ND(0.48) | 0.67 | ND(0.46) | ND(2.1) |
| Phenol | ND(0.44) [ND(0.42)] | ND(0.54) | ND(0.48) | ND(0.47) | ND(0.46) | ND(2.1) |
| Pronamide | ND(0.44) [ND(0.42)] | ND(0.54) | ND(0.48) | ND(0.47) | ND(0.46) | ND(2.1) |
| Pyrene | 0.88 [6.2] | 0.32 J | ND(0.48) | 1.9 | ND(0.46) | ND(2.1) |
| Pyridine | ND(0.44) [ND(0.42)] | ND(0.54) J | ND(0.48) J | ND(0.47) J | ND(0.46) J | ND(2.1) |
| Safrole | ND(0.44) [ND(0.42)] | ND(0.54) | ND(0.48) | ND(0.47) | ND(0.46) | ND(2.1) |
| Thionazin | ND(0.44) [ND(0.42)] | ND(0.54) | ND(0.48) | ND(0.47) | ND(0.46) | ND(2.1) |

TABLE 2-2

GENERAL ELECTRIC COMPANY
PITTSFIELD, MASSACHUSETTS
RD/RA WORK PLAN FOR FUTURE CITY RECREATIONAL AREA

PRE-DESIGN INVESTIGATION SOIL SAMPLING RESULTS FOR APPENDIX IX+3 CONSTITUENTS

(Results in ppm dry weight)

| Parameter / Sample ID: / Sample Depth(Feet): / Date Collected: | CRA-3 0-2 04/27/01 | CRA-5 0-2 01/18/01 | CRA-7 0-2 01/18/01 | CRA-11 0-2 01/23/01 | CRA-12 0-2 01/23/01 | CRA-14 0-2 01/19/01 |
|---|---|---|---|---|---|---|
| **Furans** | | | | | | |
| 2,3,7,8-TCDF | NS | 0.000011 | ND(0.00000068) | 0.000012 | 0.0000020 | 0.0000055 |
| TCDFs (total) | NS | 0.000099 | 0.0000056 | 0.000099 I | 0.000014 | 0.000046 |
| 1,2,3,7,8-PeCDF | NS | 0.0000026 | ND(0.00000023) | 0.0000033 | 0.00000064 J** | 0.0000017 J** |
| 2,3,4,7,8-PeCDF | NS | 0.0000035 | 0.00000052 J** | 0.000010 | 0.0000022 J** | 0.0000028 |
| PeCDFs (total) | NS | 0.000048 | 0.0000050 | 0.00012 I | 0.000028 | 0.000032 |
| 1,2,3,4,7,8-HxCDF | NS | 0.0000025 | 0.00000025 J** | 0.0000042 | 0.0000011 J** | 0.0000019 J** |
| 1,2,3,6,7,8-HxCDF | NS | 0.0000018 J** | 0.00000024 J** | 0.0000037 | 0.00000098 J** | 0.0000013 J** |
| 1,2,3,7,8,9-HxCDF | NS | ND(0.00000031) | ND(0.000000070) | ND(0.0000018) | ND(0.00000027) | 0.00000036 J** |
| 2,3,4,6,7,8-HxCDF | NS | 0.0000028 | 0.00000042 J** | 0.000010 | 0.0000023 | 0.0000022 J** |
| HxCDFs (total) | NS | 0.000038 | 0.0000048 | 0.00013 | 0.000031 | 0.000029 |
| 1,2,3,4,6,7,8-HpCDF | NS | 0.0000079 | 0.00000095 J** | 0.000015 | 0.0000038 | 0.0000041 |
| 1,2,3,4,7,8,9-HpCDF | NS | 0.00000089 J** | 0.00000014 J** | 0.0000015 J** | 0.00000039 J** | 0.00000061 J** |
| HpCDFs (total) | NS | 0.000022 | 0.0000026 | 0.000037 | 0.0000081 | 0.0000092 |
| OCDF | NS | 0.000018 | ND(0.0000022) | 0.000013 | 0.0000037 J** | 0.0000036 J** |
| Total Furans | NS | 0.00023 | 0.000018 | 0.00040 | 0.000085 | 0.00012 |
| **Dioxins** | | | | | | |
| 2,3,7,8-TCDD | NS | 0.00000023 w | ND(0.000000065) | 0.00000021 w | 0.00000013 w | 0.00000016 w |
| TCDDs (total) | NS | 0.0000011 | 0.00000018 | 0.0000012 I | ND(0.00000029) | 0.00000042 |
| 1,2,3,7,8-PeCDD | NS | 0.00000027 w | 0.000000098 w | 0.0000020 w | 0.0000036 w | 0.0000011 w |
| PeCDDs (total) | NS | 0.0000020 | 0.00000015 | 0.0000026 | ND(0.00000054) | 0.00000047 I |
| 1,2,3,4,7,8-HxCDD | NS | 0.00000023 J** | ND(0.000000061) | 0.00000036 J** | ND(0.000000087) | ND(0.00000017) |
| 1,2,3,6,7,8-HxCDD | NS | 0.00000068 J** | 0.00000015 w | 0.00000077 J** | 0.00000034 J** | 0.00000026 w |
| 1,2,3,7,8,9-HxCDD | NS | 0.00000039 J** | 0.00000012 w | 0.00000053 J** | 0.00000016 J** | ND(0.00000016) |
| HxCDDs (total) | NS | 0.0000053 | 0.00000026 | 0.0000078 | 0.00000051 | 0.0000011 |
| 1,2,3,4,6,7,8-HpCDD | NS | 0.000012 | 0.0000022 J** | 0.000011 | 0.0000021 J** | 0.0000023 |
| HpCDDs (total) | NS | 0.000023 | 0.0000044 | 0.000023 | 0.0000042 | 0.0000023 |
| OCDD | NS | 0.000082 | 0.000016 | 0.000069 | ND(0.000016) | 0.000013 |
| Total Dioxins | NS | 0.00011 | 0.000021 | 0.00010 | 0.0000047 | 0.000017 |
| Total TEQs (WHO TEFs) | NS | 0.0000046 | 0.00000059 | 0.000011 | 0.0000056 | 0.0000040 |
| **Inorganics** | | | | | | |
| Antimony | NS | ND(15.0) | ND(14.0) | ND(13.0) J | ND(12.0) J | ND(11.0) |
| Arsenic | NS | ND(22.0) | 16.0 | ND(21.0) | ND(15.0) | ND(15.0) |
| Barium | NS | 47.0 | 39.0 | ND(42.0) | 31.0 | 46.0 |
| Beryllium | NS | ND(1.50) | ND(1.40) | 0.340 | 0.350 | 0.230 |
| Cadmium | NS | ND(2.20) | ND(2.20) | ND(2.10) | ND(2.10) | ND(1.90) |
| Chromium | NS | 12.0 | 15.0 | 10.0 | 12.0 | 29.0 |
| Cobalt | NS | ND(15.0) | 26.0 | 14.0 | 14.0 | 11.0 |
| Copper | NS | 41.0 | 110 | 47.0 | 58.0 | 46.0 |
| Cyanide | NS | ND(1.00) | ND(1.00) | ND(1.00) | ND(1.00) | 4.80 |
| Lead | NS | ND(30.0) | 36.0 | 64.0 | 21.0 | 26.0 |
| Mercury | NS | ND(0.300) | ND(0.290) | ND(0.280) | ND(0.280) | ND(0.260) |
| Nickel | NS | 25.0 | 35.0 | 25.0 | 25.0 | 25.0 |
| Selenium | NS | ND(1.50) | ND(1.40) | ND(1.00) | ND(1.00) | ND(0.960) |
| Silver | NS | ND(3.00) | ND(2.90) | ND(1.00) | ND(1.00) | ND(0.960) |
| Sulfide | NS | 12.0 | ND(7.20) | 9.00 | 13.0 | 16.0 |
| Thallium | NS | ND(3.00) | ND(2.90) | ND(2.10) J | ND(2.10) J | ND(1.90) |
| Tin | NS | ND(11.0) | ND(11.0) | ND(64.0) | ND(62.0) | ND(57.0) |
| Vanadium | NS | ND(15.0) | ND(14.0) | ND(10.0) | 11.0 | 23.0 |
| Zinc | NS | 99.0 | 170 | 52.0 | 57.0 | 67.0 |

TABLE 2-2

GENERAL ELECTRIC COMPANY
PITTSFIELD, MASSACHUSETTS
RD/RA WORK PLAN FOR FUTURE CITY RECREATIONAL AREA

PRE-DESIGN INVESTIGATION SOIL SAMPLING RESULTS FOR APPENDIX IX+3 CONSTITUENTS

(Results in ppm dry weight)

| Sample ID: / Sample Depth(Feet): / Parameter / Date Collected: | CRA-16 0-2 01/19/01 | CRA-18 0-2 01/23/01 | CRA-21 0-2 01/31/01 | RAA4-1 0-1 01/30/01 |
|---|---|---|---|---|
| Volatile Organics | | | | |
| 1,1,1,2-Tetrachloroethane | ND(0.0067) | ND(0.0067) [ND(0.0076)] | ND(0.0071) | ND(0.0069) |
| 1,1,1-Trichloroethane | ND(0.0067) | ND(0.0067) [ND(0.0076)] | ND(0.0071) | ND(0.0069) |
| 1,1,2,2-Tetrachloroethane | ND(0.0067) | ND(0.0067) [ND(0.0076)] | ND(0.0071) | ND(0.0069) |
| 1,1,2-Trichloroethane | ND(0.0067) | ND(0.0067) [ND(0.0076)] | ND(0.0071) | ND(0.0069) |
| 1,1-Dichloroethane | ND(0.0067) | ND(0.0067) [ND(0.0076)] | ND(0.0071) | ND(0.0069) |
| 1,1-Dichloroethene | ND(0.0067) | ND(0.0067) [ND(0.0076)] | ND(0.0071) | ND(0.0069) |
| 1,2,3-Trichloropropane | ND(0.0067) | ND(0.0067) [ND(0.0076)] | ND(0.0071) | ND(0.0069) |
| 1,2-Dibromo-3-chloropropane | ND(0.0067) | ND(0.0067) [ND(0.0076)] | ND(0.0071) | ND(0.0069) |
| 1,2-Dibromoethane | ND(0.0067) | ND(0.0067) [ND(0.0076)] | ND(0.0071) | ND(0.0069) |
| 1,2-Dichloroethane | ND(0.0067) | ND(0.0067) [ND(0.0076)] | ND(0.0071) | ND(0.0069) |
| 1,2-Dichloropropane | ND(0.0067) | ND(0.0067) [ND(0.0076)] | ND(0.0071) | ND(0.0069) |
| 1,4-Dioxane | ND(0.20) J | ND(0.20) J [ND(0.20)] | ND(0.20) J | ND(0.20) J |
| 2-Butanone | ND(0.10) | ND(0.10) [ND(0.10)] | ND(0.10) | ND(0.10) |
| 2-Chloro-1,3-butadiene | ND(0.0067) | ND(0.0067) [ND(0.0076)] | ND(0.0071) | ND(0.0069) |
| 2-Chloroethylvinylether | ND(0.0067) | ND(0.0067) [ND(0.0076)] | ND(0.0071) | ND(0.0069) |
| 2-Hexanone | ND(0.013) | ND(0.013) [ND(0.015)] | ND(0.014) | ND(0.014) |
| 3-Chloropropene | ND(0.013) | ND(0.013) [ND(0.015)] | ND(0.014) | ND(0.014) |
| 4-Methyl-2-pentanone | ND(0.013) | ND(0.013) [ND(0.015)] | ND(0.014) | ND(0.014) |
| Acetone | ND(0.10) | ND(0.10) [ND(0.10)] | ND(0.10) | ND(0.10) |
| Acetonitrile | ND(0.13) | ND(0.13) [ND(0.15)] | ND(0.14) J | ND(0.14) J |
| Acrolein | ND(0.13) J | ND(0.13) J [ND(0.15)] | ND(0.14) J | ND(0.14) J |
| Acrylonitrile | ND(0.013) | ND(0.013) [ND(0.015)] | ND(0.014) | ND(0.014) |
| Benzene | ND(0.0067) | ND(0.0067) [ND(0.0076)] | ND(0.0071) | ND(0.0069) |
| Bromodichloromethane | ND(0.0067) | ND(0.0067) [ND(0.0076)] | ND(0.0071) | ND(0.0069) |
| Bromoform | ND(0.0067) | ND(0.0067) [ND(0.0076)] | ND(0.0071) | ND(0.0069) |
| Bromomethane | ND(0.013) | ND(0.013) [ND(0.015)] | ND(0.014) | ND(0.014) |
| Carbon Disulfide | ND(0.010) | ND(0.010) [ND(0.010)] | ND(0.010) | ND(0.010) |
| Carbon Tetrachloride | ND(0.0067) | ND(0.0067) [ND(0.0076)] | ND(0.0071) | ND(0.0069) |
| Chlorobenzene | ND(0.0067) | ND(0.0067) [ND(0.0076)] | ND(0.0071) | ND(0.0069) |
| Chloroethane | ND(0.013) | ND(0.013) [ND(0.015)] | ND(0.014) | ND(0.014) |
| Chloroform | ND(0.0067) | ND(0.0067) [ND(0.0076)] | ND(0.0071) | ND(0.0069) |
| Chloromethane | ND(0.013) | ND(0.013) [ND(0.015)] | ND(0.014) | ND(0.014) |
| cis-1,3-Dichloropropene | ND(0.0067) | ND(0.0067) [ND(0.0076)] | ND(0.0071) | ND(0.0069) |
| Dibromochloromethane | ND(0.0067) | ND(0.0067) [ND(0.0076)] | ND(0.0071) | ND(0.0069) |
| Dibromomethane | ND(0.0067) | ND(0.0067) [ND(0.0076)] | ND(0.0071) | ND(0.0069) |
| Dichlorodifluoromethane | ND(0.013) | ND(0.013) [ND(0.015)] | ND(0.014) | ND(0.014) |
| Ethyl Methacrylate | ND(0.013) | ND(0.013) [ND(0.015)] | ND(0.014) | ND(0.014) |
| Ethylbenzene | ND(0.0067) | ND(0.0067) [ND(0.0076)] | ND(0.0071) | ND(0.0069) |
| Iodomethane | ND(0.0067) | ND(0.0067) [ND(0.0076)] | ND(0.0071) | ND(0.0069) |
| Isobutanol | ND(0.27) J | ND(0.27) J [ND(0.30)] | ND(0.28) J | ND(0.28) J |
| Methacrylonitrile | ND(0.013) | ND(0.013) [ND(0.015)] | ND(0.014) | ND(0.014) |
| Methyl Methacrylate | ND(0.013) | ND(0.013) [ND(0.015)] | ND(0.014) | ND(0.014) |
| Methylene Chloride | ND(0.0067) | ND(0.0067) [ND(0.0076)] | ND(0.0071) | ND(0.0069) |
| Propionitrile | ND(0.067) J | ND(0.067) J [ND(0.076)] | ND(0.071) J | ND(0.069) J |
| Styrene | ND(0.0067) | ND(0.0067) [ND(0.0076)] | ND(0.0071) | ND(0.0069) |
| Tetrachloroethene | ND(0.0067) | ND(0.0067) [ND(0.0076)] | ND(0.0071) | ND(0.0069) |
| Toluene | ND(0.0067) | ND(0.0067) [ND(0.0076)] | ND(0 0071) | ND(0.0069) |
| trans-1,2-Dichloroethene | ND(0.0067) | ND(0.0067) [ND(0.0076)] | ND(0.0071) | ND(0.0069) |
| trans-1,3-Dichloropropene | ND(0.0067) | ND(0.0067) [ND(0.0076)] | ND(0.0071) | ND(0.0069) |
| trans-1,4-Dichloro-2-butene | ND(0.013) | ND(0.013) [ND(0.015)] | ND(0.014) | ND(0.014) |
| Trichloroethene | ND(0.0067) | ND(0.0067) [ND(0.0076)] | ND(0.0071) | ND(0.0069) |
| Trichlorofluoromethane | ND(0.0067) | ND(0.0067) [ND(0.0076)] | ND(0.0071) J | ND(0.0069) J |
| Vinyl Acetate | ND(0.013) | ND(0.013) [ND(0.015)] | ND(0.014) | ND(0.014) |
| Vinyl Chloride | ND(0.013) | ND(0.013) [ND(0.015)] | ND(0.014) | ND(0.014) |
| Xylenes (total) | ND(0.013) | ND(0.013) [ND(0.0076)] | ND(0.0071) | ND(0.0069) |

TABLE 2-2

GENERAL ELECTRIC COMPANY
PITTSFIELD, MASSACHUSETTS
RD/RA WORK PLAN FOR FUTURE CITY RECREATIONAL AREA

PRE-DESIGN INVESTIGATION SOIL SAMPLING RESULTS FOR APPENDIX IX+3 CONSTITUENTS

(Results in ppm dry weight)

| Parameter / Sample ID: / Sample Depth(Feet): / Date Collected: | CRA-16 0-2 01/19/01 | CRA-18 0-2 01/23/01 | CRA-21 0-2 01/31/01 | RAA4-1 0-1 01/30/01 |
|---|---|---|---|---|
| **Semivolatile Organics** | | | | |
| 1,2,4,5-Tetrachlorobenzene | ND(0.44) | ND(0.44) [ND(0.50)] | ND(0.47) | ND(4.6) |
| 1,2,4-Trichlorobenzene | ND(0.44) | ND(0.44) [ND(0.50)] | ND(0.47) | ND(4.6) |
| 1,2-Dichlorobenzene | ND(0.44) | ND(0.44) [ND(0.50)] | ND(0.47) | ND(4.6) |
| 1,2-Diphenylhydrazine | ND(0.44) | ND(0.44) [ND(0.50)] | ND(0.47) | ND(4.6) |
| 1,3,5-Trinitrobenzene | ND(0.90) | ND(0.89) [ND(1.0)] | ND(0.96) | ND(9.2) |
| 1,3-Dichlorobenzene | ND(0.44) | ND(0.44) [ND(0.50)] | ND(0.47) | ND(4.6) |
| 1,3-Dinitrobenzene | ND(2.3) | ND(2.3) J [ND(2.6)] | ND(2.4) | ND(23) |
| 1,4-Dichlorobenzene | ND(0.44) | ND(0.44) [ND(0.50)] | ND(0.47) | ND(4.6) |
| 1,4-Naphthoquinone | ND(2.3) | ND(2.3) [ND(2.6)] | ND(2.4) | ND(23) |
| 1-Naphthylamine | ND(2.3) | ND(2.3) [ND(2.6) J] | ND(2.4) J | ND(23) J |
| 2,3,4,6-Tetrachlorophenol | ND(0.44) | ND(0.44) [ND(0.50)] | ND(0.47) | ND(4.6) |
| 2,4,5-Trichlorophenol | ND(0.44) | ND(0.44) [ND(0.50)] | ND(0.47) | ND(4.6) |
| 2,4,6-Trichlorophenol | ND(0.44) | ND(0.44) [ND(0.50)] | ND(0.47) | ND(4.6) |
| 2,4-Dichlorophenol | ND(0.44) | ND(0.44) [ND(0.50)] | ND(0.47) | ND(4.6) |
| 2,4-Dimethylphenol | ND(0.44) | ND(0.44) [ND(0.50)] | ND(0.47) | ND(4.6) |
| 2,4-Dinitrophenol | ND(2.3) | ND(2.3) [ND(2.6)] | ND(2.4) | ND(23) |
| 2,4-Dinitrotoluene | ND(2.3) | ND(2.3) [ND(2.6)] | ND(2.4) | ND(23) |
| 2,6-Dichlorophenol | ND(0.44) | ND(0.44) [ND(0.50)] | ND(0.47) | ND(4.6) |
| 2,6-Dinitrotoluene | ND(0.44) | ND(0.44) [ND(0.50) J] | ND(0.47) | ND(4.6) |
| 2-Acetylaminofluorene | ND(0.90) | ND(0.89) [ND(1.0) J] | ND(0.96) | ND(9.2) |
| 2-Chloronaphthalene | ND(0.44) | ND(0.44) [ND(0.50)] | ND(0.47) | ND(4.6) |
| 2-Chlorophenol | ND(0.44) | ND(0.44) [ND(0.50)] | ND(0.47) | ND(4.6) |
| 2-Methylnaphthalene | ND(0.44) | ND(0.44) [ND(0.50)] | ND(0.47) | ND(4.6) |
| 2-Methylphenol | ND(0.44) | ND(0.44) [ND(0.50)] | ND(0.47) | ND(4.6) |
| 2-Naphthylamine | ND(2.3) | ND(2.3) [ND(2.6)] | ND(2.4) J | ND(23) |
| 2-Nitroaniline | ND(2.3) | ND(2.3) [ND(2.6) J] | ND(2.4) | ND(23) |
| 2-Nitrophenol | ND(0.90) | ND(0.89) [ND(1.0)] | ND(0.96) | ND(9.2) |
| 2-Picoline | ND(0.44) | ND(0.44) [ND(0.50)] | ND(0.47) | ND(4.6) |
| 3&4-Methylphenol | ND(0.90) | ND(0.89) [ND(1.0)] | ND(0.96) | ND(9.2) |
| 3,3'-Dichlorobenzidine | ND(2.3) | ND(2.3) [ND(2.6) J] | ND(2.4) J | ND(23) J |
| 3,3'-Dimethylbenzidine | ND(2.3) | ND(2.3) J [ND(2.6) J] | ND(2.4) | ND(23) |
| 3-Methylcholanthrene | ND(0.90) | ND(0.89) J [ND(1.0)] | ND(0.96) J | ND(9.2) |
| 3-Nitroaniline | ND(2.3) | ND(2.3) [ND(2.6)] | ND(2.4) | ND(23) |
| 4,6-Dinitro-2-methylphenol | ND(0.44) | ND(0.44) [ND(0.50)] | ND(0.47) | ND(4.6) |
| 4-Aminobiphenyl | ND(0.90) | ND(0.89) J [ND(1.0)] | ND(0.96) J | ND(9.2) |
| 4-Bromophenyl-phenylether | ND(0.44) | ND(0.44) [ND(0.50)] | ND(0.47) | ND(4.6) |
| 4-Chloro-3-Methylphenol | ND(0.44) | ND(0.44) [ND(0.50)] | ND(0.47) | ND(4.6) |
| 4-Chloroaniline | ND(0.90) J | ND(0.89) [ND(1.0)] | ND(0.96) | ND(9.2) |
| 4-Chlorobenzilate | ND(2.3) | ND(2.3) [ND(2.6)] | ND(2.4) | ND(23) |
| 4-Chlorophenyl-phenylether | ND(0.44) | ND(0.44) [ND(0.50)] | ND(0.47) | ND(4.6) |
| 4-Nitroaniline | ND(2.3) | ND(2.3) [ND(2.6)] | ND(2.4) | ND(23) |
| 4-Nitrophenol | ND(2.3) | ND(2.3) [ND(2.6)] | ND(2.4) | ND(23) |
| 4-Nitroquinoline-1-oxide | ND(2.3) J | ND(2.3) J [ND(2.6) J] | ND(2.4) J | ND(23) J |
| 4-Phenylenediamine | ND(2.3) | ND(2.3) [ND(2.6)] | ND(2.4) | ND(23) |
| 5-Nitro-o-toluidine | ND(2.3) | ND(2.3) [ND(2.6)] | ND(2.4) | ND(23) |
| 7,12-Dimethylbenz(a)anthracene | ND(0.90) | ND(0.89) [ND(1.0)] | ND(0.96) J | ND(9.2) |
| a,a'-Dimethylphenethylamine | ND(2.3) | ND(2.3) [ND(2.6) J] | ND(2.4) | ND(23) |
| Acenaphthene | ND(0.44) | 0.13 J [ND(0.50)] | ND(0.47) | ND(4.6) |
| Acenaphthylene | ND(0.44) | ND(0.44) [ND(0.50)] | ND(0.47) | 4.0 J |
| Acetophenone | ND(0.44) J | ND(0.44) [ND(0.50)] | ND(0.47) | ND(4.6) |
| Aniline | ND(0.44) | ND(0.44) [ND(0.50)] | ND(0.47) | ND(4.6) |
| Anthracene | ND(0.44) | 0.34 J [ND(0.50)] | ND(0.47) | 1.2 J |
| Aramite | ND(0.90) J | ND(0.89) J [ND(1.0) J] | ND(0.96) J | ND(9.2) J |
| Benzidine | ND(0.90) | ND(0.89) J [ND(1.0)] | ND(0.96) | ND(9.2) |
| Benzo(a)anthracene | 0.33 J | 1.0 [ND(0.50)] | ND(0.47) | 10 |
| Benzo(a)pyrene | 0.35 J | 1.0 [ND(0.50)] | ND(0.47) | 11 |
| Benzo(b)fluoranthene | 0.23 J | 0.84 [ND(0.50)] | ND(0.47) | 6.1 |
| Benzo(g,h,i)perylene | ND(0.44) | 0.56 [ND(0.50)] | ND(0.47) | 8.1 |
| Benzo(k)fluoranthene | 0.45 | 1.1 [ND(0.50)] | ND(0.47) | 7.8 |
| Benzyl Alcohol | ND(0.90) | ND(0.89) [ND(1.0)] | ND(0.96) | ND(9.2) |

