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Volume 1 of 2

SDMS 258051

Demolition/Consolidation Work Plan Buildings 31, 31-J, and 31-P

General Electric Company
Pittsfield, Massachusetts

June 2001

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BLASLAND, BOUCK & LEE, INC.
engineers & scientists

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GENERAL ELECTRIC COMPANY
PITTSFIELD, MASSACHUSETTS
BUILDING 31 AREA

DEMOLITION/CONSOLIDATION WORK PLAN – BUILDINGS 31, 31-J, AND 31-P

1.0 INTRODUCTION

This Work Plan describes the activities to be performed by the General Electric Company (GE) related to the demolition of Buildings 31, 31-J, and 31-P (Building 31 Area) located within the GE facility in Pittsfield, Massachusetts (Figure 1). Under an agreement known as the Definitive Economic Development Agreement (DEDA) -- entered into by GE, the City of Pittsfield, and the Pittsfield Economic Development Authority (PEDA) -- GE will raze the above-grade portions of several GE buildings. Under the DEDA, following the demolition of these buildings and the performance of various response actions (if needed) in areas containing those buildings, property ownership for a number of areas (including the Building 31 Area) will be transferred to PEDA. Several of the demolition activities to be performed by GE will be conducted in areas that are also subject to response actions required under a Consent Decree (discussed below) to address polychlorinated biphenyls (PCBs) and other hazardous constituents present in soils, sediments, and groundwater. Such response actions are required for several Removal Action Areas within the GE-Pittsfield/Housatonic River Site (Site).

On October 27, 2000, a Consent Decree (CD) executed in 1999 by GE, the United States Environmental Protection Agency (EPA), the Massachusetts Department of Environmental Protection (MDEP), and other governmental agencies, as well as the City of Pittsfield and PEDA, was entered by the United States District Court (Court) for the District of Massachusetts. The CD and an accompanying *Statement of Work for Removal Actions Outside the River* (SOW) (Appendix E to the CD) establish Performance Standards and other requirements for several Removal Actions to be conducted by GE at the Site. Specific to building demolition activities, the actual demolition of buildings located within the GE facility (or on other GE-owned property within the Site) are not part of the response actions required under the CD and the SOW, and thus do not require specific approval from EPA. However, the CD and SOW allow for the disposition of certain building demolition debris at On-Plant Consolidation Areas (OPCAs) located within the GE facility and/or within the subgrade foundations of certain buildings (i.e., Buildings 2, 3C, 12, 12X, 12Y, and 31). Such disposition of building demolition debris within the OPCAs and/or these building foundations is subject to regulation under the CD and SOW, and thus requires EPA review and approval.

To the extent that GE elects to place demolition debris in such building foundations, GE is required to prepare and submit a separate work plan(s) describing the demolition activities, associated building material characterization activities, and the placement of debris in the building foundations. This Work Plan summarizes the activities to be performed by GE related to the demolition of Buildings 31, 31-J, and 31-P and subsequent disposition of certain demolition materials from these buildings within the Building 31 foundation.

The remainder of this Work Plan is presented in several sections as follows:

2.0 Description of Building 31 Area
3.0 Project Overview
4.0 Work Plan Organization and Project Implementation
5.0 Disposition of Demolition Materials
6.0 Future Groundwater Monitoring
7.0 Anticipated Schedule

In addition, included in this Work Plan are several figures and attachments that supplement the summary information presented in the text of this Work Plan. These supplemental materials will be referenced as appropriate.

2.0 DESCRIPTION OF BUILDING 31 AREA

The Building 31 Area consists of three primary structures: Building 31, Building 31-J, and Building 31-P. GE formerly used Building 31 as a powerhouse for production of steam and compressed air for use throughout the GE facility. Buildings 31-J and 31-P were formerly used as the pump houses for pumping 10-C oil and fuel oil, respectively, to other portions of the GE facility. The locations of the above-referenced structures are shown on Figures 1 and 2. Additional information concerning Buildings 31, 31-J, and 31-P is presented below.

Building 31

Building 31 is constructed mainly of brick, concrete, masonry block, and steel, occupying an area of approximately 69,000 square feet (Figure 3). The building consists of four main sections: a boiler room; a compressor room; an engine room area; and an office area. The compressor room is located in the eastern end of the building and is constructed at grade and without a basement area; however, piping sumps and pits are

present beneath the floor. Assorted equipment and other materials are currently present throughout the building, including boilers, compressors, tanks, coal storage bins, piping, and ventilation units.

Underground steam tunnels are located outside of and along the southern and northern walls of the building (Figure 3). The steam tunnels contain inactive steam piping that extends into the eastern portion of the building. In addition, active electrical lines are located in an underground electrical tunnel located along the southern portion of the building and the northern wall of the inactive steam tunnel. Two parallel coal ash tunnels are present beneath the western portion of the building basement. A subgrade concrete vault is located at the west end of the coal ash tunnels beyond the west wall of the building.

Two steel steam condensate surge tanks are located adjacent to (west of) Building 31. A smaller, active, condensate surge tank is located directly below the larger, inactive tank. Both tanks are supported by the same steel structure. Finally, an inactive railroad trestle is located north of Building 31 and is oriented in an east-west direction. The railroad trestle is constructed of steel and wood and is approximately 15 feet above grade. Active steam pipes are located directly below and within the railroad trestle.

Building 31-J

Building 31-J is a one-story structure and occupies an area of approximately 600 square feet (Figure 2). This building served as the pump house for 10-C oil to locations throughout the GE facility and is currently inactive. The exterior walls are constructed of masonry block. The floor of the building consists of concrete slab-on-grade. The roof is constructed of concrete, wood, and steel framing. Some inactive process equipment is present in the building.

As part of a recent building reconnaissance, GE identified a water well located within Building 31-J. Thus far, GE has not been able to determine the former use(s) of the well or its physical construction. As part of the demolition activities to be performed for the Building 31 Area, GE will further assess the physical condition of this well and proceed with well abandonment in accordance with appropriate state requirements.

Building 31-P

Building 31-P is a one-story structure and occupies an area of approximately 1,100 square feet (Figure 2). This building served as the pump house for pumping fuel oil to locations throughout the GE facility and is currently

inactive. The exterior walls are constructed of masonry block. The floor of the building consists of concrete slab-on-grade. The roof is constructed of wood and steel framing. Some inactive process equipment is present in the building.

3.0 PROJECT OVERVIEW

Over the last several years, GE has performed numerous building demolition activities at its Pittsfield facility, and the experience gained from these activities has served as the basis for the design of the Building 31 Area demolition project and the development of this Work Plan. In general, all of the demolition-related activities will be performed by qualified and experienced contractors using standard construction practices and in accordance with applicable regulations. A brief summary of the anticipated activities associated with the Building 31 Area demolition/ consolidation project is provided below. As discussed in Section 4.0 of this Work Plan, additional information to supplement the description provided below is contained within the attachments to this Work Plan.

Prior to the initiation of building demolition activities, several activities will be performed. As discussed further below, these activities will include: locating, disconnecting, sealing, and/or re-routing of affected utilities, tunnels, and other subsurface conduits; removal of asbestos-containing material (ACM) as required by law; and removal of certain equipment and other materials located within the various buildings. Following these activities, the basement area of Building 31 will be prepared for placement of demolition debris from Buildings 31, 31-J, and 31-P. These preparations will include filling of the ash, steam, and electrical subgrade tunnels and related pipelines with concrete, and closure of subsurface structures. Following the pre-demolition activities, Buildings 31, 31-J, and 31-P will be demolished, with most of the demolition debris expected to be placed within the Building 31 foundation (disposition of building demolition debris is further discussed in Section 5.0 of this Work Plan). Once materials have been consolidated within the Building 31 foundation, site restoration activities will commence and include the placement of additional fill materials (as needed) to achieve the necessary surface elevation and contours of the foundation area, the installation of a cover system (equivalent to an engineered barrier as described in the SOW) over the materials consolidated within the Building 31 foundation (further discussed in Section 5.0), and the restoration of paved and unpaved areas within the remainder of the Building 31 Area. It is anticipated that the pre-demolition, building demolition, placement, and restoration activities will take approximately six to nine months to complete following EPA approval of this Work Plan.

Based on available information regarding groundwater in the vicinity of Building 31, it appears that groundwater may on occasion reach an elevation that extends above the elevation of the Building 31 basement floor. Thus, the

potential exists for groundwater to periodically contact the building demolition debris and other materials that are to be placed within the Building 31 foundation. As a result, and in accordance with the SOW, GE will conduct groundwater monitoring at wells located downgradient of this building foundation as part of the groundwater monitoring program for the Plant Site 1 Groundwater Management Area (GMA 1), which includes the area of Building 31. This groundwater monitoring is described further in Section 6.0 below. As noted there, if this monitoring reveals impacts to groundwater attributable to the demolition debris in the Building 31 foundation, GE will submit a proposal to EPA for appropriate additional activities.

4.0 WORK PLAN ORGANIZATION AND PROJECT IMPLEMENTATION

Over the last several months, GE has performed numerous activities to prepare the Building 31 Area for demolition, including removal of the Building 31 discharge stacks, the performance of an asbestos survey, and removal of certain equipment and materials from within the structures. In addition, GE developed a Request for Proposal (RFP) to identify qualified and experienced demolition contractors and to solicit cost proposals for the demolition activities described in this Work Plan. Included in the RFP were several technical documents and other information that provide information regarding the Building 31 Area and the activities associated with the demolition of this area. Based on those documents, GE has developed a series of revised technical documents that specify the requirements for the Building 31 Area demolition/consolidation project and provide other pertinent information relating to this project. These documents are provided as attachments to this Work Plan and consist of the following:

- **Project Work Tasks** (Attachment A to the Work Plan) - To the extent possible, the technical scope and requirements for the Building 31 Area demolition project have been described in 11 Project Work Tasks as follows:
    - Work Task 1 - Mobilization/Demobilization
    - Work Task 2 - Utility Disconnections
    - Work Task 3 - Pre-Demolition Removal Activities
    - Work Task 4 - Removal of Asbestos-Containing Building Materials
    - Work Task 5 - Closure of Basement Tunnels/Select Piping
    - Work Task 6 - Building Demolition - Environmental Requirements
    - Work Task 7 - Waste Movement, Staging, and Disposition
    - Work Task 8 - Demolition Debris and Equipment/Select Fill Placement

- Work Task 9 - Repair and Modification to Select Structures
- Work Task 10 - Placement of a Surface Cover
- Work Task 11 - Final Site Grading

For each Project Work Task, information is provided to guide the demolition contractor in the performance of the specific activity. Collectively, these Project Work Tasks represent the key elements of the demolition project and also summarize the technical aspects of this Work Plan. In addition, engineering drawings have been included to supplement information provided in the Project Work Tasks and are referenced as appropriate.

- **General Project Conditions** (Attachment B to the Work Plan) - This attachment provides general requirements and instructions concerning the performance of the Building 31 Area demolition. Included is information that the demolition contractor must adhere to regarding regulatory and CD/SOW requirements; contractor technical submittals; contractor Health and Safety, Contingency, and Site Management Plans; air monitoring and dust suppression; survey control and documentation; and other aspects related to the implementation of the project.

- **Technical Specifications** (Attachment C to the Work Plan) - For several aspects of the demolition project, technical specifications have been developed to define acceptable construction materials, methods of construction, and the expected performance of the demolition contractor. In addition, certain specifications identify quality control testing requirements and acceptable outcomes.

- **Supplemental Information Package** (Attachment D to the Work Plan; separately bound) - The Supplemental Information Package (SIP) provides additional information concerning the physical features and characteristics of the Building 31 Area, including the following information:

  - A summary of the most recent analytical data for Building 31, collected in August 1999 (Section 1 of the SIP).

  - The results of asbestos and lead surveys performed in August 1999 in Building 31 and December 1999 in Buildings 31-J and 31-P that identify ACM and lead-containing paint on the building material surfaces (Section 2 of the SIP).

- A report describing the results of the hazardous materials inventory and removal activities conducted for Building 31 during September and October 2000, and the select equipment remaining in Building 31 (Section 3 of the SIP).

- A drawing of Building 31 depicting basement tunnels, the railroad trestle, the steel surge tanks structure, and underground tunnels within and adjacent to Building 31 (Section 4 of the SIP).

- A summary of the available pre-1999 sampling data for Building 31 (Section 5 of the SIP).

Collectively, the information contained in the attachments to this Work Plan provides the technical basis for, and the scope of, the demolition activities for the Building 31 Area. As a result, this Work Plan serves primarily as an overview document, with references to other, more detailed information contained within the attachments.

In addition to the technical aspects and scope of the demolition activities contained in Attachments A through C of this Work Plan, several additional requirements have been established related to the implementation of the project. Specifically, the demolition contractor is required to prepare and submit several items for GE's review. These submittals are intended to describe and document certain elements of the project work, and serve as a representation that the demolition contractor has determined and verified all quantities, dimensions, field construction criteria, materials, etc. required to execute the work. In addition, these submittals, combined with GE's review of them, are intended to ensure that the contractor understands the scope of all project activities and has reviewed and/or coordinated as necessary the various elements of the project. The following plans will be submitted by the demolition contractor for GE's review, comment, and approval. (It should also be noted that, as set forth in the descriptions of these plans in Attachments A through C below, the contractor must provide several other technical submittals prior to and following the project work.)

- Health and Safety Plan;
- Contingency Plan;
- Decontamination Plan;
- Site Management Plan;
- Asbestos Abatement Plan;
- Air Quality Monitoring Plan;
- Waste Characterization Plan;
- Employee Lead Exposure Assessment;

- Dust Control Plan; and
- Demolition Plan.