TABLE 2-2

GENERAL ELECTRIC COMPANY
PITTSFIELD, MASSACHUSETTS
RD/RA WORK PLAN FOR FUTURE CITY RECREATIONAL AREA

PRE-DESIGN INVESTIGATION SOIL SAMPLING RESULTS FOR APPENDIX IX+3 CONSTITUENTS

(Results in ppm dry weight)

| Parameter / Sample ID: | CRA-16 | CRA-18 | CRA-21 | RAA4-1 |
|---|---|---|---|---|
| Sample Depth(Feet): | 0-2 | 0-2 | 0-2 | 0-1 |
| Date Collected: | 01/19/01 | 01/23/01 | 01/31/01 | 01/30/01 |
| **Semivolatile Organics (continued)** | | | | |
| bis(2-Chloroethoxy)methane | ND(0.44) | ND(0.44) [ND(0.50)] | ND(0.47) | ND(4.6) |
| bis(2-Chloroethyl)ether | ND(0.44) | ND(0.44) [ND(0.50)] | ND(0.47) | ND(4.6) |
| bis(2-Chloroisopropyl)ether | ND(0.44) J | ND(0.44) [ND(0.50)] | ND(0.47) J | ND(4.6) |
| bis(2-Ethylhexyl)phthalate | ND(0.44) | ND(0.44) [ND(0.50)] | ND(0.47) | ND(4.6) |
| Butylbenzylphthalate | ND(0.90) | ND(0.89) J [ND(1.0) J] | ND(0.96) | ND(9.2) |
| Chrysene | 0.43 J | 1.1 [ND(0.50)] | ND(0.47) | 9.6 |
| Diallate | ND(0.90) | ND(0.89) [ND(1.0)] | ND(0.96) | ND(9.2) |
| Dibenzo(a,h)anthracene | ND(0.90) | ND(0.89) [ND(1.0)] | ND(0.96) | ND(9.2) |
| Dibenzofuran | ND(0.44) | 0.14 J [ND(0.50)] | ND(0.47) | ND(4.6) |
| Diethylphthalate | ND(0.44) | ND(0.44) [ND(0.50)] | ND(0.47) | ND(4.6) |
| Dimethylphthalate | ND(0.44) | ND(0.44) [ND(0.50)] | ND(0.47) | ND(4.6) |
| Di-n-Butylphthalate | ND(0.44) | ND(0.44) [ND(0.50)] | ND(0.47) | ND(4.6) |
| Di-n-Octylphthalate | ND(0.44) | ND(0.44) [ND(0.50)] | ND(0.47) | ND(4.6) |
| Diphenylamine | ND(0.44) | ND(0.44) [ND(0.50)] | ND(0.47) | ND(4.6) |
| Ethyl Methanesulfonate | ND(0.44) J | ND(0.44) [ND(0.50)] | ND(0.47) J | ND(4.6) |
| Fluoranthene | 0.66 | 2.1 [ND(0.50)] | ND(0.47) | 12 |
| Fluorene | ND(0.44) | 0.16 J [ND(0.50)] | ND(0.47) | ND(4.6) |
| Hexachlorobenzene | ND(0.44) | ND(0.44) [ND(0.50)] | ND(0.47) | ND(4.6) |
| Hexachlorobutadiene | ND(0.90) | ND(0.89) [ND(1.0)] | ND(0.96) | ND(9.2) |
| Hexachlorocyclopentadiene | ND(0.44) | ND(0.44) [ND(0.50)] | ND(0.47) J | ND(4.6) |
| Hexachloroethane | ND(0.44) | ND(0.44) [ND(0.50)] | ND(0.47) | ND(4.6) |
| Hexachlorophene | ND(0.90) J | ND(0.89) J [ND(1.0) J] | ND(0.96) J | ND(9.2) J |
| Hexachloropropene | ND(0.44) J | ND(0.44) [ND(0.50) J] | ND(0.47) | ND(4.6) J |
| Indeno(1,2,3-cd)pyrene | ND(0.90) | 0.56 J [ND(1.0)] | ND(0.96) | 7.2 J |
| Isodrin | ND(0.44) J | ND(0.44) [ND(0.50)] | ND(0.47) | ND(4.6) |
| Isophorone | ND(0.44) | ND(0.44) [ND(0.50)] | ND(0.47) | ND(4.6) |
| Isosafrole | ND(0.90) | ND(0.89) [ND(1.0)] | ND(0.96) | ND(9.2) |
| Methapyrilene | ND(2.3) J | ND(2.3) J [ND(2.6)] | ND(2.4) J | ND(23) J |
| Methyl Methanesulfonate | ND(0.44) | ND(0.44) [ND(0.50)] | ND(0.47) | ND(4.6) |
| Naphthalene | ND(0.44) | 0.17 J [ND(0.50)] | ND(0.47) | ND(4.6) |
| Nitrobenzene | ND(0.44) | ND(0.44) [ND(0.50)] | ND(0.47) | ND(4.6) |
| N-Nitrosodiethylamine | ND(0.44) | ND(0.44) [ND(0.50)] | ND(0.47) | ND(4.6) |
| N-Nitrosodimethylamine | ND(2.2) | ND(2.2) [ND(2.5)] | ND(2.3) | ND(23) |
| N-Nitroso-di-n-butylamine | ND(0.90) J | ND(0.89) [ND(1.0)] | ND(0.96) | ND(9.2) J |
| N-Nitroso-di-n-propylamine | ND(0.90) | ND(0.89) [ND(1.0)] | ND(0.96) | ND(9.2) |
| N-Nitrosodiphenylamine | ND(0.44) | ND(0.44) [ND(0.50)] | ND(0.47) | ND(4.6) |
| N-Nitrosomethylethylamine | ND(0.90) | ND(0.89) [ND(1.0)] | ND(0.96) | ND(4.6) |
| N-Nitrosomorpholine | ND(0.44) | ND(0.44) [ND(0.50) J] | ND(0.47) | ND(4.6) J |
| N-Nitrosopiperidine | ND(0.44) | ND(0.44) [ND(0.50)] | ND(0.47) | ND(4.6) |
| N-Nitrosopyrrolidine | ND(0.90) J | ND(0.89) [ND(1.0)] | ND(0.96) | ND(9.2) |
| o,o,o-Triethylphosphorothioate | ND(0.44) | ND(0.44) [ND(0.50)] | ND(0.47) J | ND(4.6) J |
| o-Toluidine | ND(0.44) | ND(0.44) [ND(0.50)] | ND(0.47) | ND(4.6) |
| p-Dimethylaminoazobenzene | ND(2.3) | ND(2.3) [ND(2.6)] | ND(2.4) | ND(23) |
| Pentachlorobenzene | ND(0.44) | ND(0.44) [ND(0.50)] | ND(0.47) | ND(4.6) |
| Pentachloroethane | ND(0.44) | ND(0.44) J [ND(0.50)] | ND(0.47) | ND(4.6) J |
| Pentachloronitrobenzene | ND(2.3) J | ND(2.3) [ND(2.6) J] | ND(2.4) | ND(23) |
| Pentachlorophenol | ND(2.3) | ND(2.3) [ND(2.6)] | ND(2.4) | ND(23) |
| Phenacetin | ND(2.3) | ND(2.3) [ND(2.6)] | ND(2.4) | ND(23) |
| Phenanthrene | 0.49 | 1.6 [ND(0.50)] | ND(0.47) | 2.0 J |
| Phenol | ND(0.44) | ND(0.44) [ND(0.50)] | ND(0.47) | ND(4.6) |
| Pronamide | ND(0.44) | ND(0.44) [ND(0.50)] | ND(0.47) | ND(4.6) |
| Pyrene | 1.1 | 2.2 [ND(0.50)] | ND(0.47) | 22 |
| Pyridine | ND(0.44) J | ND(0.44) J [ND(0.50)] | ND(0.47) | ND(4.6) J |
| Safrole | ND(0.44) | ND(0.44) [ND(0.50)] | ND(0.47) | ND(4.6) |
| Thionazin | ND(0.44) | ND(0.44) [ND(0.50)] | ND(0.47) | ND(4.6) |

TABLE 2-2

GENERAL ELECTRIC COMPANY
PITTSFIELD, MASSACHUSETTS
RD/RA WORK PLAN FOR FUTURE CITY RECREATIONAL AREA

PRE-DESIGN INVESTIGATION SOIL SAMPLING RESULTS FOR APPENDIX IX+3 CONSTITUENTS

(Results in ppm dry weight)

| Parameter / Sample ID: / Sample Depth(Feet): / Date Collected: | CRA-16 0-2 01/19/01 | CRA-18 0-2 01/23/01 | CRA-21 0-2 01/31/01 | RAA4-1 0-1 01/30/01 |
|---|---|---|---|---|
| **Furans** | | | | |
| 2,3,7,8-TCDF | 0.000014 | 0.0000098 [0.0000098] | 0.00000051 J** | 0.000018 |
| TCDFs (total) | 0.00013 I | 0.000080 I [0.000091] | 0.0000036 | 0.00012 |
| 1,2,3,7,8-PeCDF | 0.0000041 | 0.0000039 [0.0000034] | 0.00000023 w | 0.0000052 |
| 2,3,4,7,8-PeCDF | 0.0000054 | 0.000012 [0.000012] | 0.00000053 J** | 0.0000074 |
| PeCDFs (total) | 0.000068 I | 0.00011 I [0.00012 I] | 0.0000052 | 0.000084 Q |
| 1,2,3,4,7,8-HxCDF | 0.0000038 | 0.0000048 [0.0000038] | 0.00000043 J** | 0.0000049 |
| 1,2,3,6,7,8-HxCDF | 0.0000027 | 0.0000038 [0.0000034] | 0.00000038 J** | 0.0000030 J** |
| 1,2,3,7,8,9-HxCDF | 0.00000061 J** | 0.0000011 J** [0.0000010 J**] | ND(0.00000010) | 0.00000079 w |
| 2,3,4,6,7,8-HxCDF | 0.0000042 | 0.0000068 [0.0000070] | 0.00000060 J** | 0.0000042 |
| HxCDFs (total) | 0.000053 | 0.000084 [0.000091] | 0.0000079 | 0.000062 |
| 1,2,3,4,6,7,8-HpCDF | 0.0000077 | 0.0000094 [0.0000082] | 0.0000057 | 0.000018 |
| 1,2,3,4,7,8,9-HpCDF | 0.00000087 J** | 0.0000013 J** [0.0000011 J**] | 0.00000044 J** | 0.0000011 J** |
| HpCDFs (total) | 0.000015 I | 0.000021 [0.000020] | 0.000015 | 0.000032 |
| OCDF | 0.0000053 | 0.0000085 [0.0000066] | 0.000018 | 0.000011 |
| Total Furans | 0.00027 | 0.00030 [0.00033] | 0.000050 | 0.00031 |
| **Dioxins** | | | | |
| 2,3,7,8-TCDD | 0.00000025 w | 0.00000021 w [0.00000018 w] | ND(0.000000095) | 0.00000034 w |
| TCDDs (total) | 0.0000024 I | 0.0000014 [0.0000016] | ND(0.00000042) | 0.00000082 |
| 1,2,3,7,8-PeCDD | 0.0000014 w | 0.0000024 w [0.0000013 w] | 0.00000019 w | 0.00000043 J** |
| PeCDDs (total) | 0.00000027 I | 0.0000022 [0.0000027] | ND(0.00000062) | 0.0000039 Q |
| 1,2,3,4,7,8-HxCDD | 0.00000025 J** | 0.00000022 J** [0.00000021 J**] | 0.00000026 J** | 0.00000045 J** |
| 1,2,3,6,7,8-HxCDD | 0.00000054 J** | 0.00000065 J** [0.00000055 J**] | 0.00000077 J** | 0.00000078 J** |
| 1,2,3,7,8,9-HxCDD | 0.00000035 J** | 0.00000040 J** [0.00000033 J**] | 0.00000053 J** | 0.00000067 J** |
| HxCDDs (total) | 0.0000024 | 0.0000063 [0.0000060] | 0.0000048 | 0.0000089 |
| 1,2,3,4,6,7,8-HpCDD | 0.0000051 | 0.0000079 [0.0000057] | 0.000018 | 0.0000080 |
| HpCDDs (total) | 0.000011 | 0.000017 [0.000012] | 0.000034 | 0.000016 |
| OCDD | 0.000029 | 0.000057 [0.000039] | 0.00013 | ND(0.000043) |
| Total Dioxins | 0.000045 | 0.000084 [0.000061] | 0.00017 | 0.000030 |
| Total TEQs (WHO TEFs) | 0.0000073 | 0.000012 [0.000010] | 0.0000011 | 0.0000083 |
| **Inorganics** | | | | |
| Antimony | ND(12.0) | ND(12.0) J [ND(14.0) J] | ND(13.0) | ND(12.0) |
| Arsenic | ND(15.0) | ND(15.0) [ND(23.0)] | ND(21.0) | ND(21.0) |
| Barium | 36.0 | 39.0 [ND(46.0)] | ND(43.0) | ND(42.0) |
| Beryllium | 0.270 | 0.300 [0.330] | 0.310 | 0.360 |
| Cadmium | ND(2.00) | ND(2.00) [ND(2.30)] | ND(2.10) | ND(2.10) |
| Chromium | 9.40 | 12.0 [14.0] | 11.0 | 9.90 |
| Cobalt | 11.0 | 14.0 [17.0] | ND(11.0) | ND(10.0) |
| Copper | 31.0 | 56.0 [50.0] | ND(21.0) | 39.0 |
| Cyanide | ND(1.00) | ND(1.00) [ND(1.00)] | ND(1.00) | 5.40 |
| Lead | 42.0 | 38.0 [34.0] | 18.0 | 29.0 |
| Mercury | ND(0.270) | ND(0.270) [ND(0.300)] | ND(0.280) | ND(0.280) |
| Nickel | 19.0 | 26.0 [30.0] | 16.0 | 21.0 |
| Selenium | ND(1.00) | ND(1.00) [ND(1.10)] | ND(1.10) J | ND(1.00) J |
| Silver | ND(1.00) | ND(1.00) [ND(1.10)] | ND(1.10) | ND(1.00) |
| Sulfide | ND(6.70) | 21.0 [29.0] | ND(7.10) | 20.0 |
| Thallium | ND(2.00) | ND(2.00) J [ND(2.30) J] | ND(2.10) | ND(2.10) |
| Tin | ND(60.0) | ND(60.0) [ND(68.0)] | ND(64.0) | ND(62.0) |
| Vanadium | 11.0 | 12.0 [14.0] | 11.0 | 14.0 |
| Zinc | 70.0 | 69.0 [84.0] | 58.0 | 55.0 |

TABLE 2-2

GENERAL ELECTRIC COMPANY
PITTSFIELD, MASSACHUSETTS
RD/RA WORK PLAN FOR FUTURE CITY RECREATIONAL AREA

PRE-DESIGN INVESTIGATION SOIL SAMPLING RESULTS FOR APPENDIX IX+3 CONSTITUENTS

(Results in ppm dry weight)

| Parameter / Sample ID: / Sample Depth(Feet): / Date Collected: | RAA4-8 0-1 01/30/01 | X-17 0-2 01/31/01 |
|---|---|---|
| **Volatile Organics** | | |
| 1,1,1,2-Tetrachloroethane | ND(0.0066) [ND(0.0080)] | NS |
| 1,1,1-Trichloroethane | ND(0.0066) [ND(0.0080)] | NS |
| 1,1,2,2-Tetrachloroethane | ND(0.0066) [ND(0.0080)] | NS |
| 1,1,2-Trichloroethane | ND(0.0066) [ND(0.0080)] | NS |
| 1,1-Dichloroethane | ND(0.0066) [ND(0.0080)] | NS |
| 1,1-Dichloroethene | ND(0.0066) [ND(0.0080)] | NS |
| 1,2,3-Trichloropropane | ND(0.0066) [ND(0.0080)] | NS |
| 1,2-Dibromo-3-chloropropane | ND(0.0066) [ND(0.0080)] | NS |
| 1,2-Dibromoethane | ND(0.0066) [ND(0.0080)] | NS |
| 1,2-Dichloroethane | ND(0.0066) [ND(0.0080)] | NS |
| 1,2-Dichloropropane | ND(0.0066) [ND(0.0080)] | NS |
| 1,4-Dioxane | ND(0.20) J [ND(0.20)] | NS |
| 2-Butanone | ND(0.10) [ND(0.10)] | NS |
| 2-Chloro-1,3-butadiene | ND(0.0066) [ND(0.0080)] | NS |
| 2-Chloroethylvinylether | ND(0.0066) [ND(0.0080)] | NS |
| 2-Hexanone | ND(0.013) [ND(0.016)] | NS |
| 3-Chloropropene | ND(0.013) [ND(0.016)] | NS |
| 4-Methyl-2-pentanone | ND(0.013) [ND(0.016)] | NS |
| Acetone | ND(0.10) [ND(0.10)] | NS |
| Acetonitrile | ND(0.13) J [ND(0.16)] | NS |
| Acrolein | ND(0.13) J [ND(0.16)] | NS |
| Acrylonitrile | ND(0.013) [ND(0.016)] | NS |
| Benzene | ND(0.0066) [ND(0.0080)] | NS |
| Bromodichloromethane | ND(0.0066) [ND(0.0080)] | NS |
| Bromoform | ND(0.0066) [ND(0.0080)] | NS |
| Bromomethane | ND(0.013) [ND(0.016)] | NS |
| Carbon Disulfide | ND(0.010) [ND(0.010)] | NS |
| Carbon Tetrachloride | ND(0.0066) [ND(0.0080)] | NS |
| Chlorobenzene | ND(0.0066) [ND(0.0080)] | NS |
| Chloroethane | ND(0.013) [ND(0.016)] | NS |
| Chloroform | ND(0.0066) [ND(0.0080)] | NS |
| Chloromethane | ND(0.013) [ND(0.016)] | NS |
| cis-1,3-Dichloropropene | ND(0.0066) [ND(0.0080)] | NS |
| Dibromochloromethane | ND(0.0066) [ND(0.0080)] | NS |
| Dibromomethane | ND(0.0066) [ND(0.0080)] | NS |
| Dichlorodifluoromethane | ND(0.013) [ND(0.016)] | NS |
| Ethyl Methacrylate | ND(0.013) [ND(0.016)] | NS |
| Ethylbenzene | ND(0.0066) [ND(0.0080)] | NS |
| Iodomethane | ND(0.0066) [ND(0.0080)] | NS |
| Isobutanol | ND(0.26) J [ND(0.32)] | NS |
| Methacrylonitrile | ND(0.013) [ND(0.016)] | NS |
| Methyl Methacrylate | ND(0.013) [ND(0.016)] | NS |
| Methylene Chloride | ND(0.0066) [ND(0.0080)] | NS |
| Propionitrile | ND(0.066) J [ND(0.080)] | NS |
| Styrene | ND(0.0066) [ND(0.0080)] | NS |
| Tetrachloroethene | ND(0.0066) [ND(0.0080)] | NS |
| Toluene | ND(0.0066) [ND(0.0080)] | NS |
| trans-1,2-Dichloroethene | ND(0.0066) [ND(0.0080)] | NS |
| trans-1,3-Dichloropropene | ND(0.0066) [ND(0.0080)] | NS |
| trans-1,4-Dichloro-2-butene | ND(0.013) [ND(0.016)] | NS |
| Trichloroethene | ND(0.0066) [ND(0.0080)] | NS |
| Trichlorofluoromethane | ND(0.0066) J [ND(0.0080)] | NS |
| Vinyl Acetate | ND(0.013) [ND(0.016)] | NS |
| Vinyl Chloride | ND(0.013) [ND(0.016)] | NS |
| Xylenes (total) | ND(0.013) [ND(0.016)] | NS |

TABLE 2-2

GENERAL ELECTRIC COMPANY
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PRE-DESIGN INVESTIGATION SOIL SAMPLING RESULTS FOR APPENDIX IX+3 CONSTITUENTS

(Results in ppm dry weight)

| Parameter / Sample ID: / Sample Depth(Feet): / Date Collected: | RAA4-8<br>0-1<br>01/30/01 | X-17<br>0-2<br>01/31/01 |
|---|---|---|
| **Semivolatile Organics** | | |
| 1,2,4,5-Tetrachlorobenzene | ND(4.3) [ND(5.3)] | NS |
| 1,2,4-Trichlorobenzene | ND(4.3) [ND(5.3)] | NS |
| 1,2-Dichlorobenzene | ND(4.3) [ND(5.3)] | NS |
| 1,2-Diphenylhydrazine | ND(4.3) [ND(5.3)] | NS |
| 1,3,5-Trinitrobenzene | ND(8.7) [ND(10)] | NS |
| 1,3-Dichlorobenzene | ND(4.3) [ND(5.3)] | NS |
| 1,3-Dinitrobenzene | ND(22) [ND(26)] | NS |
| 1,4-Dichlorobenzene | ND(4.3) [ND(5.3)] | NS |
| 1,4-Naphthoquinone | ND(22) [ND(26)] | NS |
| 1-Naphthylamine | ND(22) J [ND(26) J] | NS |
| 2,3,4,6-Tetrachlorophenol | ND(4.3) [ND(5.3)] | NS |
| 2,4,5-Trichlorophenol | ND(4.3) [ND(5.3)] | NS |
| 2,4,6-Trichlorophenol | ND(4.3) [ND(5.3)] | NS |
| 2,4-Dichlorophenol | ND(4.3) [ND(5.3)] | NS |
| 2,4-Dimethylphenol | ND(4.3) [ND(5.3)] | NS |
| 2,4-Dinitrophenol | ND(22) [ND(26)] | NS |
| 2,4-Dinitrotoluene | ND(22) [ND(26)] | NS |
| 2,6-Dichlorophenol | ND(4.3) [ND(5.3)] | NS |
| 2,6-Dinitrotoluene | ND(4.3) [ND(5.3)] | NS |
| 2-Acetylaminofluorene | ND(8.7) [ND(10)] | NS |
| 2-Chloronaphthalene | ND(4.3) [ND(5.3)] | NS |
| 2-Chlorophenol | ND(4.3) [ND(5.3)] | NS |
| 2-Methylnaphthalene | 2.0 J [2.8 J] | NS |
| 2-Methylphenol | ND(4.3) [ND(5.3)] | NS |
| 2-Naphthylamine | ND(22) [ND(26)] | NS |
| 2-Nitroaniline | ND(22) [ND(26)] | NS |
| 2-Nitrophenol | ND(8.7) [ND(10)] | NS |
| 2-Picoline | ND(4.3) [ND(5.3)] | NS |
| 3&4-Methylphenol | ND(8.7) [ND(10)] | NS |
| 3,3'-Dichlorobenzidine | ND(22) J [ND(26) J] | NS |
| 3,3'-Dimethylbenzidine | ND(22) [ND(26)] | NS |
| 3-Methylcholanthrene | ND(8.7) [ND(10)] | NS |
| 3-Nitroaniline | ND(22) [ND(26)] | NS |
| 4,6-Dinitro-2-methylphenol | ND(4.3) [ND(5.3)] | NS |
| 4-Aminobiphenyl | ND(8.7) [ND(10)] | NS |
| 4-Bromophenyl-phenylether | ND(4.3) [ND(5.3)] | NS |
| 4-Chloro-3-Methylphenol | ND(4.3) [ND(5.3)] | NS |
| 4-Chloroaniline | ND(8.7) [ND(10)] | NS |
| 4-Chlorobenzilate | ND(22) [ND(26)] | NS |
| 4-Chlorophenyl-phenylether | ND(4.3) [ND(5.3)] | NS |
| 4-Nitroaniline | ND(22) [ND(26)] | NS |
| 4-Nitrophenol | ND(22) [ND(26)] | NS |
| 4-Nitroquinoline-1-oxide | ND(22) J [ND(26) J] | NS |
| 4-Phenylenediamine | ND(22) [ND(26)] | NS |
| 5-Nitro-o-toluidine | ND(22) [ND(26)] | NS |
| 7,12-Dimethylbenz(a)anthracene | ND(8.7) [ND(10)] | NS |
| a,a'-Dimethylphenethylamine | ND(22) [ND(26)] | NS |
| Acenaphthene | 2.7 J [ND(5.3)] | NS |
| Acenaphthylene | ND(4.3) [1.4 J] | NS |
| Acetophenone | ND(4.3) [ND(5.3)] | NS |
| Aniline | ND(4.3) [ND(5.3)] | NS |
| Anthracene | 9.1 [1.8 J] | NS |
| Aramite | ND(8.7) J [ND(10) J] | NS |
| Benzidine | ND(8.7) [ND(10)] | NS |
| Benzo(a)anthracene | 15 [4.5 J] | NS |
| Benzo(a)pyrene | 10 [3.1 J] | NS |
| Benzo(b)fluoranthene | 6.7 [1.5 J] | NS |
| Benzo(g,h,i)perylene | 7.8 [2.5 J] | NS |
| Benzo(k)fluoranthene | 9.9 [2.8 J] | NS |
| Benzyl Alcohol | ND(8.7) [ND(10)] | NS |

TABLE 2-2

GENERAL ELECTRIC COMPANY
PITTSFIELD, MASSACHUSETTS
RD/RA WORK PLAN FOR FUTURE CITY RECREATIONAL AREA

PRE-DESIGN INVESTIGATION SOIL SAMPLING RESULTS FOR APPENDIX IX+3 CONSTITUENTS

(Results in ppm dry weight)

| Parameter | Sample ID: / Sample Depth(Feet): / Date Collected: | RAA4-8 / 0-1 / 01/30/01 | X-17 / 0-2 / 01/31/01 |
|---|---|---|---|
| **Semivolatile Organics (continued)** | | | |
| bis(2-Chloroethoxy)methane | | ND(4.3) [ND(5.3)] | NS |
| bis(2-Chloroethyl)ether | | ND(4.3) [ND(5.3)] | NS |
| bis(2-Chloroisopropyl)ether | | ND(4.3) [ND(5.3)] | NS |
| bis(2-Ethylhexyl)phthalate | | ND(4.3) [ND(5.3)] | NS |
| Butylbenzylphthalate | | ND(8.7) [ND(10)] | NS |
| Chrysene | | 15 [5.0 J] | NS |
| Diallate | | ND(8.7) [ND(10)] | NS |
| Dibenzo(a,h)anthracene | | ND(8.7) [ND(10)] | NS |
| Dibenzofuran | | 2.4 J [ND(5.3)] | NS |
| Diethylphthalate | | ND(4.3) [ND(5.3)] | NS |
| Dimethylphthalate | | ND(4.3) [ND(5.3)] | NS |
| Di-n-Butylphthalate | | ND(4.3) [ND(5.3)] | NS |
| Di-n-Octylphthalate | | ND(4.3) [ND(5.3)] | NS |
| Diphenylamine | | ND(4.3) [ND(5.3)] | NS |
| Ethyl Methanesulfonate | | ND(4.3) [ND(5.3)] | NS |
| Fluoranthene | | 29 [7.3] | NS |
| Fluorene | | 3.9 J [1.8 J] | NS |
| Hexachlorobenzene | | ND(4.3) [ND(5.3)] | NS |
| Hexachlorobutadiene | | ND(8.7) [ND(10)] | NS |
| Hexachlorocyclopentadiene | | ND(4.3) [ND(5.3)] | NS |
| Hexachloroethane | | ND(4.3) [ND(5.3)] | NS |
| Hexachlorophene | | ND(8.7) J [ND(10) J] | NS |
| Hexachloropropene | | ND(4.3) J [ND(5.3) J] | NS |
| Indeno(1,2,3-cd)pyrene | | 6.7 J [1.5 J] | NS |
| Isodrin | | ND(4.3) [ND(5.3)] | NS |
| Isophorone | | ND(4.3) [ND(5.3)] | NS |
| Isosafrole | | ND(8.7) [ND(10)] | NS |
| Methapyrilene | | ND(22) J [ND(26) J] | NS |
| Methyl Methanesulfonate | | ND(4.3) [ND(5.3)] | NS |
| Naphthalene | | 3.7 J [4.5 J] | NS |
| Nitrobenzene | | ND(4.3) [ND(5.3)] | NS |
| N-Nitrosodiethylamine | | ND(4.3) [ND(5.3)] | NS |
| N-Nitrosodimethylamine | | ND(22) [ND(26)] | NS |
| N-Nitroso-di-n-butylamine | | ND(8.7) J [ND(10) J] | NS |
| N-Nitroso-di-n-propylamine | | ND(8.7) [ND(10)] | NS |
| N-Nitrosodiphenylamine | | ND(4.3) [ND(5.3)] | NS |
| N-Nitrosomethylethylamine | | ND(4.3) [ND(5.3)] | NS |
| N-Nitrosomorpholine | | ND(4.3) J [ND(5.3) J] | NS |
| N-Nitrosopiperidine | | ND(4.3) [ND(5.3)] | NS |
| N-Nitrosopyrrolidine | | ND(8.7) [ND(10)] | NS |
| o,o,o-Triethylphosphorothioate | | ND(4.3) J [ND(5.3) J] | NS |
| o-Toluidine | | ND(4.3) [ND(5.3)] | NS |
| p-Dimethylaminoazobenzene | | ND(22) [ND(26)] | NS |
| Pentachlorobenzene | | ND(4.3) [ND(5.3)] | NS |
| Pentachloroethane | | ND(4.3) J [ND(5.3) J] | NS |
| Pentachloronitrobenzene | | ND(22) [ND(26)] | NS |
| Pentachlorophenol | | ND(22) [ND(26)] | NS |
| Phenacetin | | ND(22) [ND(26)] | NS |
| Phenanthrene | | 36 [14] | NS |
| Phenol | | ND(4.3) [ND(5.3)] | NS |
| Pronamide | | ND(4.3) [ND(5.3)] | NS |
| Pyrene | | 28 [10] | NS |
| Pyridine | | ND(4.3) J [ND(5.3) J] | NS |
| Safrole | | ND(4.3) [ND(5.3)] | NS |
| Thionazin | | ND(4.3) [ND(5.3)] | NS |

TABLE 2-2

GENERAL ELECTRIC COMPANY
PITTSFIELD, MASSACHUSETTS
RD/RA WORK PLAN FOR FUTURE CITY RECREATIONAL AREA

PRE-DESIGN INVESTIGATION SOIL SAMPLING RESULTS FOR APPENDIX IX+3 CONSTITUENTS

(Results in ppm dry weight)

| Parameter / Sample ID: / Sample Depth(Feet): / Date Collected: | RAA4-8<br>0-1<br>01/30/01 | X-17<br>0-2<br>01/31/01 |
|---|---|---|
| **Furans** | | |
| 2,3,7,8-TCDF | 0.000044 [0.000032] | 0.000053 |
| TCDFs (total) | 0.00043 I [0.00033 I] | 0.00045 QI |
| 1,2,3,7,8-PeCDF | 0.000014 [0.000011] | 0.000014 |
| 2,3,4,7,8-PeCDF | 0.000076 [0.000057] | 0.000021 |
| PeCDFs (total) | 0.0010 [0.00081] | 0.00025 Q |
| 1,2,3,4,7,8-HxCDF | 0.000018 [0.000013] | 0.000011 |
| 1,2,3,6,7,8-HxCDF | 0.000031 [0.000025] | 0.0000072 |
| 1,2,3,7,8,9-HxCDF | 0.0000078 [0.0000062] | 0.0000018 J** |
| 2,3,4,6,7,8-HxCDF | 0.00013 [0.000096] | 0.000012 |
| HxCDFs (total) | 0.0018 [0.0014] | 0.00020 |
| 1,2,3,4,6,7,8-HpCDF | 0.00012 [0.000092] | 0.00011 |
| 1,2,3,4,7,8,9-HpCDF | 0.000011 [0.0000098] | 0.0000028 |
| HpCDFs (total) | 0.00034 [0.00027] | 0.00020 |
| OCDF | 0.000040 [0.000036] | 0.000059 |
| Total Furans | 0.0036 [0.0028] | 0.0012 |
| **Dioxins** | | |
| 2,3,7,8-TCDD | 0.00000054 w [0.00000043 w] | 0.00000061 w |
| TCDDs (total) | 0.0000047 [0.0000057] | 0.0000093 |
| 1,2,3,7,8-PeCDD | 0.0000014 [0.0000011 J**] | 0.0000013 w |
| PeCDDs (total) | 0.000013 [0.000012] | 0.0000088 Q |
| 1,2,3,4,7,8-HxCDD | 0.0000013 J** [0.0000012 J**] | 0.00000062 J** |
| 1,2,3,6,7,8-HxCDD | 0.0000021 J** [0.0000018 J**] | 0.0000026 |
| 1,2,3,7,8,9-HxCDD | 0.0000015 [0.0000012 J**] | 0.0000014 J** |
| HxCDDs (total) | 0.000025 [0.000022] | 0.000022 |
| 1,2,3,4,6,7,8-HpCDD | 0.000027 [0.000020] | 0.000038 |
| HpCDDs (total) | 0.000053 [0.000040] | 0.000070 |
| OCDD | 0.00011 [0.000080] | 0.00025 |
| Total Dioxins | 0.00021 [0.00016] | 0.00036 |
| Total TEQs (WHO TEFs) | 0.000066 [0.000049] | 0.000024 |
| **Inorganics** | | |
| Antimony | ND(12.0) [ND(14.0)] | NS |
| Arsenic | ND(15.0) [ND(15.0)] | NS |
| Barium | 40.0 [54.0] | NS |
| Beryllium | 0.290 [0.370] | NS |
| Cadmium | ND(2.00) [ND(2.40)] | NS |
| Chromium | 11.0 [13.0] | NS |
| Cobalt | 11.0 [15.0] | NS |
| Copper | 46.0 [51.0] | NS |
| Cyanide | ND(1.00) [ND(1.00)] | NS |
| Lead | 44.0 [46.0] | NS |
| Mercury | 0.300 [ND(0.320)] | NS |
| Nickel | 19.0 [24.0] | NS |
| Selenium | ND(0.990) J [ND(1.20) J] | NS |
| Silver | ND(0.990) [ND(1.20)] | NS |
| Sulfide | 16.0 [ND(8.00)] | NS |
| Thallium | ND(2.00) [ND(2.40)] | NS |
| Tin | ND(59.0) [ND(72.0)] | NS |
| Vanadium | 16.0 [19.0] | NS |
| Zinc | 75.0 [97.0] | NS |

TABLE 2-2

GENERAL ELECTRIC COMPANY
PITTSFIELD, MASSACHUSETTS
RD/RA WORK PLAN FOR FUTURE CITY RECREATIONAL AREA

PRE-DESIGN INVESTIGATION SOIL SAMPLING RESULTS FOR APPENDIX IX+3 CONSTITUENTS

(Results in ppm dry weight)

Notes:

1. Samples were collected by Blasland, Bouck & Lee, Inc., and were submitted to CT&E Environmental Services, Inc. for analysis of Appendix IX+3 constituents (excluding herbicides and pesticides).
2. ND - Analyte was not detected. The number in parentheses is the associated quantitation limit for volatiles and semivolatiles and the associated detection limit for other constituents.
3. NS - Not Sampled
4. J - Indicates an estimated value less than the practical quantitation limit (PQL).
5. J** - Indicates an estimated value between the lower calibration limit and the target detection limit.
6. Duplicate sample results are presented in brackets.
7. w - Estimated maximum possible concentration.
8. I - Polychlorinated Diphenyl Ether (PCDPE) Interference.
9. Q - Indicates the presence of quantitative interferences
10. Total dioxins/furans determined as the sum of the total homolog concentrations; non-detect values considered as zero.
11. Total 2,3,7,8-TCDD toxicity equivalents (TEQs) were calculated using Toxicity Equivalency Factors (TEFs) derived by the World Health Organization (WHO) and published by Van den Berg et al. in *Environmental Health Perspectives* 106(2), December 1998.
12. J - The compound or analyte was positively identified, but the associated numerical value is an estimated concentration. This qualifier is used when the data evaluation procedure identifies a deficiency in the data generation process.