5.0 DISPOSITION OF DEMOLITION MATERIALS

As indicated in Section 1.0 of this Work Plan, EPA review and approval is required for the portions of this Work Plan that relate to the use of the Building 31 foundation for the disposition of certain building demolition materials. This section provides (for EPA review and approval) a summary of GE's proposed course of action concerning the disposition of building demolition materials. To supplement the general discussion presented in this section, several of the attachments to this Work Plan provide additional, more detailed information. Specifically, the following information is relevant to the disposition/consolidation of various demolition materials:

Project Work Tasks (Attachment A)

- Work Task 5 - Closure of Basement Tunnels/Select Piping;
- Work Task 6 - Building Demolition - Environmental Requirements;
- Work Task 7 - Waste Movement, Staging, and Disposition;
- Work Task 8 - Demolition Debris and Equipment/Select Fill Placement; and
- Work Task 10 - Placement of a Surface Cover.

General Project Conditions (Attachment B)

- Section 1.1 - Regulatory Requirements;
- Section 1.3 - Site Management Plan;
- Section 1.19 - Survey Control;
- Section 1.21 - Soil Fill Sources; and
- Section 1.24 - Record Drawings.

Technical Specifications (Attachment C)

- Section 1.0 - Flowable Fill Material;
- Section 2.0 - Select Fill Material;
- Section 3.0 - Washed Stone;
- Section 5.0 - Select Soil Fill Material;
- Section 6.0 - Earthwork;

- Section 9.0 - Flexible Membrane Liner; and
- Section 10.0 - Geosynthetic Drainage Composite.

Supplemental Information Package (Attachment D)

- Summary of Building 31 Analytical Data;
- Chemcept, Inc. Report for Building 31;
- Building 31 Basement Tunnels; and
- Summary of Available Pre-1999 Data for Building 31.

In accordance with the CD and SOW, several materials are specifically excluded from placement within the Building 31 foundation (as well as the OPCAs), including free liquids, free product, intact drums and capacitors, other equipment that contains PCBs within its internal components, and asbestos-containing materials required to be removed from structures prior to demolition under applicable laws and regulations. To the extent that such materials are present within the Building 31 Area, they will be removed for transport and disposal to appropriate off-site facilities. In addition, prior to demolition activities, certain other materials will be removed for disposal at an appropriate off-site facility(ies), such as mercury and chlorofluorocarbons (some of these materials have already been removed from the Building 31 Area as part of pre-demolition preparation activities).

GE anticipates that most (if not all) of the remaining demolition materials (brick, masonry, concrete, steel, glass, coal, etc.) will be placed within the Building 31 foundation, as illustrated on Figure 4 and described in the attachments to this Work Plan. Regarding the chemical characteristics of these materials, the Supplemental Information Package (Attachment D to this Work Plan) contains the available sampling and analysis data. In summary, between 1989 and 1998 GE sampled several materials within Building 31. Sampling and analysis activities included the collection of 75 wipe samples and 54 grab/composite/core samples for the analysis of PCBs, 9 grab/composite/core samples for Toxicity Characteristic Leachate Procedure (TCLP) metal analysis, and two grab samples for analysis of asbestos. Results of these sampling activities ranged from non-detect to 120 ug/100 cm^2 for PCB wipe samples, and non-detect to 82 ppm PCBs for grab/composite/core samples. (The 82 ppm PCB detection was from a sample of ACM associated with piping insulation and has been or will be removed from the building.) Of the 9 samples analyzed for TCLP metals, the results indicated the presence of lead (two samples) at concentrations of 0.6 ppm and 1.7 ppm, chromium (two samples) at concentrations of 0.07 ppm and 0.1 ppm, mercury (four samples) ranging between 0.0017 ppm and 0.021 ppm, and barium (three samples) ranging between 0.18 ppm and 0.34 ppm. All TCLP detected constituents were below their respective regulatory levels. For the

two grab samples collected for asbestos, asbestos was detected at compositions of less than 1% and 24%, respectively.

To further supplement the analytical results described above, GE performed additional sampling activities in August 1999 to characterize building materials located within Building 31. Sampling activities consisted of the collection of 10 concrete floor samples and four masonry wall samples for analysis of PCBs. In addition, five building samples were submitted for analysis by TCLP. PCB concentrations in the concrete floor samples ranged from non-detect to 1.47 ppm, with masonry wall samples ranging from 0.036 ppm to 0.192 ppm. These sample locations are depicted on figures located within the SIP (Attachment D). For the TCLP analyses, non-detect results were reported for volatile organic compounds, semi-volatile organic compounds, and inorganic constituents. Other testing for hazardous waste characteristics (ignitability, reactive cyanide, reactive sulfide, and corrosivity) indicated that the material would not be classified as RCRA hazardous waste.

While GE anticipates that most or all of this building demolition debris will be placed in the Building 31 foundation, it is possible that, in order to facilitate the timing/sequencing of the demolition activities and/or based on volume/capacity considerations, GE may elect to transport certain building demolition debris (brick, concrete, etc.) to the Building 71 OPCA for consolidation.

In any event, it is expected that the volume of material subject to disposition within the Building 31 foundation will be less than the capacity of that foundation. As a result, GE anticipates that fill material from an off-site location, consistent with the applicable Technical Specification in Attachment C (Section 2.0 - Select Fill Material), will placed within the foundation to reach capacity and support restoration activities. However, given the inexact nature of demolition work and the difficulties in assessing the volume of material subject to disposition and the volume of the available consolidation area (i.e., the Building 31 foundation), as well as GE's possible consolidation of some Building 31 Area materials at the Building 71 OPCA, a significant excess capacity may be available following the disposal of debris in the Building 31 foundation. As a result, rather than use fill material to occupy the remaining capacity, GE may propose to EPA that any remaining capacity be used for the disposition of remediation waste and/or other materials that would otherwise be transported to one of the OPCAs or to an off-site location for disposal. For example, GE would consider the following materials as "candidate" material for disposition in the Building 31 foundation (subject to the aforementioned capacity issue and general prohibitions contained in the CD and SOW regarding disposition):

- soil and debris removed as part of Removal Actions conducted within the GE Plant Area under the CD and SOW;
- riverbank soils removed as part of the Upper ½-Mile Reach Removal Action for the Housatonic River; and
- building demolition debris and other materials related to GE's Brownfields activities (e.g., soils removed to perform utility disconnection/abandonment activities, etc.) conducted under the DEDA.

In the event that GE determines that it makes sense to use the excess capacity in the Building 31 foundation for disposition of the materials identified above, GE will submit a proposal for such use to EPA for review and approval. Any such proposal will be subject to the same restrictions and prohibitions as apply to the disposition of Building 31 Area materials in the Building 31 foundation (i.e., no free liquid, free product, etc.) and will present to EPA the analytical data for the materials proposed for such disposition. Further, such a proposal will include, as appropriate, interim plans to secure the Building 31 foundation until its use as a disposition area is complete.

Once all materials to be consolidated in the Building 31 foundation are in place, a cover system will be installed. GE proposes to use an asphalt cover system. That cover system will be the equivalent of an engineered barrier as described in the SOW and will, at a minimum, measure 12 inches in total thickness and be constructed of several components, as shown in Attachment A, Figure GE 31-D2. These components and the intended purpose of each have been previously described in the SOW (Technical Attachment G) and are summarized as follows:

- **High Density Polyethylene (or similar) Geomembrane Liner:** The geomembrane liner is the primary component of the cover system. This geomembrane liner will have a minimum thickness of 60 mil unless GE proposes and EPA approves an alternate geomembrane liner with equivalent physical performance specifications. A geotextile fabric may be included as a cushioning layer beneath the liner depending on the condition of the subgrade material.

- **Geosynthetic Drainage Composite (GDC):** The primary purpose of the GDC layer is to convey water that may infiltrate through the overlying soils and pavement to the perimeter of the cover area.

- **Gravel Subbase Course, Bituminous Asphalt Base Course, and Bituminous Asphalt Wearing Surface:** An asphalt layer (2-inch minimum) will be installed to accommodate the current and/or anticipated future uses of the Building 31 Area. The asphalt cover will be appropriately graded to divert precipitation to minimize infiltration and soil erosion.

Details pertaining to Technical Specifications for each of these components are further provided in Attachment A (Work Task 10) and Attachment C (Sections 9.0 and 10.0).

6.0 FUTURE GROUNDWATER MONITORING

As required by the SOW, following the use of the Building 31 foundation for the disposition of the building demolition debris (and other materials if approved by EPA), GE will conduct groundwater monitoring at wells located near and downgradient of this building foundation. Such groundwater monitoring will be conducted as part of GE's groundwater monitoring program for GMA 1, which includes this area. GE's proposed baseline monitoring activities for GMA 1 were identified in a document entitled *Baseline Monitoring Program Proposal for Plant Site 1 Groundwater Management Area*, which was conditionally approved by EPA in a letter dated March 20, 2001. GE has implemented certain of the proposed baseline activities and anticipates the performance of quarterly water level measurements beginning in July 2001, and the performance of semi-annual groundwater sampling and analysis activities beginning in October 2001. Several monitoring wells included in these baseline activities are in close proximity to the Building 31 Area, including wells ES2-19, GMA1-1, GMA1-2, GMA1-10, RF-3, RF-3D, and RF-16. (These wells are identified in a May 18, 2001 letter updating EPA on the status of baseline activities within GMA 1.) Of these wells, RF-3, RF-3D, and RF-16 are located in areas generally downgradient of Building 31.

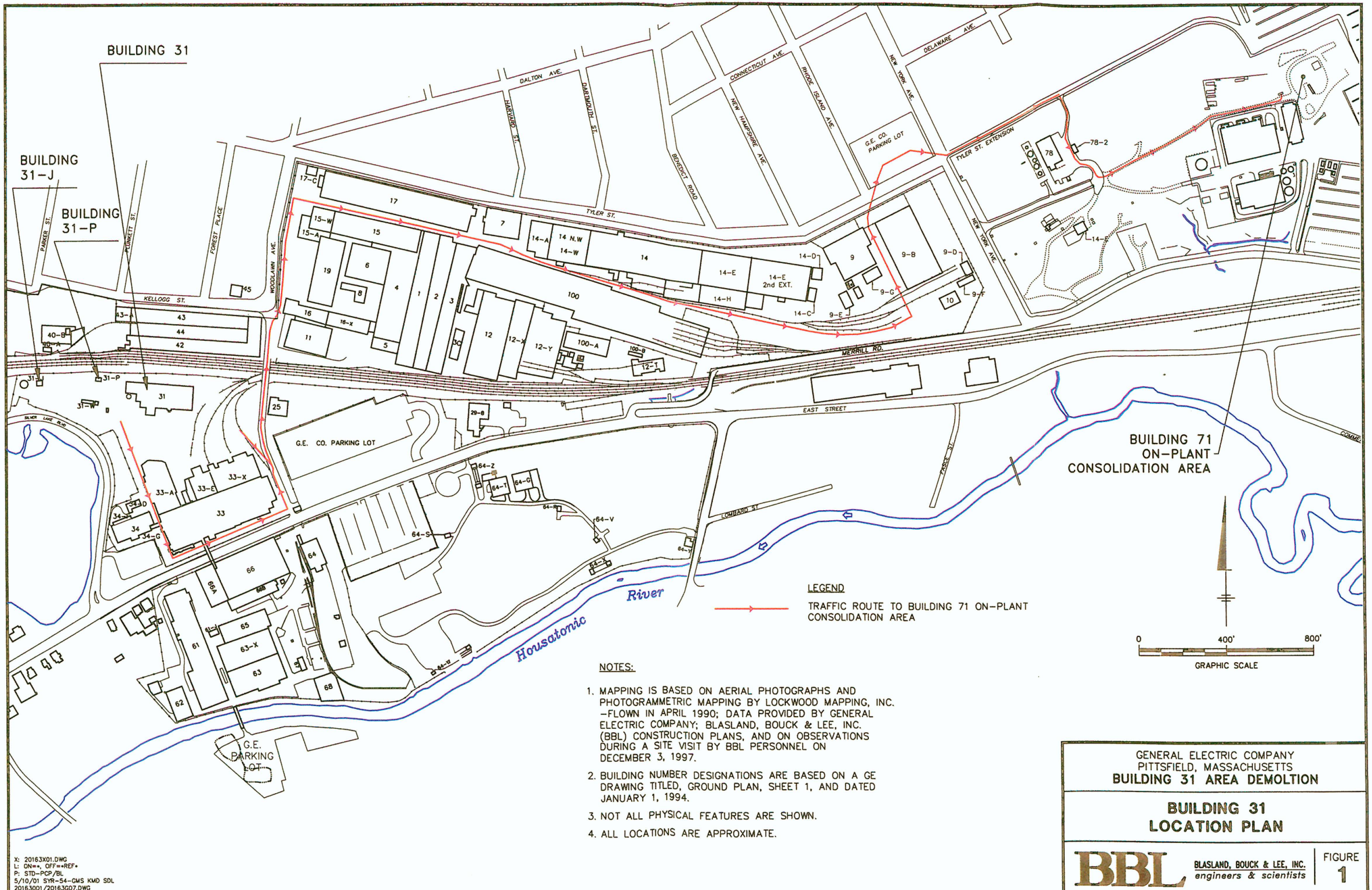
Given the potential that future demolition debris within the Building 31 foundation may come into contact with groundwater under high water conditions, future monitoring data collected for the wells in the vicinity of the Building 31 Area, as part of the GMA 1 program, will be evaluated to determine if any impacts to groundwater are occurring attributable to the Building 31 Area. If such impacts are identified, GE will provide EPA a proposal for additional activities.