TABLE 2-3

GENERAL ELECTRIC COMPANY
PITTSFIELD, MASSACHUSETTS
RD/RA WORK PLAN FOR FUTURE CITY RECREATIONAL AREA

HISTORICAL SOIL SAMPLING RESULTS FOR PCBs

(Results in ppm dry weight)

| Sample ID | Location ID | Depth(Feet) | Date Collected | Aroclor-1016, -1232, -1242, -1248 | Aroclor-1221 | Aroclor-1254 | Aroclor-1260 | Total PCBs |
|---|---|---|---|---|---|---|---|---|
| 95-210-6 | 210S | 0-0.5 | 9/18/97 | ND(0.034) | ND(0.068) | ND(0.034) | 0.35 | 0.35 |
| 209B0002 | 95-9 | 0-2 | 2/29/96 | ND(0.036) | ND(0.073) | ND(0.036) | 0.31 | 0.31 |
| 210S0-6 | 210S | 0-0.5 | 9/17/97 | ND(0.35) | ND(0.70) | ND(0.35) | 9.2 B | 9.2 |
| E2SC-05-CS01 | E2SC-5 | 0-1 | 10/8/98 | ND(0.18) | ND(0.18) | ND(0.18) | 1.6 | 1.6 |
| E2SC-05-CS0106 | E2SC-5 | 1-6 | 10/8/98 | ND(0.037) | ND(0.037) | ND(0.037) | 0.29 | 0.29 |
| E2SC-14-CS01 | E2SC-14 | 0-1 | 10/8/98 | ND(0.077) | ND(0.077) | ND(0.077) | 0.60 | 0.60 |
| E2SC-14-CS0106 | E2SC-14 | 1-6 | 10/8/98 | ND(0.037) | ND(0.037) | ND(0.037) | ND(0.037) | ND(0.037) |
| P2X160002 | X-16 | 0-2 | 7/8/91 | ND(0.050) | NA | ND(0.050) | 0.070 | 0.070 |
| P2X170002* | X-17 | 0-2 | 7/8/91 | ND(0.024) | ND(0.024) | ND(0.024) | ND(0.024) | ND(0.024) |
| P2X170002* | X-17 | 0-2 | 7/8/91 | ND(0.050) | NA | ND(0.050) | ND(0.050) | ND(0.050) |
| P202S | 202S | 0-0.5 | 5/17/91 | ND(0.028) [ND(0.026)] | ND(0.028) [ND(0.026)] | ND(0.028) [ND(0.026)] | 0.87 [1.0] | 0.87 [1.0] |

Notes:

1. Samples were submitted to CompuChem Environmental Corporation and IT Analytical Services for analysis of PCBs.
2. ND - Analyte was not detected. The value in parentheses is the associated detection limit.
3. Duplicate results are presented in brackets.
4. * Sample was analyzed by CompuChem and by IT Analytical.
5. NA - Not Analyzed - Laboratory did not report results for this analyte.

TABLE 2-4

GENERAL ELECTRIC COMPANY
PITTSFIELD, MASSACHUSETTS
RD/RA WORK PLAN FOR FUTURE CITY RECREATIONAL AREA

HISTORICAL SOIL SAMPLING RESULTS FOR APPENDIX IX + 3 CONSTITUENTS

(Results in ppm dry weight)

| Sample ID: / Location ID: / Sample Depth(Feet): / Parameter / Date Collected: | 210S0-6 / 210S / 0-0.5 / 09/17/97 | P2X170002 / X-17 / 0-2 / 07/08/91 | P202S / 202S / 0-0.5 / 05/17/91 |
|---|---|---|---|
| **Volatile Organics** | | | |
| 1,1,1,2-Tetrachloroethane | ND(0.021) | ND(0.0060) | ND(0.0070) [ND(0.0060)] |
| 1,1,1-trichloro-2,2,2-trifluoroethane | NA | ND(0.012) | ND(0.014) [ND(0.013)] |
| 1,1,1-Trichloroethane | ND(0.021) | ND(0.0060) | ND(0.0070) [ND(0.0060)] |
| 1,1,2,2-Tetrachloroethane | ND(0.011) | ND(0.012) | ND(0.014) [ND(0.013)] |
| 1,1,2-trichloro-1,2,2-trifluoroethane | NA | ND(0.012) | ND(0.014) [ND(0.013)] |
| 1,1,2-Trichloroethane | ND(0.016) | ND(0.0060) | ND(0.0070) [ND(0.0060)] |
| 1,1-Dichloroethane | ND(0.016) | ND(0.0060) | ND(0.0070) [ND(0.0060)] |
| 1,1-Dichloroethene | ND(0.021) | ND(0.0060) | ND(0.0070) [ND(0.0060)] |
| 1,2,3-Trichloropropane | ND(0.021) | ND(0.018) | ND(0.021) [ND(0.019)] |
| 1,2-Dibromo-3-chloropropane | ND(0.053) | ND(0.012) | ND(0.014) [ND(0.013)] |
| 1,2-Dibromoethane | ND(0.021) | ND(0.0060) | ND(0.0070) [ND(0.0060)] |
| 1,2-Dichloroethane | ND(0.011) | ND(0.0060) | ND(0.0070) [ND(0.0060)] |
| 1,2-Dichloroethene (total) | NA | ND(0.0060) | ND(0.0070) [ND(0.0060)] |
| 1,2-Dichloropropane | ND(0.021) | ND(0.0060) | ND(0.0070) [ND(0.0060)] |
| 1,4-Dioxane | ND(54) | NA | NA |
| 2-Butanone | 0.0030 JB | ND(0.012) | ND(0.014) [ND(0.013)] |
| 2-Chloroethylvinylether | ND(0.016) | ND(0.012) | ND(0.014) [ND(0.013)] |
| 2-Hexanone | ND(0.037) | ND(0.018) | ND(0.021) [ND(0.019)] |
| 3-Chloropropene | ND(0.016) | ND(0.018) | ND(0.021) [ND(0.019)] |
| 4-Methyl-2-pentanone | ND(0.026) | ND(0.018) | ND(0.021) [ND(0.019)] |
| Acetone | 0.024 JB | ND(0.012) | 0.016 B [0.021 B] |
| Acetonitrile | ND(0.21) | NA | NA |
| Acrolein | ND(0.24) | ND(0.11) | ND(0.13) [ND(0.12)] |
| Acrylonitrile | ND(0.22) | ND(0.14) | ND(0.17) [ND(0.15)] |
| Benzene | ND(0.016) | ND(0.0060) | ND(0.0070) [ND(0.0060)] |
| Bromodichloromethane | ND(0.021) | ND(0.0060) | ND(0.0070) [ND(0.0060)] |
| Bromoform | ND(0.016) | ND(0.012) | ND(0.014) [ND(0.013)] |
| Bromomethane | ND(0.021) | ND(0.0060) | ND(0.0070) [ND(0.0060)] |
| Carbon Disulfide | ND(0.011) | ND(0.0060) | ND(0.0070) [ND(0.0060)] |
| Carbon Tetrachloride | ND(0.016) | ND(0.0060) | ND(0.0070) [ND(0.0060)] |
| Chlorobenzene | ND(0.016) | ND(0.0060) | ND(0.0070) [ND(0.0060)] |
| Chloroethane | ND(0.021) | ND(0.012) | ND(0.014) [ND(0.013)] |
| Chloroform | ND(0.016) | ND(0.0060) | ND(0.0070) [ND(0.0060)] |
| Chloromethane | ND(0.037) | ND(0.012) | ND(0.014) [ND(0.013)] |
| cis-1,3-Dichloropropene | ND(0.011) | ND(0.0060) | ND(0.0070) [ND(0.0060)] |
| Dibromochloromethane | ND(0.016) | ND(0.0060) | ND(0.0070) [ND(0.0060)] |
| Dibromomethane | ND(0.021) | ND(0.012) | ND(0.014) [ND(0.013)] |
| Dichlorodifluoromethane | ND(0.011) | NA | NA |
| Ethyl Methacrylate | ND(0.026) | ND(0.012) | ND(0.014) [ND(0.013)] |
| Ethylbenzene | ND(0.016) | ND(0.0060) | ND(0.0070) [ND(0.0060)] |
| Iodomethane | ND(0.011) | ND(0.012) | ND(0.014) [ND(0.013)] |
| Isobutanol | ND(14) | NA | NA |
| Methacrylonitrile | ND(0.021) | NA | NA |
| Methyl Methacrylate | ND(0.053) | NA | NA |
| Methylene Chloride | 0.022 B | 0.010 BJ | 0.072 B [0.030 B] |
| Propionitrile | ND(0.62) | NA | NA |
| Styrene | ND(0.011) | ND(0.0060) | ND(0.0070) [ND(0.0060)] |
| Tetrachloroethene | ND(0.016) | ND(0.0060) | ND(0.0070) [ND(0.0060)] |
| Toluene | ND(0.016) | ND(0.0060) | ND(0.0070) [ND(0.0060)] |
| trans-1,2-Dichloroethene | ND(0.016) | NA | NA |
| trans-1,3-Dichloropropene | ND(0.016) | ND(0.0060) | ND(0.0070) [ND(0.0060)] |
| trans-1,4-Dichloro-2-butene | ND(0.021) | ND(0.018) | ND(0.021) [ND(0.019)] |
| Trichloroethene | ND(0.021) | ND(0.0060) | ND(0.0070) [ND(0.0060)] |
| Trichlorofluoromethane | ND(0.021) | ND(0.0060) | ND(0.0070) [ND(0.0060)] |
| Vinyl Acetate | ND(0.021) | ND(0.012) | ND(0.014) [ND(0.013)] |
| Vinyl Chloride | ND(0.021) | ND(0.012) | ND(0.014) [ND(0.013)] |
| Xylenes (total) | 0.0010 JB | ND(0.0060) | ND(0.0070) [ND(0.0060)] |

TABLE 2-4

GENERAL ELECTRIC COMPANY
PITTSFIELD, MASSACHUSETTS
RD/RA WORK PLAN FOR FUTURE CITY RECREATIONAL AREA

HISTORICAL SOIL SAMPLING RESULTS FOR APPENDIX IX + 3 CONSTITUENTS

(Results in ppm dry weight)

| Parameter / Sample ID: / Location ID: / Sample Depth(Feet): / Date Collected: | 210S0-6<br>210S<br>0-0.5'<br>09/17/97 | P2X170002<br>X-17<br>0-2<br>07/08/91 | P202S<br>202S<br>0-0.5<br>05/17/91 |
|---|---|---|---|
| **Semivolatile Organics** | | | |
| 1,2,3,4-Tetrachlorobenzene | NA | ND(0.38) | ND(0.46) [ND(0.42)] |
| 1,2,3,5-Tetrachlorobenzene | NA | ND(0.38) | ND(0.46) [ND(0.42)] |
| 1,2,3-Trichlorobenzene | NA | ND(0.38) | ND(0.46) [ND(0.42)] |
| 1,2,4,5-Tetrachlorobenzene | ND(1.4) | ND(0.38) | ND(0.46) [ND(0.42)] |
| 1,2,4-Trichlorobenzene | ND(0.58) | ND(0.38) | ND(0.46) [ND(0.42)] |
| 1,2-Dichlorobenzene | ND(0.62) | ND(0.38) | ND(0.46) [ND(0.42)] |
| 1,2-Diphenylhydrazine | ND(0.73) | ND(0.38) | ND(0.46) [ND(0.42)] |
| 1,3,5-Trichlorobenzene | NA | ND(0.38) | ND(0.46) [ND(0.42)] |
| 1,3,5-Trinitrobenzene | ND(0.96) | ND(0.76) | ND(0.93) [ND(0.85)] |
| 1,3-Dichlorobenzene | ND(0.54) | ND(0.38) | ND(0.46) [ND(0.42)] |
| 1,3-Dinitrobenzene | ND(0.59) | NA | NA |
| 1,4-Dichlorobenzene | ND(0.55) | ND(0.38) | ND(0.46) [ND(0.42)] |
| 1,4-Dinitrobenzene | NA | ND(0.76) | ND(0.93) [ND(0.85)] |
| 1,4-Naphthoquinone | ND(1.7) | ND(0.76) | ND(0.93) [ND(0.85)] |
| 1-Chloronaphthalene | NA | ND(0.38) | ND(0.46) [ND(0.42)] |
| 1-Methylnaphthalene | NA | ND(0.38) | 0.16 J [0.15 J] |
| 1-Naphthylamine | ND(1.5) | ND(0.76) | ND(0.93) [ND(0.85)] |
| 2,3,4,6-Tetrachlorophenol | ND(1.5) | ND(0.76) | ND(0.93) [ND(0.85)] |
| 2,4,5-Trichlorophenol | ND(1.4) | ND(0.76) | ND(0.93) [ND(0.85)] |
| 2,4,6-Trichlorophenol | ND(1.4) | ND(0.76) | ND(0.93) [ND(0.85)] |
| 2,4-Dichlorophenol | ND(0.58) | ND(0.38) | ND(0.46) [ND(0.42)] |
| 2,4-Dimethylphenol | ND(0.64) | ND(0.38) | ND(0.46) [ND(0.42)] |
| 2,4-Dinitrophenol | ND(1.8) | ND(1.5) | ND(1.8) [ND(1.7)] |
| 2,4-Dinitrotoluene | ND(0.70) | ND(0.38) | ND(0.46) [ND(0.42)] |
| 2,6-Dichlorophenol | ND(1.3) | ND(0.76) | ND(0.93) [ND(0.85)] |
| 2,6-Dinitrotoluene | ND(0.79) | ND(0.38) | ND(0.46) [ND(0.42)] |
| 2-Acetylaminofluorene | ND(0.75) | ND(0.38) | ND(0.46) [ND(0.42)] |
| 2-Chloronaphthalene | ND(1.0) | ND(0.38) | ND(0.46) [ND(0.42)] |
| 2-Chlorophenol | ND(0.66) | ND(0.38) | ND(0.46) [ND(0.42)] |
| 2-Methylnaphthalene | ND(0.89) | ND(0.38) | 0.077 J [0.076 J] |
| 2-Methylphenol | ND(0.69) | ND(0.38) | ND(0.46) [ND(0.42)] |
| 2-Naphthylamine | ND(0.91) | ND(0.76) | ND(0.93) [ND(0.85)] |
| 2-Nitroaniline | ND(1.2) | ND(0.38) | ND(0.46) [ND(0.42)] |
| 2-Nitrophenol | ND(0.65) | ND(0.38) | ND(0.46) [ND(0.42)] |
| 2-Phenylenediamine | NA | ND(0.38) | ND(0.46) [ND(0.42)] |
| 2-Picoline | ND(1.3) | ND(0.76) | ND(0.93) [ND(0.85)] |
| 3,3'-Dichlorobenzidine | ND(0.53) | ND(0.38) | ND(0.46) [ND(0.42)] |
| 3,3'-Dimethoxybenzidine | NA | ND(0.38) | ND(0.46) [ND(0.42)] |
| 3,3'-Dimethylbenzidine | ND(1.0) | ND(0.76) | ND(0.93) [ND(0.85)] |
| 3-Methylcholanthrene | 0.64 JB | ND(0.38) | ND(0.46) [ND(0.42)] |
| 3-Methylphenol | ND(1.4) | ND(0.38) | ND(0.46) [ND(0.42)] |
| 3-Nitroaniline | ND(0.73) | ND(0.76) | ND(0.93) [ND(0.85)] |
| 3-Phenylenediamine | NA | ND(0.38) | ND(0.46) [ND(0.42)] |
| 4,4'-Methylene-bis(2-chloroaniline) | NA | ND(0.38) | ND(0.46) [ND(0.42)] |
| 4,6-Dinitro-2-methylphenol | ND(1.9) | ND(1.1) | ND(1.4) [ND(1.3)] |
| 4-Aminobiphenyl | ND(0.43) | ND(0.38) | ND(0.46) [ND(0.42)] |
| 4-Bromophenyl-phenylether | ND(0.79) | ND(0.38) | ND(0.46) [ND(0.42)] |
| 4-Chloro-3-Methylphenol | ND(0.79) | ND(0.38) | ND(0.46) [ND(0.42)] |
| 4-Chloroaniline | ND(0.73) | ND(0.38) | ND(0.46) [ND(0.42)] |
| 4-Chlorobenzilate | ND(0.75) | ND(0.38) | ND(0.46) [ND(0.42)] |
| 4-Chlorophenyl-phenylether | ND(0.63) | ND(0.38) | ND(0.46) [ND(0.42)] |
| 4-Methylphenol | ND(1.4) | ND(0.38) | ND(0.46) [ND(0.42)] |
| 4-Nitroaniline | ND(1.2) | ND(0.76) | ND(0.93) [ND(0.85)] |
| 4-Nitrophenol | ND(4.8) | ND(0.38) | ND(0.46) [ND(0.42)] |
| 4-Nitroquinoline-1-oxide | ND(5.1) | NA | NA |
| 4-Phenylenediamine | ND(0.70) | ND(0.38) | ND(0.46) [ND(0.42)] |
| 5-Nitro-o-toluidine | ND(1.1) | ND(0.76) | ND(0.93) [ND(0.85)] |
| 7,12-Dimethylbenz(a)anthracene | ND(0.43) | ND(0.38) | ND(0.46) [ND(0.42)] |
| a,a'-Dimethylphenethylamine | ND(0.70) | ND(0.38) | ND(0.46) [ND(0.42)] |

TABLE 2-4

GENERAL ELECTRIC COMPANY
PITTSFIELD, MASSACHUSETTS
RD/RA WORK PLAN FOR FUTURE CITY RECREATIONAL AREA

HISTORICAL SOIL SAMPLING RESULTS FOR APPENDIX IX + 3 CONSTITUENTS

(Results in ppm dry weight)

| Sample ID: / Location ID: / Sample Depth(Feet): / Parameter: / Date Collected: | 210S0-6 / 210S / 0-0.5 / 09/17/97 | P2X170002 / X-17 / 0-2 / 07/08/91 | P202S / 202S / 0-0.5 / 05/17/91 |
|---|---|---|---|
| **Semivolatile Organics (continued)** | | | |
| Acenaphthene | ND(0.70) | ND(0.38) | ND(0.46) [ND(0.42)] |
| Acenaphthylene | ND(0.71) | ND(0.38) | 0.31 J [0.54] |
| Acetophenone | ND(0.70) | ND(0.38) | ND(0.46) [0.074 J] |
| Aniline | ND(0.59) | ND(0.38) | ND(0.46) [0.048 J] |
| Anthracene | ND(0.78) | ND(0.38) | 0.22 J [0.27 J] |
| Aramite | ND(0.70) B | NA | NA |
| Benzal chloride | NA | ND(0.38) | ND(0.46) [ND(0.42)] |
| Benzidine | ND(1.7) B | ND(0.38) | ND(0.46) [ND(0.42)] |
| Benzo(a)anthracene | 0.090 J | ND(0.38) | 0.63 [0.96] |
| Benzo(a)pyrene | 0.097 JB | ND(0.38) | ND(0.46) [ND(0.42)] |
| Benzo(b)fluoranthene | 0.12 J | ND(0.38) | 0.52 [0.81] |
| Benzo(g,h,i)perylene | 0.057 J | ND(0.38) | 0.44 J [0.61] |
| Benzo(k)fluoranthene | 0.062 JB | ND(0.38) | 0.72 [1.2] |
| Benzoic Acid | NA | ND(3.8) | 0.51 J [0.18 J] |
| Benzyl Alcohol | ND(0.58) | ND(0.38) | ND(0.46) [ND(0.42)] |
| Benzyl Chloride | NA | ND(0.38) | ND(0.46) [ND(0.42)] |
| bis(2-Chloroethoxy)methane | ND(0.71) | ND(0.38) | ND(0.46) [ND(0.42)] |
| bis(2-Chloroethyl)ether | ND(0.62) | ND(0.76) | ND(0.93) [ND(0.85)] |
| bis(2-Chloroisopropyl)ether | ND(0.69) | ND(0.38) | ND(0.46) [ND(0.42)] |
| bis(2-Ethylhexyl)phthalate | 0.18 J | 0.088 BJ | 0.17 J [2.2] |
| Butylbenzylphthalate | ND(0.72) | ND(0.38) | ND(0.46) [ND(0.42)] |
| Chrysene | 0.10 JB | ND(0.38) | 0.77 [0.96] |
| Cyclophosphamide | NA | ND(1.8) | ND(2.2) [ND(2.1)] |
| Diallate | NA | ND(0.38) | ND(0.46) [ND(0.42)] |
| Diallate (cis isomer) | ND(0.70) | NA | NA |
| Diallate (trans isomer) | ND(0.70) | NA | NA |
| Dibenz(a,j)acridine | NA | ND(0.38) | ND(0.46) [ND(0.42)] |
| Dibenzo(a,h)anthracene | ND(0.45) | ND(0.38) | 0.14 J [0.25 J] |
| Dibenzofuran | ND(0.73) | ND(0.38) | ND(0.46) [ND(0.42)] |
| Diethylphthalate | ND(0.76) | ND(0.38) | ND(0.46) [ND(0.42)] |
| Dimethoate | NA | ND(0.38) | ND(0.46) [ND(0.42)] |
| Dimethylphthalate | ND(1.0) | ND(0.38) | ND(0.46) [ND(0.42)] |
| Di-n-Butylphthalate | ND(0.81) | ND(0.38) | 0.079 J [0.077 J] |
| Di-n-Octylphthalate | ND(0.51) B | ND(0.38) | ND(0.46) [ND(0.42)] |
| Diphenylamine | ND(1.5) | ND(0.38) | ND(0.46) [ND(0.42)] |
| Ethyl Methacrylate | NA | ND(0.38) | ND(0.46) [ND(0.42)] |
| Ethyl Methanesulfonate | ND(0.63) | ND(0.38) | ND(0.46) [ND(0.42)] |
| Fluoranthene | 0.15 J | ND(0.38) | 0.85 [1.0] |
| Fluorene | ND(0.73) | ND(0.38) | 0.13 J [0.16 J] |
| Hexachlorobenzene | ND(0.81) | ND(0.38) | ND(0.46) [ND(0.42)] |
| Hexachlorobutadiene | ND(0.59) | ND(0.38) | ND(0.46) [ND(0.42)] |
| Hexachlorocyclopentadiene | ND(0.70) | ND(0.38) | ND(0.46) [ND(0.42)] |
| Hexachloroethane | ND(0.63) | ND(0.38) | ND(0.46) [ND(0.42)] |
| Hexachloropropene | ND(0.60) | ND(0.38) | ND(0.46) [ND(0.42)] |
| Indeno(1,2,3-cd)pyrene | 0.056 J | ND(0.38) | 0.35 J [0.48] |
| Isodrin | ND(0.97) | NA | NA |
| Isophorone | ND(0.72) | ND(0.38) | ND(0.46) [ND(0.42)] |
| Isosafrole | ND(1.4) | ND(0.76) | ND(0.93) [ND(0.85)] |
| Methapyrilene | ND(1.4) | ND(0.76) | ND(0.93) [ND(0.85)] |
| Methyl Methanesulfonate | ND(0.74) | ND(0.38) | ND(0.46) [ND(0.42)] |
| Naphthalene | ND(0.70) | ND(0.38) | 0.17 J [0.18 J] |
| Nitrobenzene | ND(0.72) | ND(0.38) | ND(0.46) [ND(0.42)] |
| N-Nitrosodiethylamine | ND(0.63) | ND(0.38) | ND(0.46) [ND(0.42)] |
| N-Nitrosodimethylamine | ND(0.70) | ND(0.38) | ND(0.46) [ND(0.42)] |
| N-Nitroso-di-n-butylamine | ND(1.5) | ND(0.38) | ND(0.46) [ND(0.42)] |
| N-Nitroso-di-n-propylamine | ND(0.64) | ND(0.38) | ND(0.46) [ND(0.42)] |
| N-Nitrosodiphenylamine | ND(1.5) | ND(0.38) | ND(0.46) [ND(0.42)] |
| N-Nitrosomethylethylamine | ND(0.57) | ND(0.38) | ND(0.46) [ND(0.42)] |

TABLE 2-4

GENERAL ELECTRIC COMPANY
PITTSFIELD, MASSACHUSETTS
RD/RA WORK PLAN FOR FUTURE CITY RECREATIONAL AREA

HISTORICAL SOIL SAMPLING RESULTS FOR APPENDIX IX + 3 CONSTITUENTS

(Results in ppm dry weight)

| Parameter / Sample ID: | 210S0-6 | P2X170002 | P202S |
|---|---|---|---|
| Location ID: | 210S | X-17 | 202S |
| Sample Depth(Feet): | 0-0.5 | 0-2 | 0-0.5 |
| Date Collected: | 09/17/97 | 07/08/91 | 05/17/91 |
| **Semivolatile Organics (continued)** | | | |
| N-Nitrosomorpholine | ND(0.79) | ND(0.38) | ND(0.46) [ND(0.42)] |
| N-Nitrosopiperidine | ND(0.78) | ND(0.38) | ND(0.46) [ND(0.42)] |
| N-Nitrosopyrrolidine | ND(0.56) | ND(0.38) | ND(0.46) [ND(0.42)] |
| o,o,o-Triethylphosphorothioate | ND(5.6) | NA | NA |
| o-Toluidine | ND(2.1) | ND(0.38) | ND(0.46) [ND(0.42)] |
| Paraldehyde | NA | ND(0.38) | ND(0.46) [ND(0.42)] |
| p-Dimethylaminoazobenzene | ND(0.71) | ND(0.38) | ND(0.46) [ND(0.42)] |
| Pentachlorobenzene | ND(0.70) | ND(0.38) | ND(0.46) [ND(0.42)] |
| Pentachloroethane | ND(0.88) | ND(0.38) | ND(0.46) [ND(0.42)] |
| Pentachloronitrobenzene | ND(0.68) | ND(0.38) | ND(0.46) [ND(0.42)] |
| Pentachlorophenol | ND(1.5) | ND(0.76) | ND(0.93) [ND(0.85)] |
| Phenacetin | ND(0.64) | ND(0.38) | ND(0.46) [ND(0.42)] |
| Phenanthrene | 0.068 J | ND(0.38) | 0.89 [0.92] |
| Phenol | ND(0.60) | ND(0.38) | 0.069 J [0.066 J] |
| Pronamide | ND(0.69) | ND(0.38) | ND(0.46) [ND(0.42)] |
| Pyrene | 0.15 J | ND(0.38) | 1.1 [1.3] |
| Pyridine | ND(0.58) | ND(0.38) | ND(0.46) [ND(0.42)] |
| Safrole | ND(0.61) | ND(0.38) | ND(0.46) [ND(0.42)] |
| Thionazin | ND(0.71) | ND(0.38) | ND(0.46) [ND(0.42)] |
| **Organochlorine Pesticides** | | | |
| 4,4'-DDD | NS | ND(0.0042) | ND(0.0049) [ND(0.0045)] |
| 4,4'-DDE | NS | ND(0.0042) | ND(0.0049) [ND(0.0045)] |
| 4,4'-DDT | NS | ND(0.0042) | ND(0.0049) [ND(0.0045)] |
| Aldrin | NS | ND(0.0012) | ND(0.0014) [ND(0.0013)] |
| Alpha-BHC | NS | ND(0.0012) | ND(0.0014) [ND(0.0013)] |
| Beta-BHC | NS | ND(0.0012) | ND(0.0014) [ND(0.0013)] |
| Delta-BHC | NS | ND(0.0012) | ND(0.0014) [ND(0.0013)] |
| Dieldrin | NS | ND(0.0018) | ND(0.0021) [ND(0.0019)] |
| Endosulfan I | NS | ND(0.0018) | ND(0.0021) [ND(0.0019)] |
| Endosulfan II | NS | ND(0.0042) | ND(0.0049) [ND(0.0045)] |
| Endosulfan Sulfate | NS | ND(0.0024) | ND(0.0028) [ND(0.0026)] |
| Endrin | NS | ND(0.0030) | ND(0.0035) [ND(0.0032)] |
| Endrin Aldehyde | NS | ND(0.0012) | ND(0.0014) [ND(0.0013)] |
| Gamma-BHC (Lindane) | NS | ND(0.0012) | ND(0.0014) [ND(0.0013)] |
| Heptachlor | NS | ND(0.0012) | ND(0.0014) [ND(0.0013)] |
| Heptachlor Epoxide | NS | ND(0.0012) | ND(0.0014) [ND(0.0013)] |
| Kepone | NS | ND(0.0012) | ND(0.0014) [ND(0.0013)] |
| Methoxychlor | NS | ND(0.0042) | ND(0.0049) [ND(0.0045)] |
| Technical Chlordane | NS | ND(0.0048) | ND(0.0056) [ND(0.0051)] |
| Toxaphene | NS | ND(0.024) | ND(0.028) [ND(0.026)] |
| **Organophosphate Pesticides** | | | |
| Dimethoate | NS | ND(0.012) | ND(0.014) [ND(0.013)] |
| Disulfoton | NS | ND(0.012) | ND(0.014) [ND(0.013)] |
| Ethyl Parathion | NS | ND(0.012) | ND(0.014) [ND(0.013)] |
| Methyl Parathion | NS | ND(0.012) | ND(0.014) [ND(0.013)] |
| Phorate | NS | ND(0.012) | ND(0.014) [ND(0.013)] |
| Sulfotep | NS | ND(0.012) | ND(0.014) [ND(0.013)] |
| **Herbicides** | | | |
| 2,4,5-T | NS | ND(0.030) | ND(0.035) [ND(0.032)] |
| 2,4,5-TP | NS | ND(0.030) | ND(0.035) [ND(0.032)] |
| 2,4-D | NS | ND(0.12) | ND(0.14) [ND(0.13)] |

TABLE 2-4

GENERAL ELECTRIC COMPANY
PITTSFIELD, MASSACHUSETTS
RD/RA WORK PLAN FOR FUTURE CITY RECREATIONAL AREA

HISTORICAL SOIL SAMPLING RESULTS FOR APPENDIX IX + 3 CONSTITUENTS

(Results in ppm dry weight)

| Sample ID: / Location ID: / Sample Depth(Feet): / Parameter / Date Collected: | 210S0-6 / 210S / 0-0.5 / 09/17/97 | P2X170002 / X-17 / 0-2 / 07/08/91 | P202S / 202S / 0-0.5 / 05/17/91 |
|---|---|---|---|
| **Furans** | | | |
| 2,3,7,8-TCDF | 0.000015 g | ** | 0.00042 [ND(0.00010)] |
| TCDFs (total) | 0.00015 | ** | 0.00098 [ND(0.00010)] |
| 1,2,3,7,8-PeCDF | 0.0000070 | ** | NA |
| 2,3,4,7,8-PeCDF | 0.000018 | ** | NA |
| PeCDFs (total) | 0.00089 | ** | 0.00088 [ND(0.00019)] |
| 1,2,3,4,7,8-HxCDF | 0.000049 | ** | NA |
| 1,2,3,6,7,8-HxCDF | ND(0.000042) v | ** | NA |
| 1,2,3,7,8,9-HxCDF | ND(0.00000033) | ** | NA |
| 2,3,4,6,7,8-HxCDF | 0.000056 | ** | NA |
| HxCDFs (total) | 0.0015 | ** | 0.00097 [0.00040] |
| 1,2,3,4,6,7,8-HpCDF | 0.00020 | ** | NA |
| 1,2,3,4,7,8,9-HpCDF | 0.000032 | ** | NA |
| HpCDFs (total) | 0.00052 | ** | 0.00096 [0.00052] |
| OCDF | 0.000084 | ** | 0.00032 [ND(0.00028)] |
| Total Furans | 0.0031 | ** | 0.0041 [0.00092] |
| **Dioxins** | | | |
| 2,3,7,8-TCDD | 0.00000090 J** | ** | ND(0.000053) [ND(0.000098)] |
| TCDDs (total) | 0.000012 | ** | ND(0.000053) [ND(0.000098)] |
| 1,2,3,7,8-PeCDD | 0.0000087 | ** | NA |
| PeCDDs (total) | 0.000029 | ** | ND(0.00014) [ND(0.00029)] |
| 1,2,3,4,7,8-HxCDD | 0.000012 | ** | NA |
| 1,2,3,6,7,8-HxCDD | 0.000014 | ** | NA |
| 1,2,3,7,8,9-HxCDD | 0.000014 | ** | NA |
| HxCDDs (total) | 0.00018 | ** | ND(0.00016) [ND(0.00028)] |
| 1,2,3,4,6,7,8-HpCDD | 0.000081 | ** | NA |
| HpCDDs (total) | 0.00017 | ** | 0.00011 [ND(0.00038)] |
| OCDD | 0.00033 | ** | 0.00098 [0.00066] |
| Total Dioxins | 0.00072 | ** | 0.0011 [0.00066] |
| Total TEQs (WHO TEFs) | 0.000040 | ** | NC |
| **Inorganics** | | | |
| Aluminum | NA | 13400 | 9210 [ND(6220)] |
| Antimony | ND(0.600) N | ND(3.90) N | ND(3.00) N [ND(2.70) N] |
| Arsenic | 7.30 | 11.9 N | ND(0.840) WNL [4.60 NL] |
| Barium | 134 | 26.4 | 48.6 [51.1] |
| Beryllium | 0.260 JL | 0.220 JL | 0.320 JL [0.210 JL] |
| Cadmium | 0.780 JL | ND(0.480) | ND(0.550) [ND(0.500)] |
| Calcium | NA | 1400 EL | 10500 [7310] |
| Chromium | 17.9 | 13.0 | 22.2 [13.7] |
| Cobalt | NA | 13.7 | 10.2 [6.50] |
| Copper | 38.2 E | 35.0 L | 30.4 [22.7] |
| Cyanide | ND(0.520) | ND(0.600) | 1.10 [1.10] |
| Iron | NA | 28200 E | 19700 [15700] |
| Lead | 33.8 L | 38.9 A | 65.2 [45.0] |
| Magnesium | NA | 4950 L | 9050 [5710] |
| Manganese | NA | 915 | 445 [925] |
| Mercury | ND(0.0500) | ND(0.120) NL | 0.200 [0.220] |
| Nickel | 26.9 | 23.1 | 18.1 [11.8] |
| Potassium | NA | 335 JL | 800 [547 JL] |
| Selenium | 1.30 | ND(2.40) WN | ND(0.420) WNL [ND(0.380) WNL] |
| Silver | ND(0.160) | ND(0.600) N | ND(0.690) N [ND(0.620) N] |
| Sodium | NA | 96.1 J* | 145 J* [152 J*] |
| Sulfide | NA | 96.1 JL | 145 JL [152 JL] |
| Thallium | 17.0 | ND(12.0) | NA |
| Tin | ND(1.00) | ND(0.240) QN | ND(0.420) W [ND(0.380)] |
| Vanadium | 15.9 | 12.4 | 18.2 [13.2] |
| Zinc | 97.2 | 74.3 E | 88.6 E [62.6 E] |

TABLE 2-4

GENERAL ELECTRIC COMPANY
PITTSFIELD, MASSACHUSETTS
RD/RA WORK PLAN FOR FUTURE CITY RECREATIONAL AREA

HISTORICAL SOIL SAMPLING RESULTS FOR APPENDIX IX + 3 CONSTITUENTS

(Results in ppm dry weight)

1. Samples were submitted to CompuChem Environmental Corporation.
2. Results for Appendix IX+3 constituents listed in FSP/QAPP are included in table.
3. Duplicate sample results are presented in brackets.
4. NA - Not Analyzed - Laboratory did not report results for this analyte.
5. ND - Analyte was not detected. The number in parentheses is the associated quantitation limit for volatiles and semivolatiles and the associated detection limit for other constituents.
6. NS - Not Sampled - Parameter was not requested on sample chain of custody form.
7. A - Results produced from single point method of standard addition calculation employing the analytical responses of both spiked and unspiked samples.
8. B - Analyte was also detected in the associated method blank.
9. E - - Serial dilution results not within 10%. Applicable only if analyte concentration is at least 50X the IDL in original sample.
10. J - Indicates an estimated value less than the practical quantitation limit (PQL).
11. J* - Indicates an estimated value between the instrument detection limit and practical quantitation limit (PQL).
12. J** - Indicates an estimated value between the lower calibration limit and the target detection limit.
13. L - Indicates sample matrix spike duplicate analysis was outside control limits.
14. N - Indicates sample matrix spike analysis was outside control limits.
15. Q - Indicates furnace matrix spike analysis was outside control limits.
16. v - Indicates an elevated detection limit due to chemical interference.
17. W - GFAA Analytical spike recovery outside of range of 85% to 115% in a sample which exhibits a low concentration of analyte. Unspiked response must be < 50% of spiked sample response.
18. g - 2,3,7,8-TCDF results have been confirmed on a DB-225 column.
19. Total dioxins/furans determined as the sum of the total homolog concentrations; non-detect values considered as zero. Total 2,3,7,8-TCDD toxicity equivalents (TEQs) were calculated using Toxicity Equivalency Factors (TEFs) derived by the World Health Organization (WHO) and published by Van den Berg et al. in Environmental Health Perspectives 106(2), December 1998.
20. ** - The prior samples from boring X-17 were analyzed for total dioxins/furans, not 2,3,7,8-substituted congeners. As a result, it was determined that such data were not usable for RD/RA purposes, and a replacement sample from boring X-17 was collected as part of the pre-design soil investigations.

TABLE 4-1

GENERAL ELECTRIC COMPANY
PITTSFIELD, MASSACHUSETTS
RD/RA WORK PLAN FOR FUTURE CITY RECREATIONAL AREA

COMPARISON OF DETECTED APPENDIX IX+3 CONSTITUENTS TO RESIDENTIAL SCREENING PRGs
(Results in ppm, dry-weight)

| Appendix IX + 3 Constituent (See Note 2) | Maximum Detect | USEPA Region 9 Residential PRGs (See Note 3) | Constituent Retained for Further Evaluation? (See Note 4) |
|---|---|---|---|
| **Volatile Organics** | | | |
| 2-Butanone | 0.003 | 6,900 | NO |
| Acetone | 0.024 | 1,400 | NO |
| Methylene Chloride | 0.072 | 8.5 | NO |
| Xylenes (total) | 0.001 | 210 | NO |
| **Semivolatile Organics** | | | |
| 1-Methylnaphthalene | 0.16 | 55 | NO |
| 2-Methylnaphthalene | 2.8 | 55 | NO |
| 3-Methylcholanthrene | 0.64 | 55 | NO |
| Acenaphthene | 2.7 | 2,600 | NO |
| Acenaphthylene | 4.00 | 55 | NO |
| Acetophenone | 0.074 | 0.49 | NO |
| Aniline | 0.048 | 78 | NO |
| Anthracene | 9 | 14,000 | NO |
| Benzo(a)anthracene | 15 | 0.56 | YES |
| Benzo(a)pyrene | 11 | 0.056 | YES |
| Benzo(b)fluoranthene | 6.7 | 0.56 | YES |
| Benzo(g,h,i)perylene | 8.1 | 55 | NO |
| Benzo(k)fluoranthene | 9.9 | 5.6 | YES |
| Benzoic Acid | 0.51 | 100000 | NO |
| bis(2-Ethylhexyl)phthalate | 2.2 | 32 | NO |
| Chrysene | 15 | 56 | NO |
| Dibenzo(a,h)anthracene | 0.25 | 0.056 | YES |
| Dibenzofuran | 2.4 | 210 | NO |
| Di-n-Butylphthalate | 0.079 | 5,500 | NO |
| Fluoranthene | 29 | 2,000 | NO |
| Fluorene | 4 | 1,800 | NO |
| Indeno(1,2,3-cd)pyrene | 7.2 | 0.56 | YES |
| Naphthalene | 4.5 | 55 | NO |
| Phenanthrene | 36 | 55 | NO |
| Phenol | 0.069 | 33000 | NO |
| Pyrene | 28 | 1,500 | NO |
| **Inorganics** | | | |
| Arsenic | 16 | 0.38 | YES |
| Barium | 134 | 5,200 | NO |
| Beryllium | 0.37 | 150 | NO |
| Cadmium | 0.78 | 37 | NO |
| Chromium | 29 | 210 | NO |
| Cobalt | 26 | 3,300 | NO |
| Copper | 110 | 2,800 | NO |
| Cyanide | 5.4 | 11,000 | NO |
| Lead | 65.2 | 400 | NO |
| Mercury | 0.30 | 22 | NO |
| Nickel | 35 | 1,500 | NO |
| Selenium | 1.3 | 370 | NO |
| Sulfide | 29 | Not Listed | YES |
| Vanadium | 23 | 520 | NO |
| Zinc | 170 | 22,000 | NO |

Notes:

1. PRG = Preliminary Remediation Goal.
2. Per Attachment F to SOW, comparison to PRGs is required for all detected Appendix IX+3 constituents except PCBs, dioxins and furans.
3. EPA Region 9 Residential PRGs or, for certain PAHs, surrogate PRGs per Attachment F to SOW.
4. Constituent is retained for further evaluation if its maximum detected concentration exceeds its corresponding PRG.

TABLE 4-2

GENERAL ELECTRIC COMPANY
PITTSFIELD, MASSACHUSETTS
RD/RA WORK PLAN FOR FUTURE CITY RECREATIONAL AREA

EVALUATION OF SELECT APPENDIX IX+3 CONSTITUENTS
(Results in ppm, dry weight)

| Appendix IX + 3 Constituents (See Note 1) | USEPA Region 9 Residential PRGs | Detection Frequency | Maximum Detect | 1/2 Maximum Detection Limit for ND Samples | Number of ND Samples with 1/2 Detection Limit Greater Than PRG |
|---|---|---|---|---|---|
| **Volatile Organics** | | | | | |
| **1,2,3-Trichloropropane** | 0.0014 | 0/13 | ND | 0.0105 | 13 |
| **1,2-Dibromoethane** | 0.0049 | 0/13 | ND | 0.0105 | 1 |
| Acrolein | 0.1 | 0/13 | ND | 0.12 | 1 |
| trans-1,4-Dichloro-2-butene | 0.0075 | 0/13 | ND | 0.0105 | 3 |
| **Semivolatile Organics** | | | | | |
| 1,2-Diphenylhydrazine | 0.56 | 0/14 | ND | 2.65 | 3 |
| 1,3-Dinitrobenzene | 5.5 | 0/12 | ND | 13 | 2 |
| 2-Nitroaniline | 3.3 | 0/14 | ND | 13 | 3 |
| 3,3'-Dichlorobenzidine | 0.99 | 0/14 | ND | 13 | 11 |
| **3,3'-Dimethylbenzidine** | 0.048 | 0/14 | ND | 13 | 14 |
| 3-Nitroaniline | 3.3 | 0/14 | ND | 13 | 3 |
| 4-Chlorobenzilate | 1.6 | 0/14 | ND | 13 | 3 |
| 4-Nitroaniline | 3.3 | 0/14 | ND | 13 | 3 |
| **7,12-Dimethylbenz(a)anthracene** | 0.056 | 0/14 | ND | 5 | 14 |
| Acetophenone | 0.49 | 1/14 | 0.074 | 2.65 | 3 |
| **Benzidine** | 0.0019 | 0/14 | ND | 5 | 14 |
| **bis(2-Chloroethyl)ether** | 0.18 | 0/14 | ND | 2.65 | 14 |
| **Hexachlorobenzene** | 0.28 | 0/14 | ND | 2.65 | 4 |
| **N-Nitrosodiethylamine** | 0.003 | 0/14 | ND | 2.65 | 14 |
| **N-Nitrosodimethylamine** | 0.0087 | 0/14 | ND | 13 | 14 |
| **N-Nitroso-di-n-butylamine** | 0.022 | 0/14 | ND | 5 | 14 |
| **N-Nitroso-di-n-propylamine** | 0.063 | 0/14 | ND | 5 | 14 |
| **N-Nitrosomethylethylamine** | 0.02 | 0/14 | ND | 2.65 | 14 |
| **N-Nitrosopyrrolidine** | 0.21 | 0/14 | ND | 5 | 13 |
| o-Toluidine | 2.3 | 0/14 | ND | 2.65 | 1 |
| Pentachloronitrobenzene | 1.7 | 0/14 | ND | 13 | 3 |
| Pentachlorophenol | 2.5 | 0/14 | ND | 13 | 3 |

Notes:

1. The constituents included in this table have non-detect sample results where 1/2 the detection limit exceeds the applicable PRG. Evaluation excludes: 1) PCBs, 2) dioxins/furans, 3) constituents that were not detected and do not have a PRG, and 4) constituents where maximum detected concentration exceeds its PRG.
2. ND = Constituent was not detected.
3. Constituents that have a Practical Quantitation Limit (PQL) that is two times greater than its PRG are identified in bold print.

**TABLE 4-3**

**GENERAL ELECTRIC COMPANY**
**PITTSFIELD, MASSACHUSETTS**
**RD/RA WORK PLAN FOR FUTURE CITY RECREATIONAL AREA**

**COMPARISON TO BACKGROUND DATA FOR SULFIDE**
**(Results in ppm, dry-weight)**

| Parameter | City Recreational Area Sample Data | Background Sample Data |
|---|---|---|
| Detection Frequency | 8/12 | 16/64 |
| Maximum Concentration | 29 | 928 |
| Median Concentration | 11 | 116 |

1. Background data set for sulfide based on December 15, 2000 *Background Soil Data Assessment for the GE-Pittsfield/Housatonic River Site*, excluding data within approximate 10-year floodplain and data from locations downwind of former City-owned refuse incinerator.

TABLE 4-4

GENERAL ELECTRIC COMPANY
PITTSFIELD, MASSACHUSETTS
RD/RA WORK PLAN FOR FUTURE CITY RECREATIONAL AREA

COMPARISON TO METHOD 1 SOIL STANDARDS
EXISTING 0- TO 2-FOOT DEPTH INCREMENT
(Results in ppm, dry-weight)

| Appendix IX + 3 Constituent (See Note 2) | Sample Detection Frequency | Maximum Sample Result | Arithmetic Average Concentration (see Note 2) | MCP Method 1 S-1 Soil Standard | Average Exceeds Method 1 Standard? |
|---|---|---|---|---|---|
| **Semivolatile Organics** | | | | | |
| Benzo(a)anthracene | 8/14 | 15 | 1.87 | 0.7 | YES |
| Benzo(a)pyrene | 7/14 | 11 | 1.66 | 0.7 | YES |
| Benzo(b)fluoranthene | 8/14 | 6.7 | 1.14 | 0.7 | YES |
| Benzo(k)fluoranthene | 8/14 | 9.9 | 1.47 | 7 | NO |
| Dibenzo(a,h)anthracene | 1/14 | 0.25 | 1.12 | 0.7 | YES |
| Indeno(1,2,3-cd)pyrene | 7/14 | 7.2 | 1.32 | 0.7 | YES |
| **Inorganics** | | | | | |
| Arsenic | 4/13 | 16 | 9.21 | 30 | NO |

Notes:

1. Constituents retained for evaluation have a maximum sample result that exceeds their respective EPA Region 9 Residential PRGs.
2. Non-detect sample results included as 1/2 the detection limit in the calculation of arithmetic average concentrations.

TABLE 4-5
GENERAL ELECTRIC COMPANY
PITTSFIELD, MASSACHUSETTS
RD/RA WORK PLAN FOR FUTURE CITY RECREATIONAL AREA

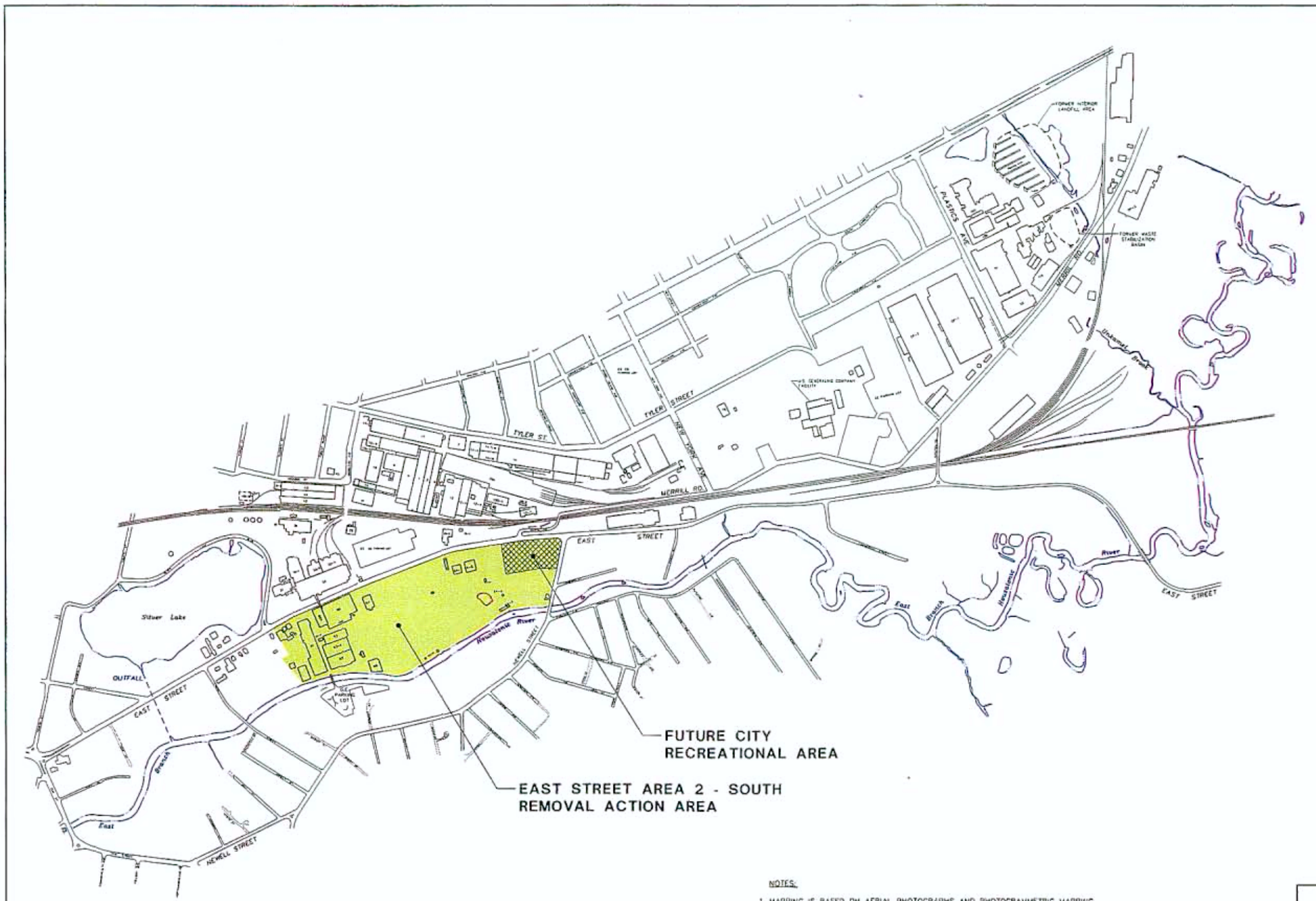
SUPPLEMENTAL APPENDIX IX+3 SOIL INVESTIGATIONS:
SAMPLE LOCATIONS, DEPTHS, AND ANALYTES

| Sample Location: / Sample Depth(Feet): | CRA-7 0-2 | CRA-14 0-2 | CRA-18 0-2 | 210S 0-0.5 |
|---|---|---|---|---|
| **Volatile Organics** | | | | |
| 1,2,3-Trichloropropane | X | X | X | X |
| 1,2-Dibromoethane | X | | | X |
| Acrolein | X | | | X |
| trans-1,4-Dichloro-2-butene | X | | | X |
| **Semivolatile Organics** | | | | |
| 1,2-Diphenylhydrazine | X | X | | |
| 1,3-Dinitrobenzene | X | X | | |
| 2-Nitroaniline | X | X | | |
| 3,3'-Dichlorobenzidine | X | X | X | X |
| 3,3'-Dimethylbenzidine | X | X | X | X |
| 3-Nitroaniline | X | X | | |
| 4-Chlorobenzilate | X | X | | |
| 4-Nitroaniline | X | X | | |
| 7,12-Dimethylbenz(a)anthracene | X | X | X | X |
| Acetophenone | X | X | | |
| Benzidine | X | X | X | X |
| bis(2-Chloroethyl)ether | X | X | X | X |
| Hexachlorobenzene | X | X | | X |
| N-Nitrosodiethylamine | X | X | X | X |
| N-Nitrosodimethylamine | X | X | X | X |
| N-Nitroso-di-n-butylamine | X | X | X | X |
| N-Nitroso-di-n-propylamine | X | X | X | X |
| N-Nitrosomethylethylamine | X | X | X | X |
| N-Nitrosopyrrolidine | X | X | X | X |
| o-Toluidine | X | X | | |
| Pentachloronitrobenzene | X | X | | |
| Pentachlorophenol | X | X | | |

NOTES:
1. The Appendix IX+3 constituents included on this table are ones that previously had non-detect sample results where 1/2 the detection limit exceeded the Preliminary Remediation Goal (PRG), but no detected concentrations exceeding the PRG.
2. X= indicates the constituents to be included in analysis of the sample.

# *Figures*

BBL®
BLASLAND, BOUCK & LEE, INC.
*engineers & scientists*




NOTES:

1. MAPPING IS BASED ON AERIAL PHOTOGRAPHS AND PHOTOGRAMMETRIC MAPPING BY LOCKWOOD MAPPING, INC. – FLOWN IN APRIL 1990; DATA PROVIDED BY GENERAL ELECTRIC COMPANY; AND BLASLAND AND BOUCK ENGINEERS, P.C. P.C. CONSTRUCTION PLANS.
2. NOT ALL PHYSICAL FEATURES SHOWN.
3. SITE BOUNDARIES/LIMITS ARE APPROXIMATE.