7.0 ANTICIPATED SCHEDULE

Upon commencing demolition activities, site operations will likely be conducted during available daylight hours, five days per week (Monday through Friday). It is estimated that the demolition and consolidation activities will require approximately six to nine months for completion, and that associated restoration activities will require approximately two additional months following the completion of the demolition and consolidation activities. Consolidation of materials within the Building 31 foundation or at the OPCAs (depending on sequencing of activities) will not be initiated until EPA approval of the Work Plan has been received. It should be noted that this

schedule is subject to change depending on the timing of EPA review and approval of the Work Plan, as well as delays induced by adverse weather conditions or other unforeseen conditions that could impact the actual activity time frames.

Figures



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; BLASLAND, BOUCK & LEE, INC. (BBL) CONSTRUCTION PLANS, AND ON OBSERVATIONS DURING A SITE VISIT BY BBL PERSONNEL ON DECEMBER 3, 1997.
2. BUILDING NUMBER DESIGNATIONS ARE BASED ON A GE DRAWING TITLED, GROUND PLAN, SHEET 1, AND DATED JANUARY 1, 1994.
3. NOT ALL PHYSICAL FEATURES ARE SHOWN.
4. ALL LOCATIONS ARE APPROXIMATE.

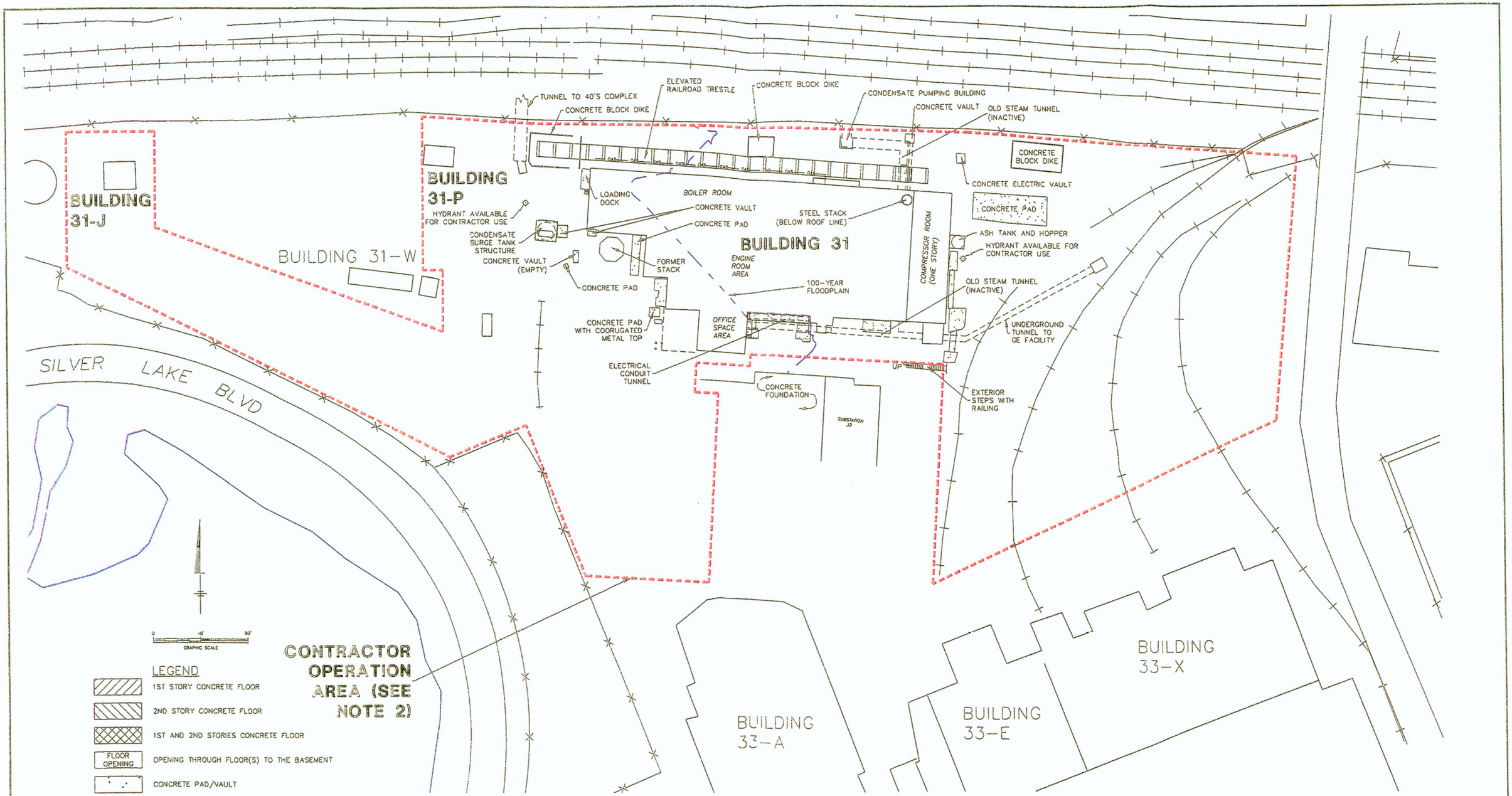
X: 20163X01.DWG
L: ON=*, OFF=*REF*
P: STD-PCP/BL
5/10/01 SYR-54-GMS KMD SDL
20163001/20163G07.DWG

GENERAL ELECTRIC COMPANY
PITTSFIELD, MASSACHUSETTS
BUILDING 31 AREA DEMOLTION

BUILDING 31 LOCATION PLAN

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

FIGURE 1



LEGEND

- 1ST STORY CONCRETE FLOOR
- 2ND STORY CONCRETE FLOOR
- 1ST AND 2ND STORIES CONCRETE FLOOR
- FLOOR OPENING — OPENING THROUGH FLOOR(S) TO THE BASEMENT
- CONCRETE PAD/VAULT
- RAILROAD
- HYDRANT
- ABOVE GRADE CONCRETE/BRICK/MASONARY BLOCK WALLS, MAY CONTINUE BELOW GRADE
- APPROXIMATE HORIZONTAL LIMITS OF BASEMENT
- 100-YEAR FLOODPLAIN
- GAS — GAS LINE
- APPROXIMATE LIMITS OF CONTRACTOR WORK AREA.
- FENCE

GENERAL NOTES:

1. DRAWING BASED ON BUILDING 31 DRAWING PREPARED BY WHITE ENGINEERING, INC., DATED AUGUST 4 1999, AND OBSERVATIONS DURING SITE VISITS BY BLASLAND, BOUCK AND LEE, INC., PERSONNEL IN AUGUST 1999.
2. PROPOSED CONTRACTOR OPERATION AREA WILL BE AVAILABLE FOR USE BY THE CONTRACTOR DURING THE REMEDIAL ACTIVITIES FOR SITE ACCESS, CONSTRUCTION OF TEMPORARY FACILITIES/STAGING AREAS, AND EQUIPMENT/MATERIALS STORAGE
3. THE CONTRACTOR OPERATION AREA FALLS WITHIN THE 100-YEAR FLOODPLAIN. THE CONTRACTOR SHALL NOT STORE, STAGE, OR STOCKPILE DEMOLITION DEBRIS WITHIN THE 100-YEAR FLOODPLAIN. THE CONTRACTOR MAY STAGE THEIR MOBILE EQUIPMENT WITHIN THE 100-YEAR FLOODPLAIN.
4. ALL LOCATIONS ARE APPROXIMATE AND REQUIRE FIELD VERIFICATION BY THE CONTRACTOR.
5. 100-YEAR FLOODPLAIN LOCATION IS BASED ON INFORMATION PROVIDED BY WHITE ENGINEERING, INC.