APPROXIMATE SCALE

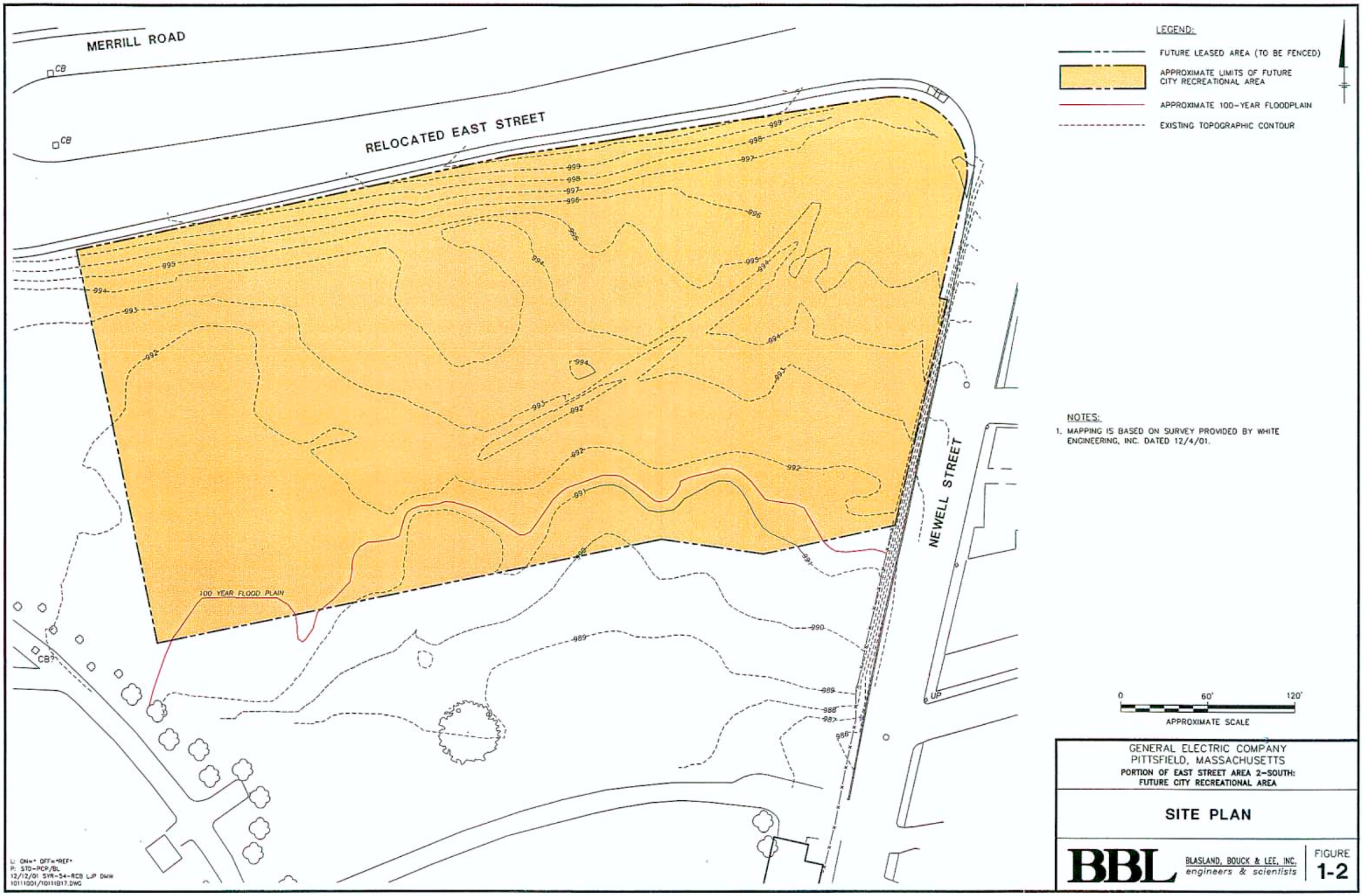
GENERAL ELECTRIC COMPANY
PITTSFIELD, MASSACHUSETTS
PORTION OF EAST STREET AREA 2-SOUTH;
FUTURE CITY RECREATIONAL AREA

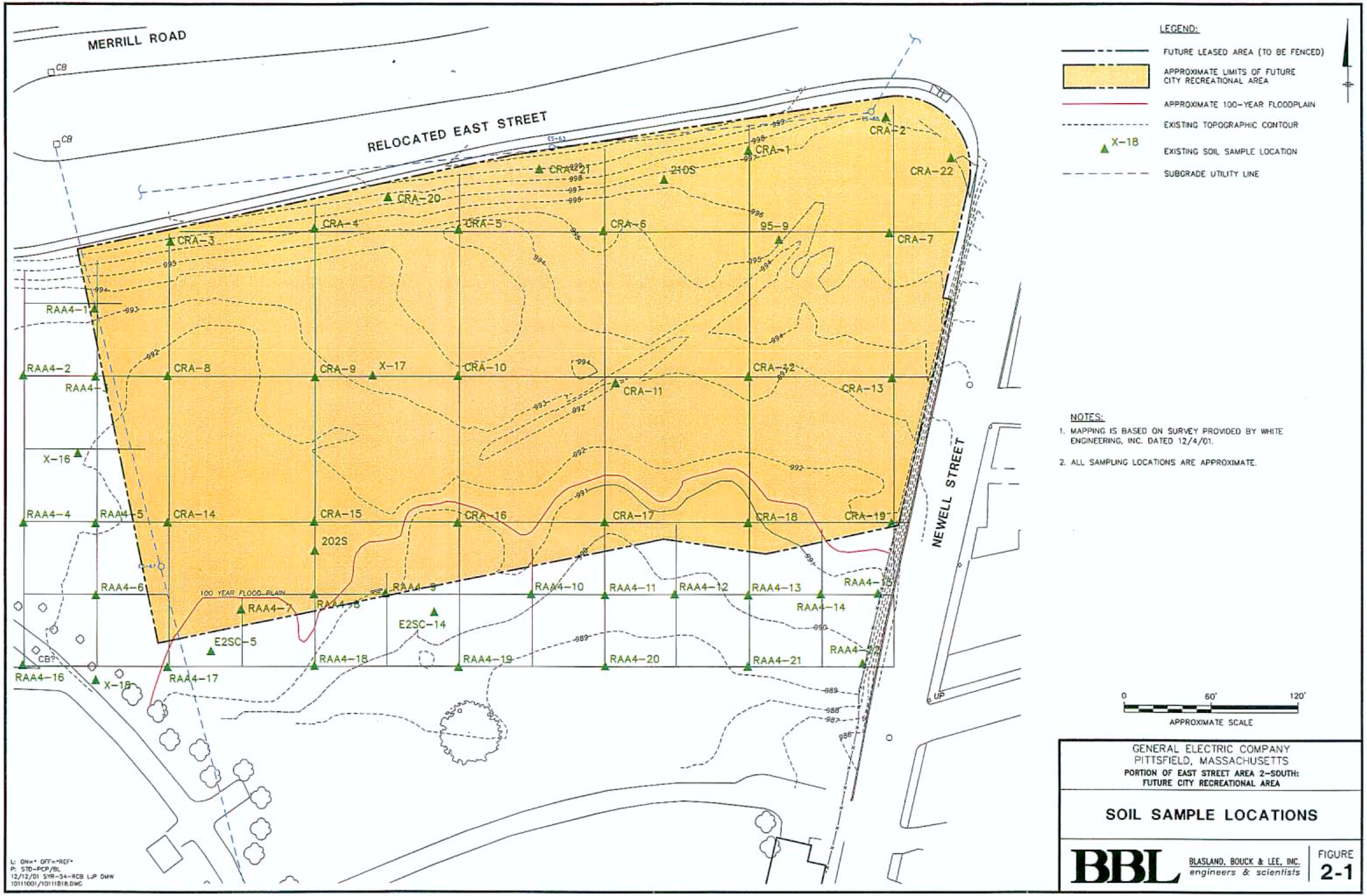
# SITE LOCATION

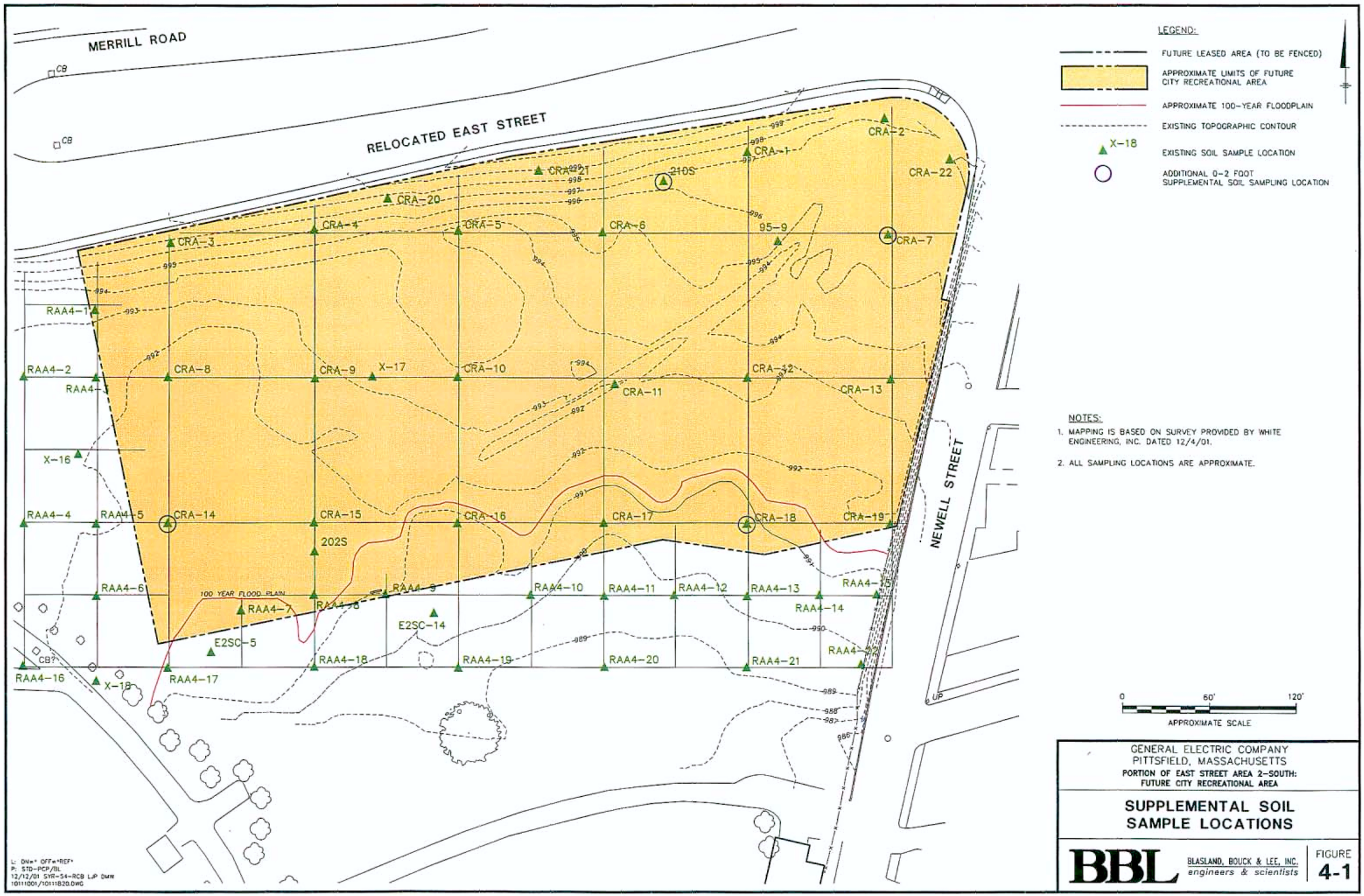
BLASLAND, BOUCK & LEE, INC.
engineers & scientists

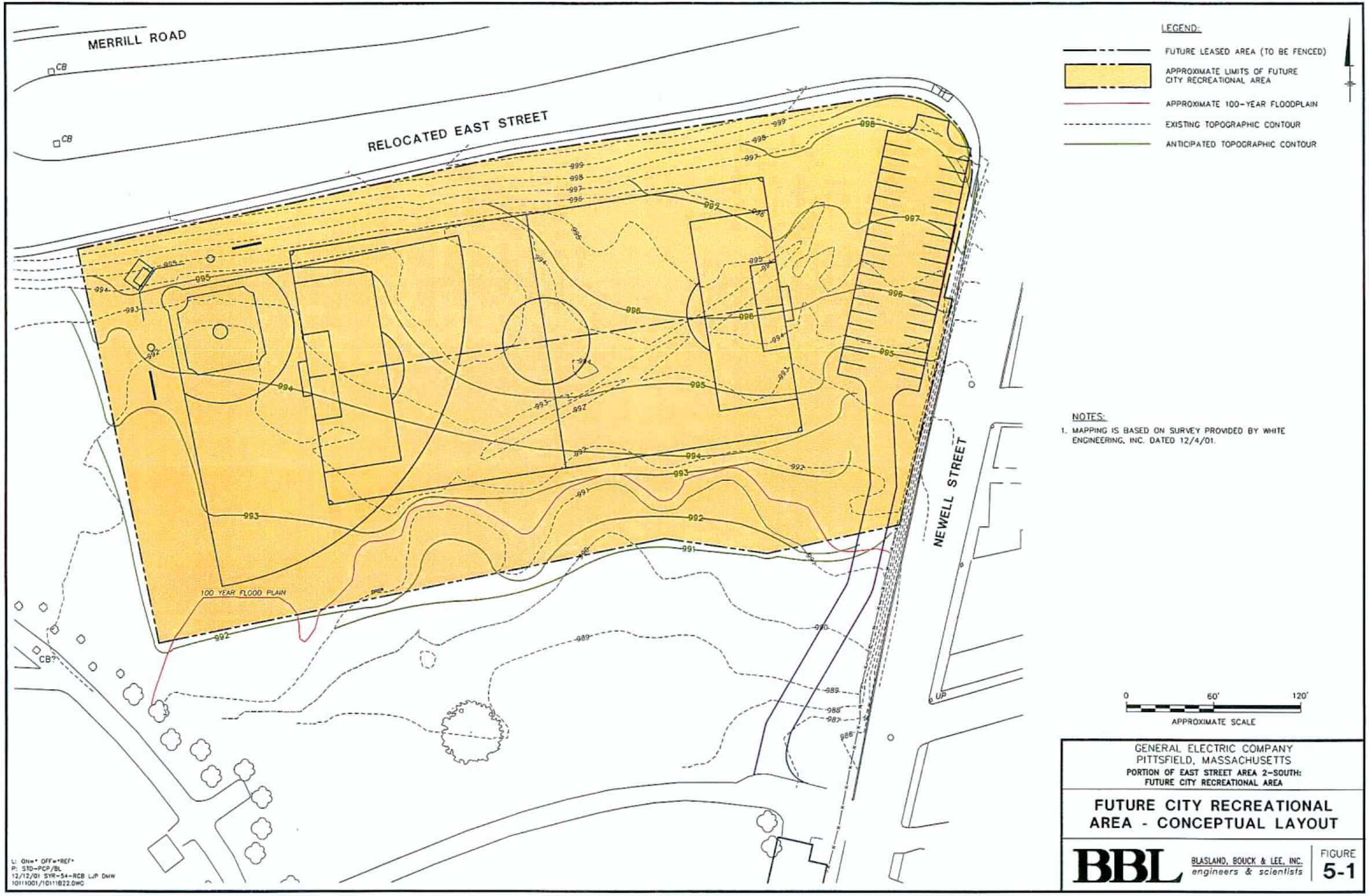
FIGURE 1-1

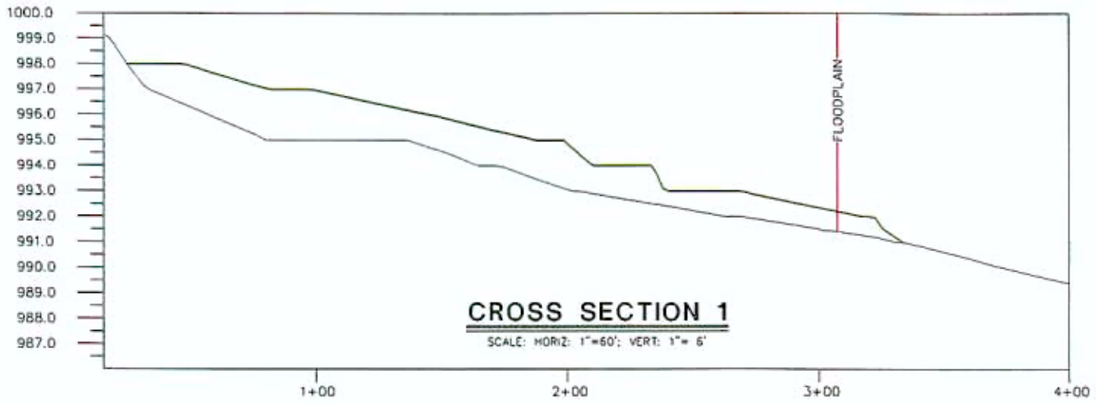
L: ON=*; OFF=REF
P: STD-PCP/DL
12/10/01 SYR-54-GWS RLP DMW
10111001/10111B07.DWG


MERRILL ROAD
RELOCATED EAST STREET
NEWELL STREET
100 YEAR FLOOD PLAIN
CB
UP
LEGEND:
FUTURE LEASED AREA (TO BE FENCED)
APPROXIMATE LIMITS OF FUTURE CITY RECREATIONAL AREA
APPROXIMATE 100-YEAR FLOODPLAIN
EXISTING TOPOGRAPHIC CONTOUR
NOTES:
1. MAPPING IS BASED ON SURVEY PROVIDED BY WHITE ENGINEERING, INC. DATED 12/4/01.
0
60'
120'
APPROXIMATE SCALE
GENERAL ELECTRIC COMPANY
PITTSFIELD, MASSACHUSETTS
PORTION OF EAST STREET AREA 2-SOUTH:
FUTURE CITY RECREATIONAL AREA
SITE PLAN
BBL
BLASLAND, BOUCK & LEE, INC.
engineers & scientists
FIGURE
1-2
L: ON='OFF='REF'
P: STD-PCP/BL
12/12/01 SYR-54-RCB LJP DMW
10111001/10111017.DWG


MERRILL ROAD
RELOCATED EAST STREET
NEWELL STREET
CB
CRA-1
CRA-2
CRA-3
CRA-4
CRA-5
CRA-6
CRA-7
CRA-8
CRA-9
CRA-10
CRA-11
CRA-12
CRA-13
CRA-14
CRA-15
CRA-16
CRA-17
CRA-18
CRA-19
CRA-20
CRA-21
CRA-22
210S
95-9
202S
X-16
X-17
X-18
RAA4-1
RAA4-2
RAA4-3
RAA4-4
RAA4-5
RAA4-6
RAA4-7
RAA4-8
RAA4-9
RAA4-10
RAA4-11
RAA4-12
RAA4-13
RAA4-14
RAA4-15
RAA4-16
RAA4-17
RAA4-18
RAA4-19
RAA4-20
RAA4-21
E2SC-5
E2SC-14
100 YEAR FLOOD PLAIN
UP
LEGEND:
FUTURE LEASED AREA (TO BE FENCED)
APPROXIMATE LIMITS OF FUTURE CITY RECREATIONAL AREA
APPROXIMATE 100-YEAR FLOODPLAIN
EXISTING TOPOGRAPHIC CONTOUR
X-18
EXISTING SOIL SAMPLE LOCATION
SUBGRADE UTILITY LINE
NOTES:
1. MAPPING IS BASED ON SURVEY PROVIDED BY WHITE ENGINEERING, INC. DATED 12/4/01.
2. ALL SAMPLING LOCATIONS ARE APPROXIMATE.
0
60'
120'
APPROXIMATE SCALE
GENERAL ELECTRIC COMPANY
PITTSFIELD, MASSACHUSETTS
PORTION OF EAST STREET AREA 2-SOUTH:
FUTURE CITY RECREATIONAL AREA
SOIL SAMPLE LOCATIONS
BBL
BLASLAND, BOUCK & LEE, INC.
engineers & scientists
FIGURE
2-1
L: ON=* OFF=*REF*
P: STD-PCP/BL
12/12/01 SYR-54-RCB LJP DMW
10111001/10111B18.DWG

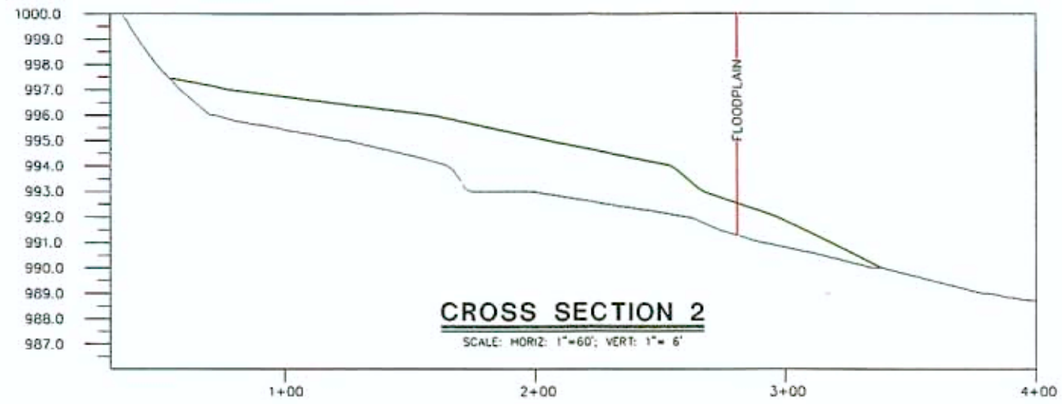

MERRILL ROAD
RELOCATED EAST STREET
CB
CB
CRA-1
CRA-2
CRA-3
CRA-4
CRA-5
CRA-6
CRA-7
CRA-8
CRA-9
CRA-10
CRA-11
CRA-12
CRA-13
CRA-14
CRA-15
CRA-16
CRA-17
CRA-18
CRA-19
CRA-20
CRA-21
CRA-22
210S
95-9
202S
X-16
X-17
X-18
RAA4-1
RAA4-2
RAA4-3
RAA4-4
RAA4-5
RAA4-6
RAA4-7
RAA4-8
RAA4-9
RAA4-10
RAA4-11
RAA4-12
RAA4-13
RAA4-14
RAA4-15
RAA4-16
RAA4-17
RAA4-18
RAA4-19
RAA4-20
RAA4-21
E2SC-5
E2SC-14
100 YEAR FLOOD PLAIN
NEWELL STREET
UP
LEGEND:
FUTURE LEASED AREA (TO BE FENCED)
APPROXIMATE LIMITS OF FUTURE CITY RECREATIONAL AREA
APPROXIMATE 100-YEAR FLOODPLAIN
EXISTING TOPOGRAPHIC CONTOUR
X-18
EXISTING SOIL SAMPLE LOCATION
ADDITIONAL 0-2 FOOT SUPPLEMENTAL SOIL SAMPLING LOCATION
NOTES:
1. MAPPING IS BASED ON SURVEY PROVIDED BY WHITE ENGINEERING, INC. DATED 12/4/01.
2. ALL SAMPLING LOCATIONS ARE APPROXIMATE.
0
60'
120'
APPROXIMATE SCALE
GENERAL ELECTRIC COMPANY
PITTSFIELD, MASSACHUSETTS
PORTION OF EAST STREET AREA 2-SOUTH:
FUTURE CITY RECREATIONAL AREA
SUPPLEMENTAL SOIL SAMPLE LOCATIONS
BBL
BLASLAND, BOUCK & LEE, INC.
engineers & scientists
FIGURE
4-1
L: DN=* OFF=*REF*
P: STD-PCP/BL
12/12/01 SYR-54-RCB LJP DMW
10111001/10111B20.DWG


MERRILL ROAD
RELOCATED EAST STREET
NEWELL STREET
100 YEAR FLOOD PLAIN
CB
UP
LEGEND:
FUTURE LEASED AREA (TO BE FENCED)
APPROXIMATE LIMITS OF FUTURE CITY RECREATIONAL AREA
APPROXIMATE 100-YEAR FLOODPLAIN
EXISTING TOPOGRAPHIC CONTOUR
ANTICIPATED TOPOGRAPHIC CONTOUR
NOTES:
1. MAPPING IS BASED ON SURVEY PROVIDED BY WHITE ENGINEERING, INC. DATED 12/4/01.
0
60'
120'
APPROXIMATE SCALE
GENERAL ELECTRIC COMPANY
PITTSFIELD, MASSACHUSETTS
PORTION OF EAST STREET AREA 2-SOUTH:
FUTURE CITY RECREATIONAL AREA
FUTURE CITY RECREATIONAL AREA - CONCEPTUAL LAYOUT
BBL
BLASLAND, BOUCK & LEE, INC.
engineers & scientists
FIGURE
5-1
L: ON=* OFF=*REF*
P: STD-PCP/BL
12/12/01 SYR-54-RCB LJP DMW
10111001/10111B22.DWG



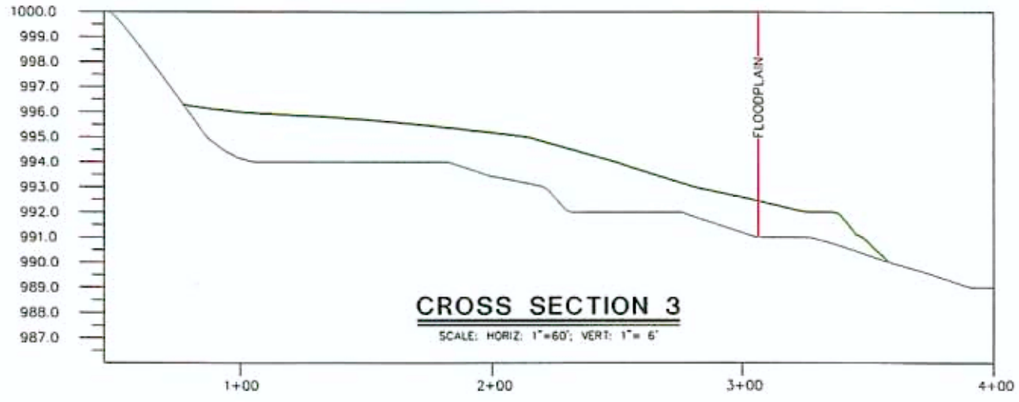

## CROSS SECTION 1

SCALE: HORIZ: 1"=60'; VERT: 1"= 6'



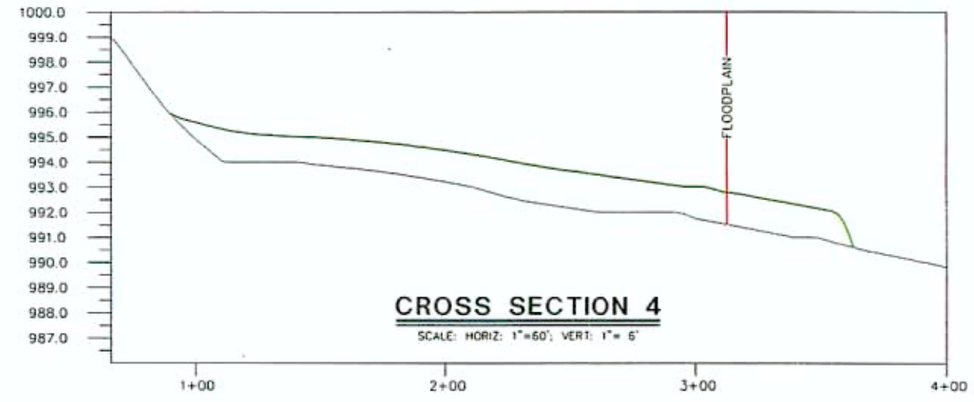

## CROSS SECTION 2

SCALE: HORIZ: 1"=60'; VERT: 1"= 6'



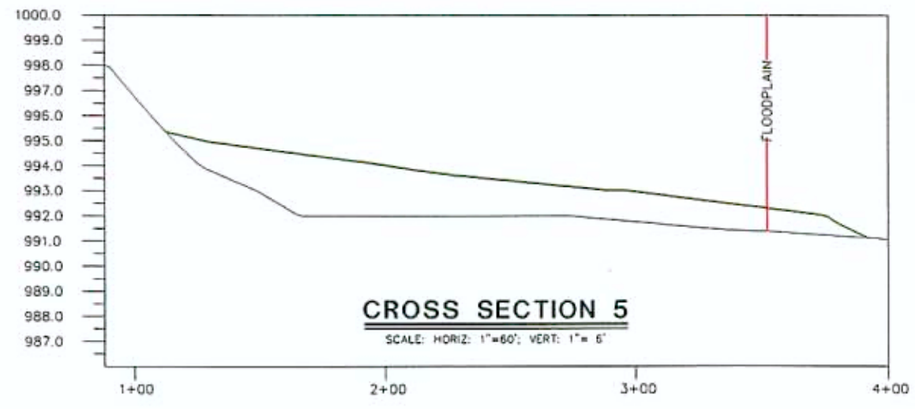

## CROSS SECTION 3

SCALE: HORIZ: 1"=60'; VERT: 1"= 6'



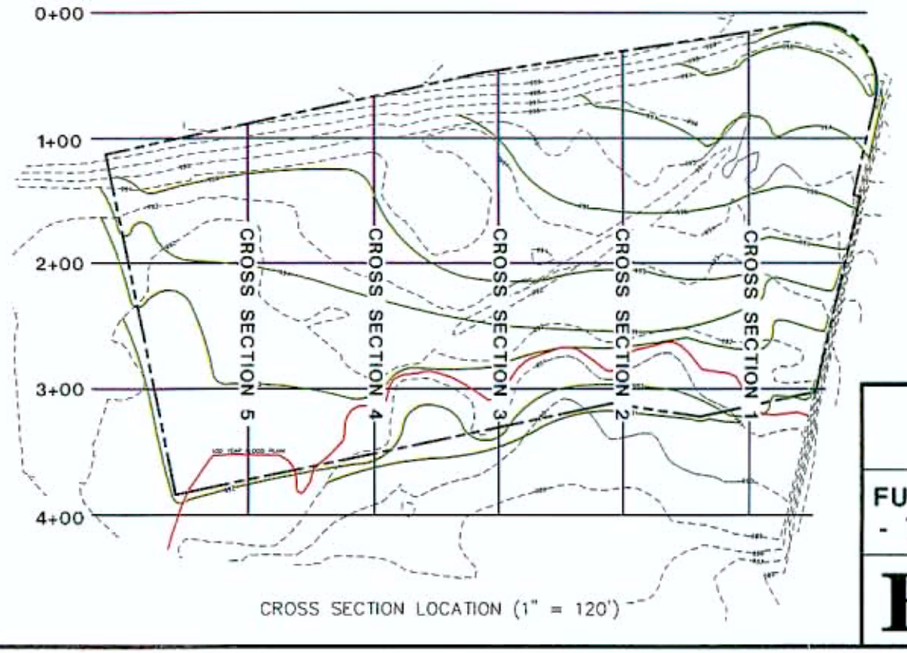

## CROSS SECTION 4

SCALE: HORIZ: 1"=60'; VERT: 1"= 6'




## CROSS SECTION 5

SCALE: HORIZ: 1"=60'; VERT: 1"= 6'




CROSS SECTION LOCATION (1" = 120')

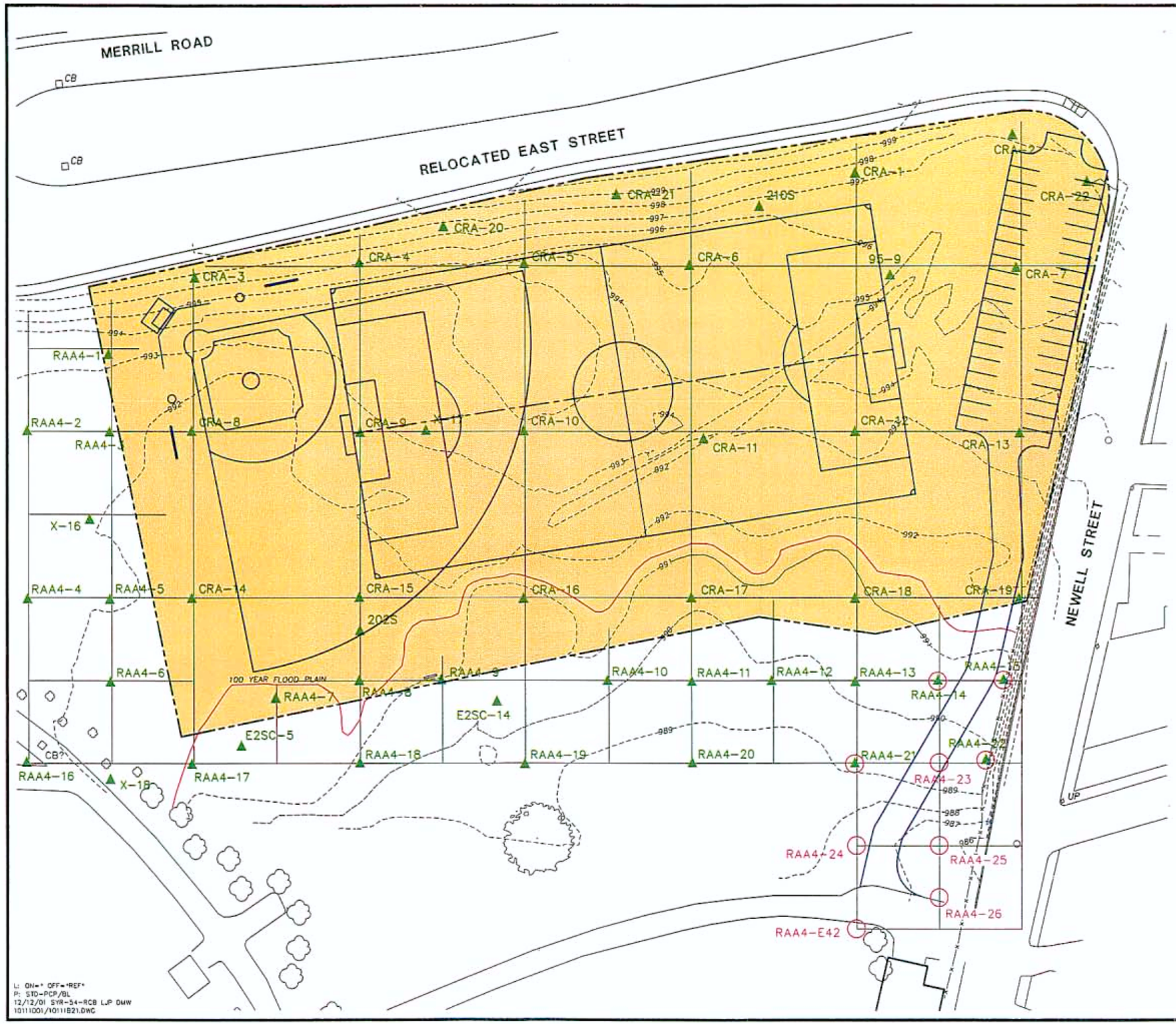
L: ON=* OFF=*REF*
P: STD-PCP/BL
12/11/01 SYR-54-RCB LAP DMW
10111001/10111B23.DWG

GENERAL ELECTRIC COMPANY
PITTSFIELD, MASSACHUSETTS
PORTION OF EAST STREET AREA 2-SOUTH:
FUTURE CITY RECREATIONAL AREA

# FUTURE CITY RECREATIONAL AREA - TOPOGRAPHIC CROSS SECTIONS

BBL BLASLAND, BOUCK & LEE, INC. engineers & scientists

FIGURE 5-2




LEGEND:

- FUTURE LEASED AREA (TO BE FENCED)
- APPROXIMATE LIMITS OF FUTURE CITY RECREATIONAL AREA
- APPROXIMATE 100-YEAR FLOODPLAIN
- EXISTING TOPOGRAPHIC CONTOUR
- X-18 EXISTING SOIL SAMPLE LOCATION
- SUPPLEMENTAL SOIL SAMPLING

| SAMPLE I.D. | STATUS | SAMPLE DEPTH (Feet) 0-1 | 1-3 | 3-6 | 6-15 |
|---|---|---|---|---|---|
| RAA4-14 | EXISTING | o | P | -- | -- |
| RAA4-15 | EXISTING | o* | P | -- | -- |
| RAA4-21 | EXISTING | o | P | P | o* |
| RAA4-22 | EXISTING | o | P* | P* | o |
| RAA4-23 | NEW | P | P | -- | -- |
| RAA4-24 | NEW | P | P | -- | -- |
| RAA4-25 | NEW | P/A | P/A | -- | -- |
| RAA4-26 | NEW | P | P/A | -- | -- |
| RAA4-E42 | NEW | P/A | P | P | P |

TABLE NOTES:

o - PCB DATA AVAILABLE FROM PREVIOUS INVESTIGATIONS

* - APPENDIX IX+3 DATA AVAILABLE FROM PREVIOUS INVESTIGATIONS

P - SAMPLE INCREMENT SUBJECT TO PCB ANALYSIS

A - SAMPLE INCREMENT SUBJECT TO APPENDIX IX+3 ANALYSIS (EXCLUDING HERBICIDES AND PESTICIDES)

NOTES:

1. MAPPING IS BASED ON SURVEY PROVIDED BY WHITE ENGINEERING, INC. DATED 12/4/01.
2. ALL SAMPLING LOCATIONS ARE APPROXIMATE.

0 60' 120'

APPROXIMATE SCALE

GENERAL ELECTRIC COMPANY
PITTSFIELD, MASSACHUSETTS
PORTION OF EAST STREET AREA 2-SOUTH:
FUTURE CITY RECREATIONAL AREA

# SUPPLEMENTAL PRE-DESIGN SOIL SAMPLING LOCATIONS

BBL BLASLAND, BOUCK & LEE, INC. engineers & scientists

FIGURE 5-3

L: ON=* OFF=*REF*
P: STD-PCP/BL
12/12/01 SYR-54-RCB LJP DMW
10111001/10111B21.DWG

# *Appendices*

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APPENDIX A
GENERAL ELECTRIC COMPANY
PITTSFIELD, MASSACHUSETTS

RD/RA WORK PLAN FOR FUTURE CITY RECREATIONAL AREA

SOIL SAMPLING DATA VALIDATION REPORT

## 1.0 General

This appendix summarizes the Tier I and Tier II data review performed for soil samples collected during pre-design investigation activities at a portion of the East Street Area 2-South Removal Action Area, including the Future City Recreational Area, located in Pittsfield, Massachusetts. The samples were analyzed for semi-volatile organic compounds (SVOCs) plus two additional constituents -- benzidine and 1,2-diphenylhydrazine -- by CT&E Environmental Services, Inc. of Charleston, West Virginia. Data validation was performed for three SVOCs samples that were collected.

## 2.0 Data Evaluation Procedures

This memorandum outlines the applicable quality control criteria utilized during the data review process and any deviations from those criteria. The data review was conducted in accordance with the following documents:

- *Field Sampling Plan/Quality Assurance Project Plan, General Electric Company, Pittsfield, Massachusetts*, Blasland, Bouck & Lee, Inc. (approved October 17, 2000);
- *Region I Tiered Organic and Inorganic Data Validation Guidelines*, USEPA Region I (July 1, 1993);
- *Region I Laboratory Data Validation Functional Guidelines for Evaluating Organics Analyses*, USEPA Region I (February 1, 1988) (Modified November 1, 1988); and,
- *Region I Laboratory Data Validation Functional Guidelines for Evaluating Organics Analyses*, USEPA Region I (Draft, December 1996).

A summary of the Tier I and Tier II data evaluation is presented in Table 1. Each sample subjected to evaluation is listed in Table 1 to document that data review was performed, as well as present the highest level of data validation (Tier I or Tier II) that was applied. Samples requiring data qualification are listed separately for each parameter (compound or analyte) that required qualification.

The following data qualifiers have been used in this data evaluation.

J The compound or analyte was positively identified, but the associated numerical value is an estimated concentration. This qualifier is used when the data evaluation procedure identifies a deficiency in the data generation process, and also when a compound or analyte is detected at estimated concentrations less than the practical quantitation limit (PQL).

U The compound or analyte was analyzed for, but was not detected. The sample quantitation limit is presented and adjusted for dilution and (for solid samples only) percent moisture.

Non-detected sample results are presented as ND(PQL) within this report and in Table 1 for consistency with previous documents prepared for this investigation.

UJ The compound or analyte was not detected above the reported sample quantitation limit. However, the reported limit is approximate and may or may not represent the actual level of quantitation. Non-detected sample results requiring qualification are presented as ND(PQL) J within this report and in Table 1 for consistency with previous documents prepared for this investigation.

R Indicates that the previously reported detection limit or sample result has been rejected due to a major deficiency in the data generation procedure. The data should not be used for any qualitative or quantitative purposes.

## 3.0 Data Validation Procedures

The FSP/QAPP provides (in Section 7.5) that all analytical data will be validated to a Tier I level following the procedures presented in the *Region I Tiered Organic and Inorganic Data Validation Guidelines* (USEPA guidelines). Accordingly, 100% of the analytical data for these investigations were subjected to Tier I review. The Tier I review consisted of a completeness evidence audit, as outlined in the *USEPA Region I CSF Completeness Evidence Audit Program* (USEPA Region I, 7/31/91), to ensure that all laboratory data and documentation were present. A summary of the samples subjected to Tier I and Tier II data evaluation is presented below.

**Summary of Samples Subjected to Tier I and Tier II Data Validation**

| | Tier I Only | | | Tier I &Tier II | | | |
|---|---|---|---|---|---|---|---|
| **Parameter** | **Samples** | **Duplicates** | **Blanks** | **Samples** | **Duplicates** | **Blanks** | **Total** |
| SVOCs | 0 | 0 | 0 | 1 | 1 | 1 | 3 |
| Total | 0 | 0 | 0 | 1 | 1 | 1 | 3 |

In the event that data packages were determined to be incomplete, the missing information was requested from the laboratory. Upon completion of the Tier I review, the data packages complied with the USEPA Region I Tier I data completeness requirements.

A Tier II review was also performed to resolve data usability limitations that were identified from laboratory qualification of the data during the Tier I data review. The Tier II data review consisted of a review of all data package summary forms for identification of quality assurance/quality control (QA/QC) deviations and qualification of the data according to the Region I Data Validation Functional Guidelines. The Tier II review resulted in the qualification of data for several samples due to minor QA/QC deficiencies. Additionally, all field duplicates were examined for relative percent difference (RPD) compliance with the criteria specified in the FSP/QAPP.

When qualification of the sample data was required, the sample results associated with a QA/QC parameter deviation were qualified in accordance with the procedures outlined in the USEPA Region I Data Validation Guidance documents. When the data validation process identified several quality control deficiencies, the cumulative effect of the various deficiencies was employed in assigning the final data qualifier. A summary of the QA/QC parameter deviations that resulted in data qualification is presented below for each analytical method.

## 4.0 Data Review

Initial calibration criterion for organic analyses requires that the average relative response factor (RRF) have a value greater than 0.05. Sample results were qualified as an estimate (J) when this criterion was exceeded. The compounds that exceeded initial calibration criterion and the number of samples qualified are presented below.

**Analysis Qualified Due to Initial Calibration Deviations**

| Analysis | Compound | Number of Affected Samples | Qualification |
|---|---|---|---|
| SVOCs | 2-Nitrophenol | 3 | J |
| | 1,3,5-Trinitrobenzene | 3 | J |
| | 3,3'-Dimethylbenzidine | 3 | J |
| | a,a'-Dimethylphenethylamine | 3 | J |
| | Hexachloropropene | 3 | J |
| | Aramite | 3 | J |

Several of the organic compounds (including the compounds presented in the two tables above detailing RRF deviations) exhibit instrument response factors (RFs) that are below the USEPA Region I minimum value of 0.05, but meet the analytical method criterion, which does not specify minimum response factors for these compounds. These compounds were analyzed by the laboratory at a higher concentration than the compounds that normally exhibit RFs greater than the USEPA Region I minimum value of 0.05 in an effort demonstrate acceptable response. USEPA Region I guidelines state that non-detected compound results associated with a RF less than the minimum value of 0.05 are to be rejected. However, the case of these select organic compounds, the RF is an inherent problem with the current analytical methodology; therefore, the non-detected samples results were qualified as estimated (J).

The continuing calibration criterion requires that the %D between the initial calibration RRF and the continuing calibration RRF for VOCs and SVOCs be less than 25 percent. Sample data for detected and non-detected compounds with %D values that exceeded the continuing calibration criterion were qualified as approximated (J). A summary of the compounds that exceeded continuing calibration criterion and the number of samples qualified due to those deviations are identified below.

**Compounds Qualified Due to Continuing Calibration of %D Values**

| Analysis | Compound | Number of Affected Samples | Qualification |
|---|---|---|---|
| SVOCs | Hexachloropropene | 3 | J |
| | Pronamide | 3 | J |
| | Thionazin | 3 | J |

Field duplicate samples were analyzed to evaluate the overall precision of laboratory and field procedures. The RPD between duplicate samples is required to be less than 50 percent for soil sample values greater than five times the PQL. Sample results for analytes that exceeded these limits were qualified as approximated (J). The organic analysis that did not meet field duplicate RPD requirements and the number of samples qualified due to those deviations are presented below.

**Compounds Qualified Due to Field Duplicate of %D Values**

| Analysis | Compound | Number of Affected Samples | Qualification |
|---|---|---|---|
| SVOCs | Benzo(a)anthracene | 3 | J |
| | Benzo(a)pyrene | 3 | J |
| | Benzo(b)fluoranthene | 3 | J |
| | Benzo(k)fluoranthene | 3 | J |
| | Chrysene | 3 | J |
| | Fluoranthene | 3 | J |
| | Phenanthrene | 3 | J |
| | Pyrene | 3 | J |
| | Anthracene | 3 | J |
| | Benzo(g,h,i)perylene | 3 | J |
| | Indeno(1,2,3-cd)pyrene | 3 | J |

## 5.0 Overall Data Usability

This section summarizes the analytical data in terms of its completeness and usability for site characterization purposes. Data completeness is defined as the percentage of sample results that have been determined to be usable during the data validation process. Data completeness with respect to usability was calculated separately for inorganic and each of the organic analyses. The percent usability calculation included analyses evaluated under both the Tier I and Tier II data validation reviews. The percent usability calculation also includes quality control samples collected to aid in the evaluation of data usability. Therefore, field/equipment blank, trip blank, and field duplicate data determined to be unusable as a result of the validation process are represented in the percent usability value tabulated below.

**Data Usability**

| Parameter | Percent Usability | Rejected Data |
|---|---|---|
| Semivolatile Organics | 100 | None |

The data package completeness as determined from the Tier I data review was used in combination with the data quality deviations identified during the Tier II data review to determine overall data quality. As specified in the FSP/QAPP, the overall precision, accuracy, representativeness, comparability, and completeness (PARCC) parameters determined from the Tier I and Tier II data reviews were used as indicators of overall data quality. These parameters were assessed through an evaluation of the results of the field and laboratory QA/QC sample analyses to provide a measure of compliance of the analytical data with the data quality objectives (DQOs) specified in the FSP/QAPP. Therefore, the following sections present summaries of the PARCC parameters assessment with regard to the DQOs specified in the FSP/QAPP.

### 5.1 Precision

Precision measures the reproducibility of measurements under a given set of conditions. Specifically, it is a quantitative measure of the variability of a group of measurements compared to their average value. For this investigation, precision was defined as the RPD between duplicate sample results. The duplicate samples used to evaluate precision included laboratory duplicates,

field duplicates, and MS/MSD samples. For this analytical program, 9.6 percent of the data were qualified due to field duplicate RPD deviations. None of the data required qualification for laboratory duplicate RPD deviations or MS/MSD RPD deviations.

## 5.2 Accuracy

Accuracy measures the bias in an analytical system, or the degree of agreement of a measurement with a known reference value. For this investigation, accuracy was defined as the percent recovery of QA/QC samples that were spiked with a known concentration of an analyte or compound of interest. The QA/QC samples used to evaluate analytical accuracy included instrument calibration, internal standards, laboratory control standards (LCSs), MS/MSD samples, and surrogate compound recoveries. For this analytical program, 8.3 percent of the data required qualification for calibration deviations. None of the data required qualification for surrogate compound recovery deviations, MS/MSD recoveries deviations, internal standard recovery deviations, and LCS recovery deviations.

## 5.3 Representativeness

Representativeness expresses the degree to which sample data accurately and precisely represents a characteristic of a population, parameter variations at a sampling point, or an environmental condition. Representativeness is a qualitative parameter which is most concerned with the proper design of the sampling program. The representativeness criterion is best satisfied by making certain that sampling locations are selected properly and a sufficient number of samples are collected. This parameter has been addressed by collecting samples at locations specified in Agency approved work plans, and by following the procedures for sample collection/analyses that were described in the FSP/QAPP. Additionally, the analytical program used procedures that were consistent with USEPA approved analytical methodology. A QA/QC parameter that is an indicator of the representativeness of a sample is holding time. Holding time criteria are established to maintain the samples in a state that is representative of the in-situ field conditions before analysis. For this analytical program, none of the data required qualification for exceeding holding time requirements.

## 5.4 Comparability

Comparability is a qualitative parameter expressing the confidence with which one data set can be compared with another. This goal was achieved through the use of the standardized techniques for sample collection and analysis presented in the FSP/QAPP. The USEPA SW-846[1] analytical methods presented in the FSP/QAPP are updated on occasion by the USEPA to benefit from recent technological advancements in analytical chemistry and instrumentation. In most cases, the method upgrades include the incorporation of new technology that improves the sensitivity and stability of the instrumentation or allows the laboratory to increase throughput without hindering accuracy and precision. Overall, the analytical methods for this investigation have remained consistent in their general approach through continued use of the basic analytical techniques (i.e., sample extraction/preparation, instrument calibration, QA/QC procedures, etc.). Through this use of consistent base analytical procedures and by requiring that updated procedures meet the QA/QC criteria specified in the FSP/QAPP, the analytical data from past, present, and future sampling events will be comparable to allow for qualitative and quantitative assessment of site conditions.

[1] Test Methods for evaluating Solid Waste, SW-846, USEPA, Final Update III, December 1996

## 5.5 Completeness

Completeness is defined as the percentage of measurements that are judged to be valid or usable to meet the prescribed DQOs. The completeness criterion is essentially the same for all data uses -- the generation of a sufficient amount of valid data. The actual completeness of this analytical data had an overall usability of 100 percent.

**TABLE 1**
**GENERAL ELECTRIC COMPANY - PITTSFIELD, MASSACHUSETTS**

**FUTURE CITY RECREATIONAL AREA**

**ANALYTICAL DATA VALIDATION SUMMARY**
**(Results are presented in parts per million, ppm)**

| Sample Delivery Group No. | Sample ID | Date Collected | Matrix | Validation Level | Qualification | Compound | QA/QC Parameter | Value | Control Limits | Qualified Result | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SVOCs | | | | | | | | | | | |
| 1DOP890 | CRA-3 (0 0 - 2) | 4/27/01 | Soil | Tier II | Yes | 2-Nitrophenol | ICAL RRF | 0.048 | >0.05 | ND(0.87) J | |
| | | | | | | 1,3,5-Trinitrobenzene | ICAL RRF | 0.019 | >0.05 | ND(0.87) J | |
| | | | | | | 3,3'-Dimethylbenzidine | CCAL %D | 32.2% | <25% | ND(2.2) J | |
| | | | | | | a,a'-Dimethylphenethylamine | CCAL %D | 32.8% | <25% | ND(2.2) J | |
| | | | | | | Hexachloropropene | ICAL RRF | 0.018 | >0.05 | ND(0.44) J | |
| | | | | | | Hexachloropropene | CCAL %D | 77.8% | <25% | ND(0.44) J | |
| | | | | | | Pronamide | CCAL %D | 28.0% | <25% | ND(0.44) J | |
| | | | | | | Thionazin | CCAL %D | 31.6% | <25% | ND(0.44) J | |
| | | | | | | Benzo(a)anthracene | Field Duplicate RPD (Soil) | 133.3% | <50% | 0.60 J | |
| | | | | | | Benzo(a)pyrene | Field Duplicate RPD (Soil) | 129.4% | <50% | 0.60 J | |
| | | | | | | Benzo(b)fluoranthene | Field Duplicate RPD (Soil) | 118.2% | <50% | 0.54 J | |
| | | | | | | Benzo(k)fluoranthene | Field Duplicate RPD (Soil) | 115.4% | <50% | 0.51 J | |
| | | | | | | Chrysene | Field Duplicate RPD (Soil) | 133.3% | <50% | 0.54 J | |
| | | | | | | Fluoranthene | Field Duplicate RPD (Soil) | 141.5% | <50% | 1.2 J | |
| | | | | | | Phenanthrene | Field Duplicate RPD (Soil) | 168.6% | <50% | 0.64 J | |
| | | | | | | Pyrene | Field Duplicate RPD (Soil) | 150.3% | <50% | 0.88 J | |
| | | | | | | Anthracene | Field Duplicate RPD (Soil) | 200.0% | <50% | ND(0.44) J | |
| | | | | | | Benzo(g,h,i)perylene | Field Duplicate RPD (Soil) | 200.0% | <50% | ND(0.44) J | |
| | | | | | | Indeno(1,2,3-cd)pyrene | Field Duplicate RPD (Soil) | 200.0% | <50% | ND(0.87) J | |
| 1DOP890 | CRA-DUP-1 | 4/27/01 | Soil | Tier II | Yes | 2-Nitrophenol | ICAL RRF | 4.8% | >0.05 | ND(0.84) J | |
| | | | | | | 1,3,5-Trinitrobenzene | ICAL RRF | 0.019 | >0.05 | ND(0.84) J | |
| | | | | | | Hexachloropropene | ICAL RRF | 0.018 | >0.05 | ND(2.1) J | |
| | | | | | | a,a'-Dimethylphenethylamine | CCAL %D | 32.8% | <25% | ND(2.1) J | |
| | | | | | | 3,3'-Dimethylbenzidine | CCAL %D | 32.2% | <25% | ND(0.42) J | |
| | | | | | | Pronamide | CCAL %D | 28.0% | <25% | ND(0.42) J | |
| | | | | | | Hexachloropropene | CCAL %D | 77.8% | <25% | ND(0.42) J | |
| | | | | | | Thionazin | CCAL %D | 31.6% | <25% | ND(0.42) J | |
| | | | | | | Benzo(a)anthracene | Field Duplicate RPD (Soil) | 133.3% | <50% | 3.0 J | |
| | | | | | | Benzo(a)pyrene | Field Duplicate RPD (Soil) | 129.4% | <50% | 2.8 J | |
| | | | | | | Benzo(b)fluoranthene | Field Duplicate RPD (Soil) | 118.2% | <50% | 2.1 J | |
| | | | | | | Benzo(k)fluoranthene | Field Duplicate RPD (Soil) | 115.4% | <50% | 1.9 J | |
| | | | | | | Chrysene | Field Duplicate RPD (Soil) | 133.3% | <50% | 2.1 J | |
| | | | | | | Fluoranthene | Field Duplicate RPD (Soil) | 141.5% | <50% | 7.0 J | |
| | | | | | | Phenanthrene | Field Duplicate RPD (Soil) | 168.6% | <50% | 7.5 J | |
| | | | | | | Pyrene | Field Duplicate RPD (Soil) | 150.3% | <50% | 6.2 J | |
| | | | | | | Anthracene | Field Duplicate RPD (Soil) | 200.0% | <50% | ND(0.44) J | |
| | | | | | | Benzo(g,h,i)perylene | Field Duplicate RPD (Soil) | 200.0% | <50% | ND(0.44) J | |
| | | | | | | Indeno(1,2,3-cd)pyrene | Field Duplicate RPD (Soil) | 200.0% | <50% | ND(0.87) J | |
| 1DOP890 | RINSE BLANK-1 | 4/27/01 | Soil | Tier II | Yes | 2-Nitrophenol | ICAL RRF | 4.8% | >0.05 | ND(0.020) J | |
| | | | | | | 1,3,5-Trinitrobenzene | ICAL RRF | 0.019 | >0.05 | ND(0.020) J | |
| | | | | | | Hexachloropropene | ICAL RRF | 0.018 | >0.05 | ND(0.010) J | |
| | | | | | | a,a'-Dimethylphenethylamine | CCAL %D | 32.8% | <25% | ND(0.050) J | |
| | | | | | | 3,3'-Dimethylbenzidine | CCAL %D | 32.2% | <25% | ND(0.050) J | |
| | | | | | | Pronamide | CCAL %D | 28.0% | <25% | ND(0.010) J | |
| | | | | | | Hexachloropropene | CCAL %D | 77.8% | <25% | ND(0.010) J | |
| | | | | | | Thionazin | CCAL %D | 31.6% | <25% | ND(0.010) J | |

# *Appendix B*

# Data Quality Assessment for Historical Soil Sampling Data

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# APPENDIX B

## DATA QUALITY ASSESSMENT FOR HISTORICAL SOIL SAMPLING DATA FROM FUTURE CITY RECREATIONAL AREA

### 1.0 Introduction

This attachment presents the results of a data quality review and assessment for the analytical results from certain soil samples collected at (or, in some cases, near) the Future City Recreational Area in Pittsfield, Massachusetts, during various soil investigations conducted between May 17, 1991 and October 8, 1998. The only sample results reviewed were those proposed for use in the evaluations in the *Removal Design/Removal Action Work Plan for the Future City Recreational Area.* These samples were analyzed for polychlorinated biphenyls (PCBs) and/or some or all of the constituents listed in Appendix IX of 40 CFR Part 264, plus three additional constituents (benzidine, 2-chloroethylvinyl ether, and 1,2-diphenylhydrazine) (Appendix IX+3). The analytical laboratories used to conduct these analyses included: IT Analytical Services of Knoxville, Tennessee and CompuChem Laboratories, Inc. of Research Triangle Park, North Carolina.

Since these samples were collected and analyzed prior to execution of the Consent Decree (CD) for the GE-Pittsfield/Housatonic River Site, the data are not subject to the specific data validation procedures set forth in GE's *Field Sampling Plan/Quality Assurance Project Plan* (FSP/QAPP) under the CD. Rather, these data have been subjected to a more general review and assessment for analytical data quality.

The procedures used in this data review/assessment and the results of this data review/assessment are summarized in this document for PCBs (Section 2.0) and other Appendix IX+3 constituents (Section 3.0). This document also includes proposals regarding the use of these prior sample results in the response action evaluations included in the RD/RA Work Plan for the Future City Recreational Area.

### 2.0 Data Evaluation for PCB Data

Data assessment has been performed for a total of 13 PCB sample results from the Future City Recreational Area. These samples were collected between May 1991 and October 1998. Full data packages were obtained from the laboratory for 10 samples. For three additional samples, only limited laboratory documentation exists, consisting of the standard laboratory reporting form (i.e., Certificate of Analysis). These 13 samples, together with the available documentation, are listed in Table 1.

In these circumstances, data review and assessment activities were first performed for the 10 samples for which full laboratory data packages are available. These activities included review of the data packages for completeness, review of the analytical techniques used, and identification of any apparent method and analytical deviations found within the data packages.

This review and assessment found no deficiencies that would preclude use of these PCB data in the response action evaluations in the RD/RA Work Plan. Further, based on the more detailed assessment of samples from locations and depths intended to satisfy the pre-design sampling grid requirements, no qualification was found to be necessary for any of those sample results. Thus, all PCB data in this category have been found to be of sufficient quality for use in the RD/RA evaluations for this area.