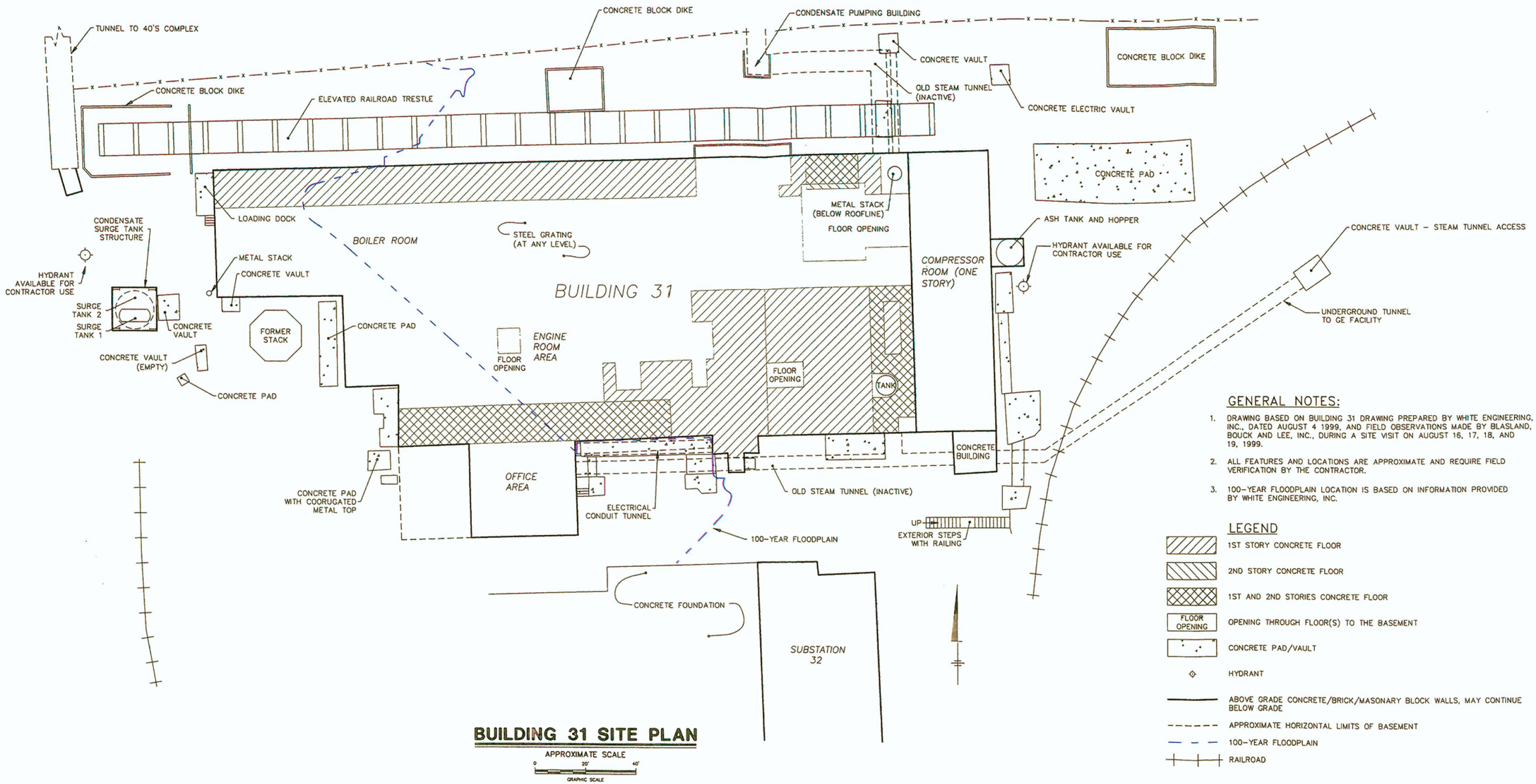
X: 20163X01
L:ON=* OFF=REF*
P: STD-PCP/DL
5/10/01 SYR-54-AK KMD SDL
20163001/20163G08.DWG

GENERAL ELECTRIC COMPANY
PITTSFIELD, MASSACHUSETTS
BUILDING 31 AREA DEMOLITION

BUILDING 31 SITE PLAN

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

FIGURE 2



BUILDING 31 SITE PLAN

APPROXIMATE SCALE

0 20' 40'

GRAPHIC SCALE

GENERAL NOTES:

1. DRAWING BASED ON BUILDING 31 DRAWING PREPARED BY WHITE ENGINEERING, INC., DATED AUGUST 4 1999, AND FIELD OBSERVATIONS MADE BY BLASLAND, BOUCK AND LEE, INC., DURING A SITE VISIT ON AUGUST 16, 17, 18, AND 19, 1999.
2. ALL FEATURES AND LOCATIONS ARE APPROXIMATE AND REQUIRE FIELD VERIFICATION BY THE CONTRACTOR.
3. 100-YEAR FLOODPLAIN LOCATION IS BASED ON INFORMATION PROVIDED BY WHITE ENGINEERING, INC.

LEGEND

- 1ST STORY CONCRETE FLOOR
- 2ND STORY CONCRETE FLOOR
- 1ST AND 2ND STORIES CONCRETE FLOOR
- FLOOR OPENING — OPENING THROUGH FLOOR(S) TO THE BASEMENT
- CONCRETE PAD/VAULT
- HYDRANT
- ABOVE GRADE CONCRETE/BRICK/MASONARY BLOCK WALLS, MAY CONTINUE BELOW GRADE
- APPROXIMATE HORIZONTAL LIMITS OF BASEMENT
- 100-YEAR FLOODPLAIN
- RAILROAD

CONFIDENTIAL

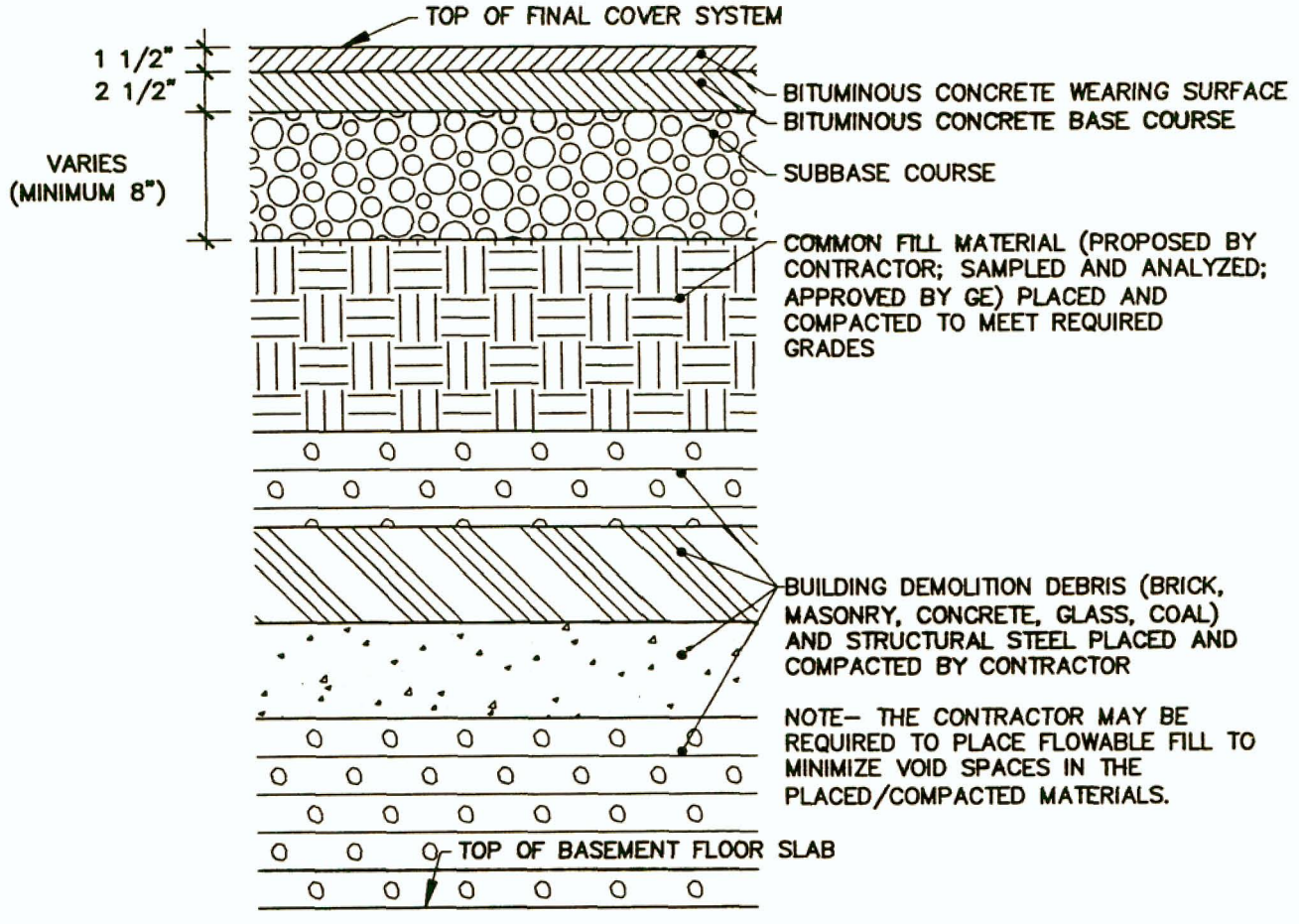
GENERAL ELECTRIC COMPANY
PITTSFIELD, MASSACHUSETTS
BUILDING 31 AREA DEMOLITION

BUILDING 31 PLAN
INTERIOR FEATURES

BLASLAND, BOUCK & LEE, INC.
engineers & scientists

FIGURE 3

X: NONE
L: ON=*, OFF=REF*
P: STD-PCP/D2BL
5/10/01 SYR-54-AK KMD SDL
20163001/20163G09.DWG



NOTES:

1. NOT TO SCALE.
2. REFER TO WORK PLAN FOR THE TECHNICAL SPECIFICATION FOR FLOWABLE FILL.
3. REFER TO WORK PLAN FOR THE TECHNICAL SPECIFICATION FOR THE DEMOLITION DEBRIS AND EQUIPMENT PLACEMENT.
4. REFER TO WORK PLAN FOR THE TECHNICAL SPECIFICATION FOR THE BITUMINOUS CONCRETE COVER.

GENERAL ELECTRIC COMPANY
PITTSFIELD, MASSACHUSETTS

BUILDING 31 AREA DEMOLITION

DISPOSITION PLACEMENT SEQUENCE

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

FIGURE **4**

E: NONE
L: ON:*, OFF:REF*
P:STD-PCP/AP
5/10/01 SYR-54-KMD DJP SDL
10104013/10104G11.DWG

Attachments

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

Attachment A

Project Work Tasks

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

ATTACHMENT A

GENERAL ELECTRIC COMPANY
PITTSFIELD, MASSACHUSETTS

PROJECT WORK TASKS

Work Task 1 - Mobilization/Demobilization

Work Task 2 - Utility Disconnections

Work Task 3 - Pre-Demolition Removal Activities

Work Task 4 - Removal of Asbestos-Containing Building Materials

Work Task 5 - Closure of Basement Tunnels/Select Piping

Work Task 6 - Building Demolition - Environmental Requirements

Work Task 7 - Waste Movement, Staging, and Disposition

Work Task 8 - Demolition Debris and Equipment/Select Fill Placement

Work Task 9 - Repair and Modification to Select Structures

Work Task 10 - Placement of a Surface Cover

Work Task 11 - Final Site Grading

FIGURES

GE 31-D1	Building 31 Details
GE 31-D2	Building 31 Details
GE 31-E1	Existing Locations of Electrical and Communication Lines
GE 31-E2	Locations of Electrical and Communication Lines
GE 31-S1	Plan of Existing Site Conditions
GE 31-S2	Site Plan of Underground Utilities
GE 31-S3	Final Site Grading Plan
GE 31-P1	Identification of Utility Capping Locations and Exterior

APPENDICES

Appendix 1	Pittsfield Conservation Commission Order of Conditions

Work Task 1

General Electric Company
Pittsfield, Massachusetts

Mobilization/Demobilization

1.0 INTRODUCTION

1.01 WORK INCLUDED

A. Mobilization

1. The Contractor is responsible for timely and complete mobilization of all equipment, materials, supplies, and personnel to the site necessary to complete all activities identified in the Work Plan.

B. Demobilization

1. The Contractor shall remove all equipment, materials, supplies, and personnel from the site. Prior to removal, all project-related equipment and materials that are used for this project shall be cleaned or disposed of as described under this work task, Work Task 7, and the Pittsfield Conservation Commission Order of Conditions (Appendix 1).