Next, the three PCB sample results for which only limited documentation exists (i.e., a standard laboratory reporting form) were reviewed. These PCB results are likewise considered usable for future RD/RA activities for the following reasons: (1) the reporting form confirms the date of sample analyses and thus the analytical methodologies being used at that time; (2) those analytical methodologies are

consistent with current procedures; (3) the reporting form is a laboratory-generated document and thus incorporates certain inherent QA checks performed by the laboratory concerning data quality; and (4) review of the PCB data for which full laboratory data packages are available indicates that those data are 100% usable, thus suggesting that the remaining PCB analyses are generally of sufficient quality for use in RD/RA evaluations. Accordingly, the three sample results in this category are considered suitable for use in the RD/RA evaluations for the Future City Recreational Area.

## 3.0 Data Evaluation for Other Appendix IX+3 Data

Data review and assessment activities have likewise been performed for the analytical data for non-PCB constituents. These data were collected between May 1991 and September 1997. As noted in the text of the RD/RA Work Plan, the data reviewed excluded the polychlorinated dibenzo-p-dioxin (PCDD) and polychlorinated dibenzofuran (PCDF) results from one sample (from location X-17) since that sample was analyzed only for total PCDD/PCDF homologues, not for 2,3,7,8-substituted congeners. The remaining data consist of four volatile organic compound (VOC) samples, four semi-volatile organic compound (SVOC) samples, three PCDD/PCDF samples, three pesticide samples, three herbicide samples, four metals samples, two sulfide samples, three total recoverable phenolic samples, and four cyanide samples. For these results, laboratory data packages were available for all data sets. These samples, together with the available documentation, are listed in Table 1.

These data were reviewed for completeness of the data packages, analytical techniques used, and any apparent method and analytical deviations found within the data packages. This review and assessment found no deficiencies that would preclude use of these analytical data in the response action evaluations in the RD/RA Work Plan.

TABLE 1

GENERAL ELECTRIC COMPANY - PITTSFIELD, MASSACHUSETTS
CONCEPTUAL RD/RA WORK PLAN FOR THE FUTUER CITY RECREATIONAL AREA

HISTORICAL ANALYTICAL DATA ASSESSMENT SUMMARY

| Sample Delivery Group No. | Location ID | Sample ID | Sample Depth | Date Collected | Available Documentation |
|---|---|---|---|---|---|
| **PCBs** | | | | | |
| 001P | 210S | 95-210-6 | 0-0.5 | 09/18/97 | Complete Laboratory Data Package |
| 0028P | 210S | 210S0-6 | 0-0.5 | 09/17/97 | Complete Laboratory Data Package |
| 1497 | 202S | P202S | 0-0.5 | 05/17/91 | Complete Laboratory Data Package |
| 1497 | 202S | P2SDP | 0-0.5 | 05/17/91 | Complete Laboratory Data Package |
| 1551 | X-16 | P2X160002 | 0-2 | 07/08/91 | Certificate of Analysis |
| 1551 | X-17 | P2X170002 | 0-2 | 07/08/91 | Complete Laboratory Data Package |
| 1551 | X-17 | P2X170002 | 0-2 | 07/08/91 | Certificate of Analysis |
| 1551 | X-18 | P2X180002 | 0-2 | 07/08/91 | Certificate of Analysis |
| 214 | 95-9 | 209B0002 | 0-2 | 02/29/96 | Complete Laboratory Data Package |
| BBL592 | E2SC-05 | E2SC-05-CS01 | 0-1 | 10/08/98 | Complete Laboratory Data Package |
| BBL592 | E2SC-05 | E2SC-05-CS0106 | 1-6 | 10/08/98 | Complete Laboratory Data Package |
| BBL592 | E2SC-14 | E2SC-14-CS01 | 0-1 | 10/08/98 | Complete Laboratory Data Package |
| BBL592 | E2SC-14 | E2SC-14-CS0106 | 1-6 | 10/08/98 | Complete Laboratory Data Package |
| **VOCs** | | | | | |
| 0028P | 210S | 210S0-6 | 0-0.5 | 09/17/97 | Complete Laboratory Data Package |
| 1497 | 202S | P202S | 0-0.5 | 05/17/91 | Complete Laboratory Data Package |
| 1497 | 202S | P2SDP | 0-0.5 | 05/17/91 | Complete Laboratory Data Package |
| 1551 | X-17 | P2X170002 | 0-2 | 07/08/91 | Complete Laboratory Data Package |
| **SVOCs** | | | | | |
| 0028P | 210S | 210S0-6 | 0-0.5 | 09/17/97 | Complete Laboratory Data Package |
| 1497 | 202S | P202S | 0-0.5 | 05/17/91 | Complete Laboratory Data Package |
| 1497 | 202S | P2SDP | 0-0.5 | 05/17/91 | Complete Laboratory Data Package |
| 1551 | X-17 | P2X170002 | 0-2 | 07/08/91 | Complete Laboratory Data Package |
| **Pesticides** | | | | | |
| 1497 | 202S | P202S | 0-0.5 | 05/17/91 | Complete Laboratory Data Package |
| 1497 | 202S | P2SDP | 0-0.5 | 05/17/91 | Complete Laboratory Data Package |
| 1551 | X-17 | P2X170002 | 0-2 | 07/08/91 | Complete Laboratory Data Package |
| **Herbicides** | | | | | |
| 1497 | 202S | P202S | 0-0.5 | 05/17/91 | Complete Laboratory Data Package |
| 1497 | 202S | P2SDP | 0-0.5 | 05/17/91 | Complete Laboratory Data Package |
| 1551 | X-17 | P2X170002 | 0-2 | 07/08/91 | Complete Laboratory Data Package |
| **Metals** | | | | | |
| 0028P | 210S | 210S0-6 | 0-0.5 | 09/17/97 | Complete Laboratory Data Package |
| 1497 | 202S | P202S | 0-0.5 | 05/17/91 | Complete Laboratory Data Package |
| 1497 | 202S | P2SDP | 0-0.5 | 05/17/91 | Complete Laboratory Data Package |
| 1551 | X-17 | P2X170002 | 0-2 | 07/08/91 | Complete Laboratory Data Package |
| **PCDDs/PCDFs** | | | | | |
| 0028P | 210S | 210S0-6 | 0-0.5 | 09/17/97 | Complete Laboratory Data Package |
| 1497 | 202S | P202S | 0-0.5 | 05/17/91 | Complete Laboratory Data Package |
| 1497 | 202S | P2SDP | 0-0.5 | 05/17/91 | Complete Laboratory Data Package |
| 1551 | X-17 | P2X170002 | 0-2 | 07/08/91 | Complete Laboratory Data Package |
| **Sulfide** | | | | | |
| 0028P | 210S | 210S0-6 | 0-0.5 | 09/17/97 | Complete Laboratory Data Package |
| 1551 | X-17 | P2X170002 | 0-2 | 07/08/91 | Complete Laboratory Data Package |
| **Cyanide** | | | | | |
| 0028P | 210S | 210S0-6 | 0-0.5 | 09/17/97 | Complete Laboratory Data Package |
| 1497 | 202S | P202S | 0-0.5 | 05/17/91 | Complete Laboratory Data Package |
| 1497 | 202S | P2SDP | 0-0.5 | 05/17/91 | Complete Laboratory Data Package |
| 1551 | X-17 | P2X170002 | 0-2 | 07/08/91 | Complete Laboratory Data Package |
| **Total Recoverable P** | | | | | |
| 1497 | 202S | P202S | 0-0.5 | 05/17/91 | Complete Laboratory Data Package |
| 1497 | 202S | P2SDP | 0-0.5 | 05/17/91 | Complete Laboratory Data Package |
| 1551 | X-17 | P2X170002 | 0-2 | 07/08/91 | Complete Laboratory Data Package |

# *Appendix C*

# Risk Evaluation of Appendix IX+3 Constituents in Soils

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# Appendix C

## Risk Evaluation of Appendix IX+3 Constituents in Soils of Future City Recreational Area at the General Electric Facility in Pittsfield, MA

Introduction

A number of non-PCB constituents were detected within the upper two feet of existing soil in the area of the General Electric (GE) facility in Pittsfield, MA, that is known as the Future City Recreational Area. Under the requirements of the Consent Decree, that existing two-foot depth increment will be covered by a minimum of one foot of clean soil. These constituents have been evaluated in accordance with the multi-step process established for non-PCB Appendix IX+3 constituents in the *Statement of Work for Removal Actions Outside the River* (SOW) (BBL, 1999). The steps in this process are described in the text of the *Removal Design/Removal Action Work Plan for the Future City Recreational Area* (RD/RA Work Plan). These steps included screening by comparison of the maximum detected concentrations of the constituents to EPA's Preliminary Remediation Goals (PRGs) for soil in residential areas (and, for one constituent, sulfide, comparison of site data with background levels). Following this screening, the average concentrations of the remaining constituents were compared to the conservative Method 1 S-1 soil standards set out in the Massachusetts Contingency Plan (MCP). As described in the text, a number of those constituents had average concentrations exceeding the Method 1 S-1 soil standards. Accordingly, GE requested that AMEC Earth & Environmental conduct an area-specific risk evaluation of the constituents that remained prior to the comparison to MCP Method 1 standards, using the protocols for area-specific risk evaluations set forth in the SOW.

This Appendix describes and presents the results of this area-specific risk evaluation for the Future City Recreational Area. In accordance with the SOW, this risk evaluation was based on the calculated average concentrations of the constituents in question. Further, the SOW requires that such area-specific risk evaluations use the same exposure scenarios that were used by EPA in developing the PCB Performance Standards for the area and depth increment in question, as described in EPA (1999a). In this case, the applicable scenario would be a recreational use scenario for the future 1- to 3-foot depth increment at the Future City

Recreational Area. However, although EPA (1999a) discusses the PCB Performance Standard for the 1- to 3-foot depth increment in recreational areas (15 mg/kg), it does not present any specific risk calculations to support that standard. Thus, as a conservative measure, even though the existing 0- to 2-foot depth increment at the Future City Recreational Area will be covered by a minimum of one foot of clean soil, this risk evaluation was based on the exposure scenario used by EPA (1999a) in supporting the PCB Performance Standard for the top foot of soil in recreational areas (10 mg/kg) -- i.e., the Child Recreational User scenario. Similarly, this risk evaluation has used the same exposure assumptions and parameter values that were used by EPA (1999a) in developing that PCB Performance Standard, except that for chemical-specific parameters (i.e., oral and dermal absorption factors), the evaluation used default values recommended by EPA or the Massachusetts Department of Environmental Protection (MDEP). The evaluation has also used standard EPA cancer and non-cancer toxicity values.

As discussed below, for the constituents evaluated, estimated cancer risks and non-cancer hazards fall below the acceptable benchmarks prescribed in the SOW.

Constituents Evaluated

In accordance with the protocols set forth in the SOW, the risk evaluation presented herein has considered all chemicals of potential concern (COPCs) that were retained for evaluation after the initial screening steps but before the comparison to MCP Method 1 standards. It has used the same average concentrations of such constituents that were calculated for the 0- to 2-foot soil increment for purposes of the comparison to the MCP Method 1 soil standards (as described in the RD/RA Work Plan). The COPCs evaluated and their average concentrations are as follows:

| Constituent | Average Concentration (mg/kg) |
|---|---|
| Benzo(a)anthracene | 1.87 |
| Benzo(a)pyrene | 1.66 |
| Benzo(b)fluoranthene | 1.14 |
| Dibenzo(a,h)anthracene | 1.12 |
| Benzo(k)fluoranthene | 1.47 |
| Indeno(1,2,3-cd)pyrene | 1.32 |
| Arsenic | 9.21 |

Risk Evaluation Assumptions and Procedures

As discussed above, the exposure scenario that has been evaluated is the same exposure scenario utilized by EPA (1999a) in supporting the PCB Performance Standard for the top foot of soil in recreational areas -- namely, the Child Recreational User scenario.

For the assessment of carcinogenic risks, the Child Recreational User scenario assumes that a 1- to 13-year-old child is exposed to constituents in surficial soils 84 days per year for a period of 12 years. For the evaluation of non-cancer hazards, the Child Recreational User scenario evaluates exposure to the 1- to 6-year-old child who is exposed 84 days per year for a period of 6 years. With the exception of chemical-specific absorption criteria, all exposure assumptions used to evaluate this scenario were the same as those used by EPA (1999a). The dermal and oral absorption factors used are default values recommended by EPA or MDEP. The specific exposure assumptions used in the evaluation are listed in Table 1.

The carcinogenic COPCs were evaluated for potential carcinogenic risks, while the only COPC with a non-cancer Reference Dose (RfD), arsenic, was evaluated for potential non-cancer hazards. (In accordance with the SOW, PCBs and dioxins/furans were not included in these evaluations.) The toxicity values used in the evaluations were those set forth on EPA's Integrated Risk Information System (IRIS) for benzo(a)pyrene and arsenic, with use of Toxicity Equivalency Factors (TEFs) recommended by EPA (1993) to adjust the values for other carcinogenic polycyclic aromatic hydrocarbons (PAHs) based on their assumed potency relative to benzo(a)pyrene. The specific toxicity values used in the evaluation are also listed in Table 1.

Based on these input values, predicted cancer risks and non-cancer hazards were calculated for the COPCs using standard risk assessment procedures. These were then compared to the benchmarks set forth in the SOW (for constituents other than PCBs and dioxins/furans) of $1 \times 10^{-5}$ for cancer risks and a Hazard Index of 1.0 for non-cancer impacts.

Summary of Risk Estimates

The predicted cancer risks and non-cancer hazards for the non-PCB COPCs in the existing 0- to 2-foot depth increment at the Future City Recreational Area, based on the Child Recreational

User scenario, are summarized in Table 2. Specific calculations are presented in Tables 3a and 3b. As shown in Table 2, the total estimated lifetime cancer risk is $7.3 \times 10^{-6}$, which does not exceed the identified risk benchmark of $1 \times 10^{-5}$. Similarly, the estimated non-cancer hazard is 0.027, which is well below the target Hazard Index of 1.0. These results indicate that the concentrations of the COPCs evaluated in the 0- to 2-foot soil increment in the Future City Recreational Area do not present an unacceptable cancer risk or non-cancer hazard.

References


BBL. 1999. *Statement of Work for Removal Actions Outside the River.* Appendix E to Consent Decree, Volume 1, *United States et al. v. General Electric Company* (D. Mass.). Blasland, Bouck & Lee, Syracuse, NY. October.

EPA. 1993. *Provisional Guidance for Quantitative Risk Assessment of Polycyclic Aromatic Hydrocarbons.* U.S. EPA, Office of Research and Development. EPA/600/R-93/089.

EPA. 1999a. *Protectiveness of Cleanup Levels for Removal Actions Outside the River – Protection of Human Health.* Memorandum from Ann-Marie Burke, EPA Region 1 to Richard Cavagnero, EPA Region 1. U.S. Environmental Protection Agency, Region I. Attachment A to Appendix D to Consent Decree in *United States et al. v. General Electric Company* (D. Mass.). August 4.

EPA. 1999b. *Risk Assessment Guidance for Superfund, Volume I: Human Health Evaluation Manual, Supplemental Guidance, Dermal Risk Assessment, Interim Guidance (Final Draft).* U.S. Environmental Protection Agency, Office of Emergency and Remedial Response, Washington. March 14.

EPA. 2001. U.S. EPA Integrated Risk Information System (IRIS). http://www.epa.gov/iriswebp/iris/index.html

MDEP. 1995. *Guidance for Disposal Site Risk Characterization – In Support of the Massachusetts Contingency Plan – Interim Final Policy.* Massachusetts Department of Environmental Protection, Bureau of Waste Site Cleanup and Office of Research and Standards, Boston, MA. WSC/ORS-95-141. July.

Table 1. Summary of Exposure Parameters and Toxicity Values for the Child Recreational Use Scenario

| Parameter | Value | | | Basis |
|---|---|---|---|---|
| | 1-6 years[a,b] | 7-13 years[b] | Time-Weighted Average[b,c] | |
| **Soil Ingestion Rate** | 200 | 100 | 150 | EPA, 1999a |
| **Relative Oral Absorption Factor** | | | | |
| Benzo(a)anthracene | 100% | 100% | 100% | Conservative Default |
| Benzo(a)pyrene | 100% | 100% | 100% | Conservative Default |
| Benzo(b)fluoranthene | 100% | 100% | 100% | Conservative Default |
| Dibenzo(a,h)anthracene | 100% | 100% | 100% | Conservative Default |
| Benzo(k)fluoranthene | 100% | 100% | 100% | Conservative Default |
| Indeno(1,2,3-cd)pyrene | 100% | 100% | 100% | Conservative Default |
| Arsenic | 39% | 39% | 39% | MDEP, 1995 |
| **Fraction from the Site[d]** | 0.5 | 0.5 | 0.5 | EPA, 1999a |
| **Dermal Adherence Factor** | | | | |
| May through September | 0.24 mg/cm$^2$ | 0.26 mg/cm$^2$ | 0.25 mg/cm$^2$ | EPA, 1999a |
| October and November | 0.23 mg/cm$^2$ | 0.26 mg/cm$^2$ | 0.245 mg/cm$^2$ | EPA, 1999a |
| Seasonal Time-weighted Ave.[e] | 0.237 mg/cm$^2$ | 0.26 mg/cm$^2$ | 0.249 mg/cm$^2$ | Calculated |
| **Skin Surface Area Exposed** | | | | |
| May through September | 2900 cm$^2$ | 4276 cm$^2$ | 3588 cm$^2$ | EPA, 1999a |
| October and November | 1340 cm$^2$ | 1733 cm$^2$ | 1537 cm$^2$ | EPA, 1999a |
| Seasonal Time-weighted Ave.[e] | 2454 cm$^2$ | 3549 cm$^2$ | 3002 cm$^2$ | Calculated |
| **Relative Dermal Absorption Factor** | | | | |
| Benzo(a)anthracene | 0.13 | 0.13 | 0.13 | EPA, 1999b |
| Benzo(a)pyrene | 0.13 | 0.13 | 0.13 | EPA, 1999b |
| Benzo(b)fluoranthene | 0.13 | 0.13 | 0.13 | EPA, 1999b |
| Dibenzo(a,h)anthracene | 0.13 | 0.13 | 0.13 | EPA, 1999b |
| Benzo(k)fluoranthene | 0.13 | 0.13 | 0.13 | EPA, 1999b |
| Indeno(1,2,3-cd)pyrene | 0.13 | 0.13 | 0.13 | EPA, 1999b |
| Arsenic | 0.03 | 0.03 | 0.03 | EPA, 1999b |
| **Exposure Frequency** | 84 days/year | 84 days/year | 84 days/year | EPA, 1999a |
| **Exposure Duration** | 6 | 6 | 6 | EPA, 1999a |
| **Body Weight** | 15 | 36.8 | 25.9 | EPA, 1999a |
| **Carcinogenic Averaging Time** | 25,550 days | 25,550 days | 25,550 days | EPA, 1999a |
| **Non-Carcinogenic Averaging Time** | 2190 | 2190 | 4380 | EPA, 1999a |
| **Cancer Slope Factor** | | | | |
| Benzo(a)anthracene | 0.73 (mg/kg-day)$^{-1}$ | 0.73 (mg/kg-day)$^{-1}$ | 0.73 (mg/kg-day)$^{-1}$ | EPA, 2001[f] |
| Benzo(a)pyrene | 7.3 (mg/kg-day)$^{-1}$ | 7.3 (mg/kg-day)$^{-1}$ | 7.3 (mg/kg-day)$^{-1}$ | EPA, 2001 |
| Benzo(b)fluoranthene | 0.73 (mg/kg-day)$^{-1}$ | 0.73 (mg/kg-day)$^{-1}$ | 0.73 (mg/kg-day)$^{-1}$ | EPA, 2001[f] |
| Dibenzo(a,h)anthracene | 7.3 (mg/kg-day)$^{-1}$ | 7.3 (mg/kg-day)$^{-1}$ | 7.3 (mg/kg-day)$^{-1}$ | EPA, 2001[f] |
| Benzo(k)fluoranthene | 0.073 (mg/kg-day)$^{-1}$ | 0.073 (mg/kg-day)$^{-1}$ | 0.073 (mg/kg-day)$^{-1}$ | EPA, 2001[f] |
| Indeno(1,2,3-cd)pyrene | 0.73 (mg/kg-day)$^{-1}$ | 0.73 (mg/kg-day)$^{-1}$ | 0.73 (mg/kg-day)$^{-1}$ | EPA, 2001[f] |
| Arsenic | 1.5 (mg/kg-day)$^{-1}$ | 1.5 (mg/kg-day)$^{-1}$ | 1.5 (mg/kg-day)$^{-1}$ | EPA, 2001 |
| **Reference Dose** | | | | |
| Arsenic | 0.0003 mg/kg-day | 0.0003 mg/kg-day | 0.0003 mg/kg-day | EPA, 2001 |

See Notes on Page 2

Notes:

[a] Used for evaluation of non-cancer hazards.

[b] Used for evaluation of carcinogenic risks and noncancer hazards.

[c] Time weighted averages assuming 6 years for each age group.

[d] Fraction from site only used for the soil ingestion pathway.

[e] Seasonal time-weighted average calculated using the following method: ((May-September*5)+(October-November*2))/7.

[f] Adjusted for applicable Toxic Equivalency Factors for PAHs as outlined in EPA, 1993.

**Table 2. Summary of Risk and Hazard Estimates for Appendix IX+3 Constituents in the Future City Recreational Area**

| Cancer Risk | | | |
|---|---|---|---|
| **Constituent** | **Risk Due to Soil Ingestion** | **Risk Due to Dermal Contact** | **Total Risk** |
| Benzo(a)anthracene | 1.6E-07 | 2.0E-07 | 3.6E-07 |
| Benzo(a)pyrene | 1.4E-06 | 1.8E-06 | 3.2E-06 |
| Benzo(b)fluoranthene | 9.5E-08 | 1.2E-07 | 2.2E-07 |
| Dibenzo(a,h)anthracene | 9.3E-07 | 1.2E-06 | 2.1E-06 |
| Benzo(k)fluoranthene | 1.2E-08 | 1.6E-08 | 2.8E-08 |
| Indeno(1,2,3-cd)pyrene | 1.1E-07 | 1.4E-07 | 2.5E-07 |
| Arsenic | 6.2E-07 | 4.7E-07 | 1.1E-06 |
| **Total** | **3.3E-06** | **4.0E-06** | **7.3E-06** |

| Non-Cancer Hazard | | | |
|---|---|---|---|
| **Constituent** | **Hazard Due to Soil Ingestion** | **Hazard Due to Dermal Contact** | **Total Hazard** |
| Arsenic | 0.018 | 0.008 | 0.027 |

## Table 3a. Cancer and Non-Cancer Risks from Recreational Exposure to Surface Soil

### *Pathway: Incidental Ingestion of Surface Soils*

**CARCINOGENIC**

CSF = CDI x CSF

CDI = Cs x IgR x ROA x EF x ED x CF x 1/BW x 1/ATc

| Chemical | Cs<br>Soil Concentration<br>(mg/kg) | IgR<br>Ingestion Rate<br>(mg/d) | ROA<br>Relative Oral Absorption<br>(unitless) | FR<br>Fraction from site<br>(unitless) | EF<br>Exposure Frequency<br>(d/yr) | ED<br>Exposure Duration<br>(yrs) | CF<br>Conversion Factor<br>(kg/mg) | BW<br>Body Weight<br>(kg) | ATc<br>Averaging Time Carcinogenic<br>(days) | CDI<br>Chronic Daily Intake<br>(mg/kg-d) | CSF<br>Cancer Slope Factor<br>$(mg/kg\text{-}d)^{-1}$ | Risk |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Benzo(a)anthracene | 1.87 | 150 | 1.0 | 0.5 | 84 | 12 | 1E-06 | 25.9 | 25550 | 2.1E-07 | 0.73 | 1.6E-07 |
| Benzo(a)pyrene | 1.66 | 150 | 1.0 | 0.5 | 84 | 12 | 1E-06 | 25.9 | 25550 | 1.9E-07 | 7.3 | 1.4E-06 |
| Benzo(b)fluoranthene | 1.14 | 150 | 1.0 | 0.5 | 84 | 12 | 1E-06 | 25.9 | 25550 | 1.3E-07 | 0.73 | 9.5E-08 |
| Dibenzo(a,h)anthracene | 1.12 | 150 | 1.0 | 0.5 | 84 | 12 | 1E-06 | 25.9 | 25550 | 1.3E-07 | 7.3 | 9.3E-07 |
| Benzo(k)fluoranthene | 1.47 | 150 | 1.0 | 0.5 | 84 | 12 | 1E-06 | 25.9 | 25550 | 1.7E-07 | 0.073 | 1.2E-08 |
| Indeno(1,2,3-cd)pyrene | 1.32 | 150 | 1.0 | 0.5 | 84 | 12 | 1E-06 | 25.9 | 25550 | 1.5E-07 | 0.73 | 1.1E-07 |
| Arsenic | 9.21 | 150 | 0.39 | 0.5 | 84 | 12 | 1E-06 | 25.9 | 25550 | 4.1E-07 | 1.5 | 6.2E-07 |
| **Note: Parameters are time-weighted by season and age group for 1 to 13 year old child recreational user (See Table 1).** | | | | | | | | | | | **Total** | **3.3E-06** |

**NON-CARCINOGENIC**

HQ = CDI/RfD

CDI = Cs x IgR x ROA x EF x ED x CF x 1/BW x 1/ATnc

| Chemical | Cs<br>Soil Concentration<br>(mg/kg) | IgR<br>Ingestion Rate<br>(mg/d) | ROA<br>Relative Oral Absorption<br>(unitless) | FR<br>Fraction from site<br>(unitless) | EF<br>Exposure Frequency<br>(d/yr) | ED<br>Exposure Duration<br>(yrs) | CF<br>Conversion Factor<br>(kg/mg) | BW<br>Body Weight<br>(kg) | ATnc<br>Averaging Time Non Carcinogenic<br>(days) | CDI<br>Chronic Daily Intake<br>(mg/kg-d) | RfD<br>Reference Dose<br>(mg/kg-d) | HQ<br>Hazard Quotient |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 9.21 | 200 | 0.39 | 0.5 | 84 | 6 | 1E-06 | 15 | 2,190 | 5.5E-06 | 3.0E-04 | 1.8E-02 |
| **Note: Parameters are time-weighted by season for 1 to 6 year old child recreational user (See Table 1).** | | | | | | | | | | | **Total** | **1.8E-02** |

## Table 3b. Cancer and Non-Cancer Risks from Recreational Exposure to Surface Soil

### *Pathway: Dermal Contact with Surface Soils*

CARCINOGENIC
Risk = CDI x CSF
CDI =Cs x DAF x SA x RDA x EF x ED x CF x 1/BW x 1/ATc

| Chemical | Cs Soil Concentration (mg/kg) | DAF Dermal Adherence Factor ($mg/cm^2$) | SA Surface Area Exposed ($cm^2$/day) | RDA Relative Dermal Absorption (unitless) | EF Exposure Frequency (d/yr) | ED Exposure Duration (yrs) | CF Conversion Factor (kg/mg) | BW Body Weight (kg) | ATc Averaging Time Carcinogenic (days) | CDI Chronic Daily Intake (mg/kg-d) | CSF Cancer Slope Factor $(mg/kg\text{-}d)^{-1}$ | Risk |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Benzo(a)anthracene | 1.87 | 0.249 | 3,002 | 0.13 | 84 | 12 | 1E-06 | 25.9 | 25,550 | 2.8E-07 | 0.73 | 2.0E-07 |
| Benzo(a)pyrene | 1.66 | 0.249 | 3,002 | 0.13 | 84 | 12 | 1E-06 | 25.9 | 25,550 | 2.5E-07 | 7.3 | 1.8E-06 |
| Benzo(b)fluoranthene | 1.14 | 0.249 | 3,002 | 0.13 | 84 | 12 | 1E-06 | 25.9 | 25,550 | 1.7E-07 | 0.73 | 1.2E-07 |
| Dibenzo(a,h)anthracene | 1.12 | 0.249 | 3,002 | 0.13 | 84 | 12 | 1E-06 | 25.9 | 25,550 | 1.7E-07 | 7.3 | 1.2E-06 |
| Benzo(k)fluoranthene | 1.47 | 0.249 | 3,002 | 0.13 | 84 | 12 | 1E-06 | 25.9 | 25,550 | 2.2E-07 | 0.073 | 1.6E-08 |
| Indeno(1,2,3-cd)pyrene | 1.32 | 0.249 | 3,002 | 0.13 | 84 | 12 | 1E-06 | 25.9 | 25,550 | 2.0E-07 | 0.73 | 1.4E-07 |
| Arsenic | 9.21 | 0.249 | 3,002 | 0.03 | 84 | 12 | 1E-06 | 25.9 | 25,550 | 3.1E-07 | 1.5 | 4.7E-07 |
| Note: Parameters are time-weighted by season and age group for 1 to 13 year old child recreational user (See Table 1). | | | | | | | | | | | Total | **4.0E-06** |

NON-CARCINOGENIC
HQ = CDI/RfD
CDI =Cs x DAF x SA x RDA x EF x ED x CF x 1/BW x 1/ATnc

| Chemical | Cs Soil Concentration (mg/kg) | DAF Dermal Adherence Factor ($mg/cm^2$) | SA Surface Area Exposed ($cm^2$/day) | RDA Relative Dermal Absorption (unitless) | EF Exposure Frequency (d/yr) | ED Exposure Duration (yrs) | CF Conversion Factor (kg/mg) | BW Body Weight (kg) | ATnc Averaging Time Non-Carcinogenic (days) | CDI Chronic Daily Intake (mg/kg-d) | RfD Reference Dose (mg/kg-d) | HQ Hazard Quotient |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Arsenic | 9.21 | 0.237 | 2,454 | 0.03 | 84 | 6 | 1E-06 | 15 | 2,190 | 2.5E-06 | 3.0E-04 | 8.2E-03 |
| Note: Parameters are time-weighted by season for 1 to 6 year old child recreational user (See Table 1). | | | | | | | | | | | Total | **8.2E-03** |

# *Attachment*

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# *Attachment A*

# PCB Spatial Average Evaluations

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TABLE A-1

GENERAL ELECTRIC COMPANY
PITTSFIELD, MASSACHUSETTS
CITY RECREATIONAL AREA

EXISTING CONDITIONS - 0- TO 2-FOOT DEPTH INCREMENT

EXISTING CONDITIONS - 0- TO 0.5-FOOT DEPTH INCREMENT

| Sample ID(s) | Polygon ID | Polygon Area (sq. ft.) | Sample Depth (ft.) | PCB Conc. (ppm) | Volume (cumulative) (cy) | Average PCB Concentration Per Foot (ppm) | Average PCB Conc. TIMES Total Volume |
|---|---|---|---|---|---|---|---|
| CRA-1 | 94 | 4,211 | 0 - 0.5 | 1.28 | 77.90 | 1.28 | 99.83 |
| CRA-2 | 93 | 3,559 | 0 - 0.5 | 1.19 | 65.90 | 1.19 | 78.42 |
| CRA-3 | 111 | 5,823 | 0 - 0.5 | **0.23** | 107.82 | 0.23 | 24.80 |
| CRA-4 | 108 | 5,729 | 0 - 0.5 | 0.2 | 106.09 | 0.20 | 21.22 |
| CRA-5 | 119 | 6,449 | 0 - 0.5 | 0.84 | 119.43 | 0.84 | 100.32 |
| CRA-6 | 99 | 7,028 | 0 - 0.5 | 0.284 | 130.15 | 0.28 | 36.96 |
| CRA-7 | 102 | 6,609 | 0 - 0.5 | 0.111 | 122.39 | 0.11 | 13.59 |
| CRA-8 | 112 | 7,168 | 0 - 0.5 | **1.1** | 132.74 | 1.10 | 146.01 |
| CRA-9 | 109 | 7,091 | 0 - 0.5 | 5.6 | 131.32 | 5.60 | 735.41 |
| CRA-10 | 120 | 8,438 | 0 - 0.5 | 0.73 | 156.26 | 0.73 | 114.07 |
| CRA-11 | 100 | 10,013 | 0 - 0.5 | 1.06 | 185.42 | 1.06 | 196.55 |
| CRA-12 | 97 | 9,517 | 0 - 0.5 | 3.4 | 176.24 | 3.40 | 599.21 |
| CRA-13 | 95 | 7,678 | 0 - 0.5 | **0.023** | 142.19 | 0.02 | 3.27 |
| CRA-14 | 117 | 5,970 | 0 - 0.5 | 1.81 | 110.55 | 1.81 | 200.09 |
| CRA-15 | 115 | 5,780 | 0 - 0.5 | 2.3 | 107.04 | 2.30 | 246.19 |
| CRA-16 | 121, 136 | 7,081 | 0 - 0.5 | 0.89 | 131.13 | 0.89 | 116.71 |
| CRA-17 | 106, 137 | 6,348 | 0 - 0.5 | 42 | 117.55 | 42.00 | 4,937.24 |
| CRA-18 | 105, 144 | 6,387 | 0 - 0.5 | 0.32 | 118.28 | 0.32 | 37.85 |
| CRA-19 | 104 | 3,305 | 0 - 0.5 | 0.38 | 61.21 | 0.38 | 23.26 |
| CRA-20 | 107 | 2,739 | 0 - 0.5 | 0.058 | 50.73 | 0.06 | 2.94 |
| CRA-21 | 98 | 3,288 | 0 - 0.5 | **0.0235** | 60.89 | 0.02 | 1.43 |
| CRA-22 | 103 | 2,382 | 0 - 0.5 | 0.95 | 44.12 | 0.95 | 41.91 |
| 95-9 | 96 | 7,291 | 0 - 0.5 | 0.31 | 135.02 | 0.31 | 41.86 |
| 210S | 101 | 4,723 | 0 - 0.5 | 9.2 | 87.46 | 9.20 | 804.65 |
| 202S | 114, 141 | 1,790 | 0 - 0.5 | 0.935 | 33.14 | 0.94 | 30.99 |
| E2SC-5 | 129, 143 | 538 | 0 - 0.5 | 1.6 | 9.97 | 1.60 | 15.95 |
| E2SC-14 | 126 | 362 | 0 - 0.5 | 0.6 | 6.70 | 0.60 | 4.02 |
| RAA4-3 | 135 | 1,919 | 0 - 0.5 | 0.68 | 35.54 | 0.68 | 24.17 |
| RAA4-5 | 133 | 53 | 0 - 0.5 | 9.4 | 0.99 | 9.40 | 9.30 |
| RAA4-6 | 132 | 194 | 0 - 0.5 | 14 | 3.59 | 14.00 | 50.20 |
| RAA4-7 | 118, 139 | 2,736 | 0 - 0.5 | 1.28 | 50.67 | 1.28 | 64.86 |
| RAA4-8 | 116, 127, 128 | 1,332 | 0 - 0.5 | 4.45 | 24.67 | 4.45 | 109.79 |
| RAA4-9 | 113, 138, 142 | 1,812 | 0 - 0.5 | 1.64 | 33.55 | 1.64 | 55.02 |
| RAA4-10 | 125, 140 | 938 | 0 - 0.5 | 3.9 | 17.37 | 3.90 | 67.74 |
| RAA4-12 | 124 | 134 | 0 - 0.5 | 7.9 | 2.48 | 7.90 | 19.58 |
| RAA4-14 | 122, 123 | 179 | 0 - 0.5 | 1.7 | 3.14 | 1.70 | 5.34 |
| RAA4-17 | 130, 131 | 368 | 0 - 0.5 | 10.1 | 6.81 | 10.10 | 68.77 |
| X-16 | 134 | 576 | 0 - 0.5 | 0.07 | 10.67 | 0.07 | 0.75 |
| X-17 | 110 | 5,586 | 0 - 0.5 | **0.025** | 103.45 | 0.03 | 2.59 |
| **Totals:** | -- | 163,116 | -- | -- | 3,021 | -- | 9,152.85 |
| | | | | | Volume-Weighted Average: | | **3.03** |

EXISTING CONDITIONS - 0.5- TO 1-FOOT DEPTH INCREMENT

| Sample ID(s) | Polygon ID | Polygon Area (sq. ft.) | Sample Depth (ft.) | PCB Conc. (ppm) | Volume (cumulative) (cy) | Average PCB Concentration Per Foot (ppm) | Average PCB Conc. TIMES Total Volume |
|---|---|---|---|---|---|---|---|
| CRA-1 | 89 | 5,952 | 0.5 - 1 | 1.28 | 110.22 | 1.28 | 141.08 |
| CRA-2 | 87 | 3,559 | 0.5 - 1 | 1.19 | 65.90 | 1.19 | 78.42 |
| CRA-3 | 96 | 5,823 | 0.5 - 1 | **0.23** | 107.82 | 0.23 | 24.80 |
| CRA-4 | 95 | 5,729 | 0.5 - 1 | 0.2 | 106.09 | 0.20 | 21.22 |
| CRA-5 | 94 | 6,449 | 0.5 - 1 | 0.84 | 119.43 | 0.84 | 100.32 |
| CRA-6 | 93 | 9,477 | 0.5 - 1 | 0.284 | 175.50 | 0.28 | 49.84 |
| CRA-7 | 90 | 6,609 | 0.5 - 1 | 0.111 | 122.39 | 0.11 | 13.59 |
| CRA-8 | 109 | 7,168 | 0.5 - 1 | **1.1** | 132.74 | 1.10 | 146.01 |
| CRA-9 | 107 | 7,091 | 0.5 - 1 | 5.6 | 131.32 | 5.60 | 735.41 |
| CRA-10 | 104 | 8,438 | 0.5 - 1 | 0.73 | 156.26 | 0.73 | 114.07 |
| CRA-11 | 102 | 10,013 | 0.5 - 1 | 1.06 | 185.42 | 1.06 | 196.55 |
| CRA-12 | 98 | 9,517 | 0.5 - 1 | 3.4 | 176.24 | 3.40 | 599.21 |
| CRA-13 | 99 | 7,678 | 0.5 - 1 | **0.023** | 142.19 | 0.02 | 3.27 |
| CRA-14 | 112 | 5,970 | 0.5 - 1 | 1.81 | 110.55 | 1.81 | 200.09 |
| CRA-15 | 108 | 6,870 | 0.5 - 1 | 2.3 | 127.22 | 2.30 | 292.62 |
| CRA-16 | 105, 128 | 7,081 | 0.5 - 1 | 0.89 | 131.13 | 0.89 | 116.71 |
| CPA-17 | 103, 129 | 6,348 | 0.5 - 1 | 42 | 117.55 | 42.00 | 4,937.24 |
| CRA-18 | 101, 133 | 6,387 | 0.5 - 1 | 0.32 | 118.28 | 0.32 | 37.85 |
| CRA-19 | 100 | 3,305 | 0.5 - 1 | 0.38 | 61.21 | 0.38 | 23.26 |

See Notes on Page 2

TABLE A-1

GENERAL ELECTRIC COMPANY
PITTSFIELD, MASSACHUSETTS
CITY RECREATIONAL AREA

EXISTING CONDITIONS - 0- TO 2-FOOT DEPTH INCREMENT

EXISTING CONDITIONS - 0.5- TO 1-FOOT DEPTH INCREMENT (continued)

| Sample ID(s) | Polygon ID | Polygon Area (sq. ft.) | Sample Depth (ft) | PCB Conc. (ppm) | Volume (cumulative) (cy) | Average PCB Concentration Per Foot (ppm) | Average PCB Conc. TIMES Total Volume |
|---|---|---|---|---|---|---|---|
| CRA-20 | 97 | 2,739 | 0.5 - 1 | 0.058 | 50.73 | 0.06 | 2.94 |
| CRA-21 | 92 | 3,459 | 0.5 - 1 | **0.0235** | 64.05 | 0.02 | 1.51 |
| CRA-22 | 88 | 2,382 | 0.5 - 1 | 0.95 | 44.12 | 0.95 | 41.91 |
| 95-9 | 91 | 7,654 | 0.5 - 1 | 0.31 | 141.73 | 0.31 | 43.94 |
| E2SC-5 | 121, 131 | 538 | 0.5 - 1 | 0.29 | 9.97 | 0.29 | 2.89 |
| E2SC-14 | 119 | 362 | 0.5 - 1 | 0.6 | 6.70 | 0.60 | 4.02 |
| RAA4-3 | 127 | 1,919 | 0.5 - 1 | 0.68 | 35.54 | 0.68 | 24.17 |
| RAA4-5 | 125 | 53 | 0.5 - 1 | 9.4 | 0.99 | 9.40 | 9.30 |
| RAA4-6 | 124 | 194 | 0.5 - 1 | 14 | 3.59 | 14.00 | 50.20 |
| RAA4-7 | 111, 130 | 2,803 | 0.5 - 1 | 1.28 | 51.91 | 1.28 | 66.45 |
| RAA4-8 | 110, 119, 120 | 1,881 | 0.5 - 1 | 4.45 | 34.84 | 4.45 | 155.05 |
| RAA4-9 | 113, 134 | 1,895 | 0.5 - 1 | 1.64 | 35.10 | 1.64 | 57.56 |
| RAA4-10 | 117, 132 | 938 | 0.5 - 1 | 3.9 | 17.37 | 3.90 | 67.74 |
| RAA4-12 | 116 | 134 | 0.5 - 1 | 7.9 | 2.48 | 7.90 | 19.58 |
| RAA4-14 | 114, 115 | 170 | 0.5 - 1 | 1.7 | 3.14 | 1.70 | 5.34 |
| RAA4-17 | 122, 123 | 368 | 0.5 - 1 | 10.1 | 6.81 | 10.10 | 68.77 |
| X-16 | 126 | 576 | 0.5 - 1 | 0.07 | 10.67 | 0.07 | 0.75 |
| X-17 | 106 | 5,586 | 1 - 3.0 | **0.0185** | 103.45 | 0.02 | 1.91 |
| **Totals:** | -- | 163,116 | -- | -- | 3,021 | -- | 8,455.58 |
| | | | | | Volume-Weighted Average: | | **2.80** |

EXISTING CONDITIONS - 1- TO 2-FOOT DEPTH INCREMENT

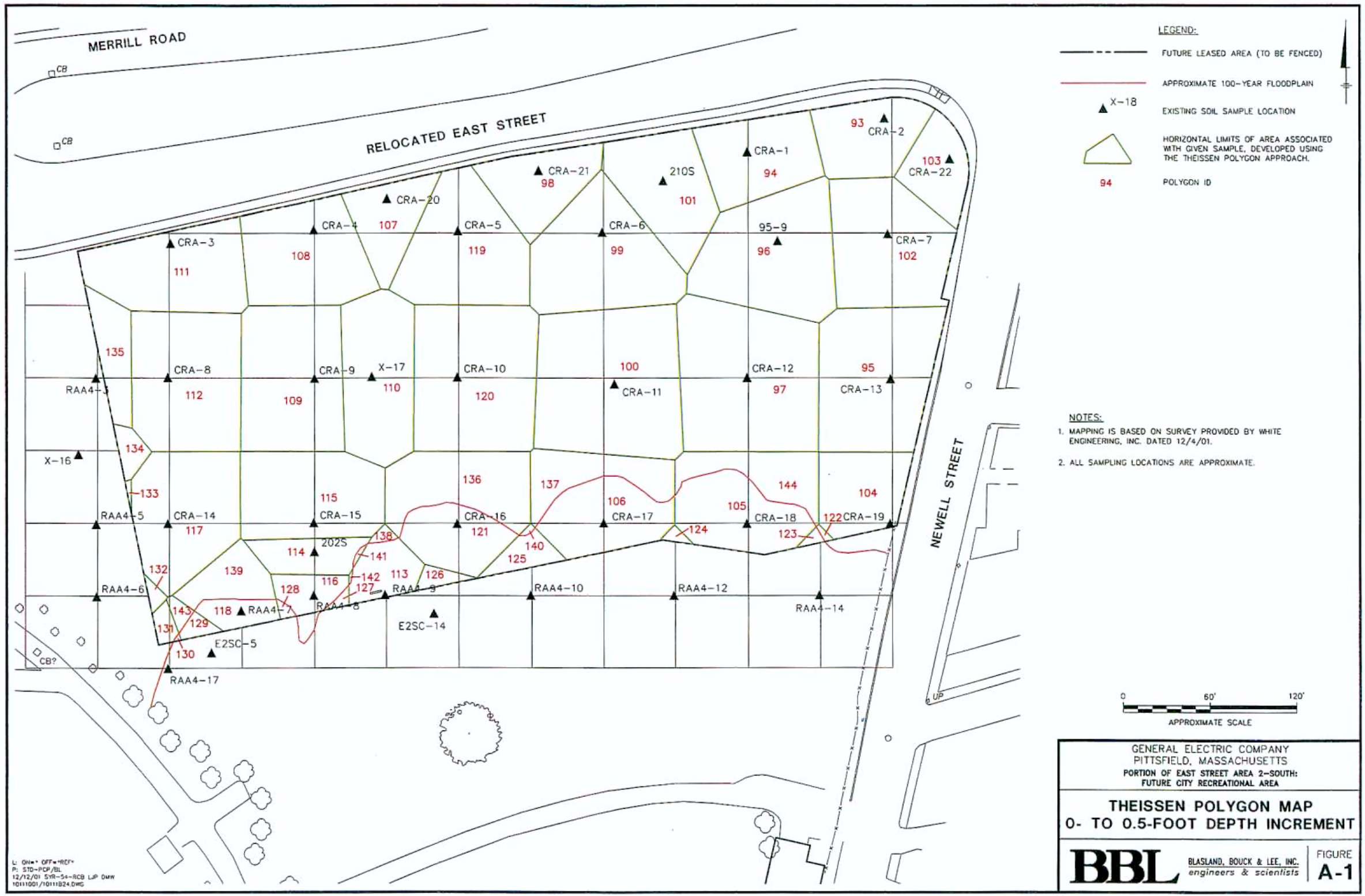
| Sample ID(s) | Polygon ID | Polygon Area (sq. ft.) | Sample Depth (ft) | PCB Conc. (ppm) | Volume (cumulative) (cy) | Average PCB Concentration Per Foot (ppm) | Average PCB Conc. TIMES Total Volume |
|---|---|---|---|---|---|---|---|
| CRA-1 | 73 | 5,952 | 1 - 2 | 1.28 | 220.43 | 1.28 | 282.16 |
| CRA-2 | 71 | 3,559 | 1 - 2 | 1.19 | 131.80 | 1.19 | 156.84 |
| CRA-3 | 80 | 6,059 | 1 - 2 | **0.23** | 224.42 | 0.23 | 51.62 |
| CRA-4 | 79 | 5,729 | 1 - 2 | 0.2 | 212.19 | 0.20 | 42.44 |
| CRA-5 | 78 | 6,449 | 1 - 2 | 0.84 | 238.87 | 0.84 | 200.65 |
| CRA-6 | 77 | 9,477 | 1 - 2 | 0.284 | 351.00 | 0.28 | 99.69 |
| CRA-7 | 74 | 6,609 | 1 - 2 | 0.111 | 244.78 | 0.11 | 27.17 |
| CRA-8 | 93 | 8,680 | 1 - 2 | 1.1 | 321.48 | 1.10 | 353.62 |
| CRA-9 | 91 | 7,091 | 1 - 2 | 5.6 | 262.65 | 5.60 | 1,470.82 |
| CRA-10 | 88 | 8,438 | 1 - 2 | 0.73 | 312.52 | 0.73 | 228.14 |
| CRA-11 | 86 | 10,013 | 1 - 2 | 1.06 | 370.84 | 1.06 | 393.09 |
| CRA-12 | 82 | 9,517 | 1 - 2 | 3.4 | 352.48 | 3.40 | 1,198.43 |
| CRA-13 | 83 | 7,678 | 1 - 2 | **0.023** | 284.37 | 0.02 | 6.54 |
| CRA-14 | 94 | 6,688 | 1 - 2 | 1.81 | 247.70 | 1.81 | 448.35 |
| CRA-15 | 92, 108 | 9,308 | 1 - 2 | 2.3 | 344.76 | 2.30 | 792.94 |
| CRA-16 | 89, 105 | 7,940 | 1 - 2 | 0.89 | 294.09 | 0.89 | 261.74 |
| CRA-17 | 87, 106 | 6,778 | 1 - 2 | 42 | 251.03 | 42.00 | 10,543.28 |
| CRA-18 | 85, 107 | 6,565 | 1 - 2 | 0.32 | 243.16 | 0.32 | 77.81 |
| CRA-19 | 84, 95 | 3,373 | 1 - 2 | 0.38 | 124.92 | 0.38 | 47.47 |
| CRA-20 | 81 | 2,739 | 1 - 2 | 0.058 | 101.46 | 0.06 | 5.88 |
| CRA-21 | 76 | 3,459 | 1 - 2 | **0.0235** | 128.10 | 0.02 | 3.01 |
| CRA-22 | 72 | 2,382 | 1 - 2 | 0.95 | 88.24 | 0.95 | 83.82 |
| 95-9 | 75 | 7,654 | 1 - 2 | 0.31 | 283.46 | 0.31 | 87.87 |
| E2SC-5 | 100, 109 | 2,202 | 1 - 2 | 0.29 | 81.55 | 0.29 | 23.65 |
| E2SC-14 | 96 | 1,327 | 1 - 2 | 0.037 | 49.17 | 0.04 | 1.82 |
| RAA4-2 | 104 | 64 | 1 - 2 | **0.11** | 2.38 | 0.11 | 0.26 |
| RAA4-17 | 101, 102 | 444 | 1 - 2 | 0.03 | 16.46 | 0.03 | 0.49 |
| RAA4-18 | 97, 98, 99 | 663 | 1 - 2 | 1.08 | 24.55 | 1.08 | 26.52 |
| X-16 | 103 | 690 | 1 - 2 | 0.07 | 25.57 | 0.07 | 1.79 |
| X-17 | 90 | 5,586 | 1 - 2 | **0.025** | 206.90 | 0.03 | 5.17 |
| **Totals:** | -- | 163,116 | -- | -- | 6,041 | -- | 16,923.07 |
| | | | | | Volume-Weighted Average: | | **2.80** |

EXISTING CONDITIONS - 0- TO 2-FOOT DEPTH INCREMENT

| Sample ID(s) | Polygon ID | Polygon Area (sq. ft.) | Sample Depth (ft.) | PCB Conc. (ppm) | Volume (cumulative) (cy) | Average PCB Concentration Per Foot (ppm) | Average PCB Conc. TIMES Total Volume |
|---|---|---|---|---|---|---|---|
| **Totals:** | -- | 163,116 | -- | -- | 12,083 | -- | 34,531.50 |
| | | | | | Volume-Weighted Average: | | **2.86** |

Notes:

1. Polygon ID and area based on information shown on Figures A-1, A-2, and A-3
2. Non-detectable PCBs included as 1/2 the detection limit in calculations and shown in bold on table
3. For instances where a duplicate sample was available, the average of the samples was included in table
4. All calculations and rounding are performed by the computer software. Therefore, certain quantities in above table are displayed as rounded numbers for table clarity.




GENERAL ELECTRIC COMPANY
PITTSFIELD, MASSACHUSETTS
PORTION OF EAST STREET AREA 2-SOUTH:
FUTURE CITY RECREATIONAL AREA

# THEISSEN POLYGON MAP
# 0- TO 0.5-FOOT DEPTH INCREMENT

BBL BLASLAND, BOUCK & LEE, INC. engineers & scientists

FIGURE A-1

L: Onl=* Off=*REF*
P: STD-PCP/BL
12/12/01 SYR-54-RCB LaP Dwg
10111001/10111B24.DWG

MERRILL ROAD

RELOCATED EAST STREET

NEWELL STREET

CB

CB

CB?

UP

CRA-1 89

CRA-2 87

CRA-3 96

CRA-4 95

CRA-5 94

CRA-6 93

95-9 91

CRA-7 90

CRA-8 109

CRA-9 107

CRA-10 104

CRA-11 102

CRA-12 98

CRA-13 99

CRA-14 112

CRA-15 108

CRA-16 105

CRA-17 103

CRA-18 101

CRA-19 100

CRA-20 97

CRA-21 92

CRA-22 88

RAA4-5

RAA4-6

RAA4-7 111

RAA4-8

RAA4-9

RAA4-10

RAA4-12

RAA4-14

RAA4-17

X-16

X-17 106

E2SC-5

E2SC-14

127 126 125 124 123 122 121 131 130 120 119 110 118 113 134 128 132 129 117 116 133 115 114 101

LEGEND:

FUTURE LEASED AREA (TO BE FENCED)

APPROXIMATE 100-YEAR FLOODPLAIN

X-17 EXISTING SOIL SAMPLE LOCATION

HORIZONTAL LIMITS OF AREA ASSOCIATED WITH GIVEN SAMPLE, DEVELOPED USING THE THEISSEN POLYGON APPROACH.

94 POLYGON ID

NOTES:

1. MAPPING IS BASED ON SURVEY PROVIDED BY WHITE ENGINEERING, INC. DATED 12/4/01.
2. ALL SAMPLING LOCATIONS ARE APPROXIMATE.

0 60' 120'

APPROXIMATE SCALE

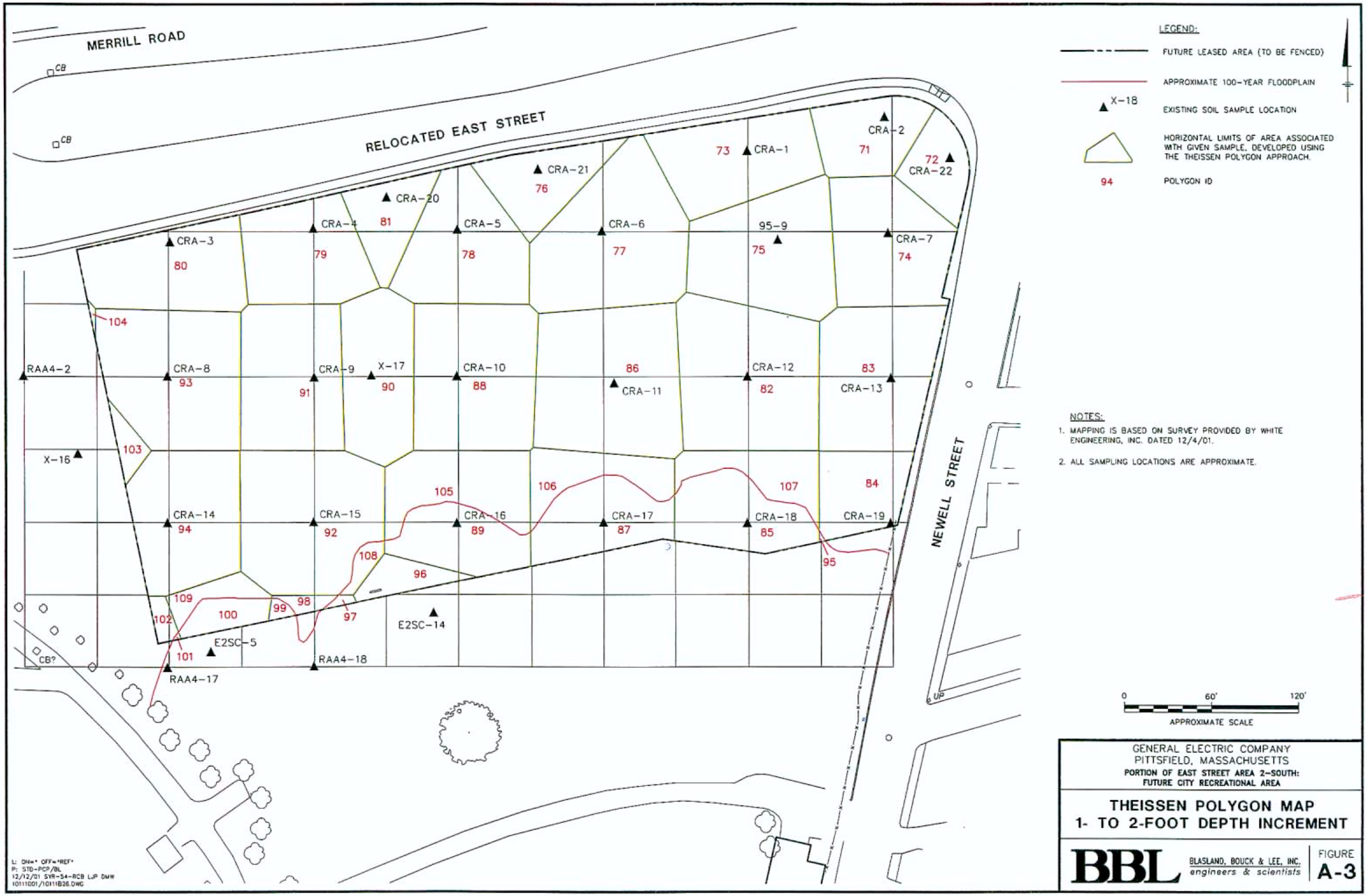
GENERAL ELECTRIC COMPANY
PITTSFIELD, MASSACHUSETTS
PORTION OF EAST STREET AREA 2-SOUTH:
FUTURE CITY RECREATIONAL AREA

# THEISSEN POLYGON MAP
# 0.5- TO 1-FOOT DEPTH INCREMENT

BBL BLASLAND, BOUCK & LEE, INC. engineers & scientists

FIGURE A-2

L: ON=* OFF=*REF*
P: STD-PCP/BL
12/11/01 SYR-54-RCB LJP DWN
10111001/10111B25.DWG




L: ON=* OFF=*REF*
P: STD-PCP/BL
12/12/01 SYR-54-RCB LJP DMW
10111001/10111B26.DWG

GENERAL ELECTRIC COMPANY
PITTSFIELD, MASSACHUSETTS
PORTION OF EAST STREET AREA 2-SOUTH:
FUTURE CITY RECREATIONAL AREA

# THEISSEN POLYGON MAP
# 1- TO 2-FOOT DEPTH INCREMENT

BBL BLASLAND, BOUCK & LEE, INC. engineers & scientists

FIGURE A-3