1.02 TEMPORARY SERVICES

A. As part of the mobilization activities, the Contractor shall be responsible for providing the following:

1. The Contractor shall provide, mobilize, and maintain trailer(s) at the site to sustain the Contractor's offices, equipment, storage, and operations for the duration of the project. The trailer shall be provided with an anchoring system in accordance with the manufacturer's requirements to prevent overturning due to wind forces.

2. The Contractor shall provide portable sanitary services as well as a potable water supply for use by all on-site personnel engaged in the project activities.

3. The Contractor shall provide maintenance and servicing of the sanitary facilities, trailers, and equipment furnished with the trailers, as required.

4. The Contractor shall install, in accordance with all applicable codes and regulations, electric services to the trailers from a location indicated by GE. The Contractor should assume that the connection point will be located within 500 feet of the office trailer. The actual connection of the electrical service to GE's facility-wide system will be performed by GE; however, the Contractor is required to coordinate this activity.

5. The Contractor shall provide cellular telephone service, or equivalent.

6. The Contractor is limited to the area in which they can use for the demolition activities (including decontamination area (s), equipment storage area, etc.). The work area that the Contractor has available for its use is shown on Figure 2 to this Work Plan.

7. The Contractor shall provide adequate temporary lighting for the interior of Buildings 31, 31-P, and 31-J.

8. The Contractor shall provide dust control devices (e.g., water tank, spray hoses/nozzles, etc.). A non-potable water source for use in dust control will be identified by GE; however, the Contractor shall provide hoses, water storage tanks, etc., and for obtaining water from the source.

1.03 SITE SECURITY

A. The Contractor is responsible for the installation and maintenance of temporary continuous barricades along the perimeter of the Contractor's work limits as discussed below under Section 3.01-G. The Site Management Plan shall address site security.

2.0 WORK ACTIVITIES

2.01 MOBILIZATION

A. The Contractor shall verify site conditions and fully understand the conditions that may be encountered during all project activities. Verification of site conditions shall include, but shall not be limited to, identifying the location of all utilities, equipment, and structures. The Contractor shall be responsible for all costs and liability associated with damaging any existing utility or structure (above and below grade) that is not scheduled for demolition under the Work Plan, including but not limited to, buildings, utilities, (e.g., gas, water, electric, telephone, cable, etc.) fiber optic lines, etc. The Contractor shall also be responsible for replacing (at the Contractor's cost) any damaged structures or utilities to fully operational conditions. The Contractor shall also be responsible for coordinating the deactivation of utilities (where necessary) with GE.

B. The Contractor shall acquire all necessary permits (e.g., railroad, local, state, federal) to complete the activities described in this work task, including the State of Massachusetts Demolition Notification form and Asbestos Removal Notification form and the City of Pittsfield demolition permit.

C. If the Contractor determines that access to Building 31 from the northern side is necessary, the Contractor shall be responsible for acquiring all necessary permits (i.e., from CSX) to obtain access to the railroad right-of-way. The Contractor shall not submit any forms and/or permit applications to the appropriate agency until authorized by GE. The Contractor shall also be required to comply with the Pittsfield Conservation Commission Order of Conditions included as Appendix 1.

D. The Contractor shall be responsible for mobilizing all equipment, material, supplies, and personnel to the site. All Contractor (and subcontractor) equipment mobilized to the site shall be thoroughly cleaned prior to mobilization to the site. Based upon review by GE, equipment that is not visibly clean upon site mobilization will be taken off-site and cleaned by the Contractor prior to remobilization at no cost to GE.

E. If the Contractor determines that the removal of fencing is necessary for site access, the Contractor must notify GE prior to any removal activities. The Contractor must specify in its Site Management Plan the location of the fence to be removed and the materials and the methods that will be used to replace the fencing. The replacement fence shall be of like material and (along with the method of replacement) must be reviewed by GE. The Contractor must receive authorization by GE prior to the commencement of the fence removal activities.

F. The Contractor shall construct demolition support areas, demolition debris staging and processing area(s), and decontamination area(s). The demolition support areas shall not be constructed within the 100-year floodplain. At a minimum, the decontamination area(s) shall be lined with 20-mil reinforced polyethylene sheeting and sloped to a geomembrane-lined sump to allow for the collection of decontamination water. The demolition debris staging area(s) shall be bermed and lined with a low-permeability, 10 mil (minimum) high-density polyethylene (HDPE) liner that shall slope to a collection sump. The demolition debris located in the staging area(s) shall be covered with low-permeability, 10 mil HDPE cover and secured (e.g., with sand bags and ropes) at the end of each workday, when the staging area is not in use, or during periods of inclement weather. The Contractor shall not be permitted to use demolition debris to secure the cover. In addition, precautions to protect the integrity of the low-permeability liner (and cover) for both the decontamination and demolition staging area(s) (e.g., installation of a drainage/soil layer and/or geotextile over the liner) shall be required. The collected water from the decontamination and demolition debris staging areas shall be pumped from the sump and containerized on-site by the Contractor for subsequent off-site disposal by GE.

G. The Contractor shall provide temporary storage of water encountered during the demolition activities.

H. The Contractor shall install and maintain temporary barriers with appropriate warning signs to limit unauthorized access or unknowing access to those areas associated with the Work Plan.

I. The Contractor shall implement and maintain storm drainage protection.

2.02 DEMOBILIZATION

A. All equipment, materials, and personnel shall be removed from the site following completion of the demolition activities.

B. Non-disposable equipment that has been used as part of the demolition activities and has come in contact with site media shall be cleaned and sampled before being removed from the facility. The Contractor shall submit an equipment cleaning plan in its Site Management Plan. Equipment decontamination is to be performed in a designated area (to be designated by the Contractor and reviewed by GE). Non-disposable equipment cleaning shall be deemed complete based on a review by GE and the analytical results of wipe samples. GE will collect a minimum of three wipe samples from each piece of Contractor-controlled equipment prior to demobilization from the site (for the purposes of this RFP, the Contractor shall assume that a total of five pieces of equipment will require confirmation sampling). The wipe samples shall be submitted to a GE-approved laboratory for polychlorinated biphenyl (PCB) analysis on a 24-hour turnaround basis (at

the Contractor's expense) to confirm that PCBs are not present at concentrations greater than or equal to 10 micrograms per 100 square centimeters (10 g/100 cm^2). The Contractor at no additional expense to GE will reclean equipment that does not meet this objective

C. The Contractor shall place all materials generated during the equipment decontamination activities into United States Department of Transportation- (USDOT-) approved containers for staging and disposition as described under Work Task 8.

D. Following completion of the demolition debris and equipment cleaning activities, the Contractor shall remove the temporary staging area (including, but not limited to, all equipment and materials in the temporary staging area).

Work Task 2

General Electric Company
Pittsfield, Massachusetts

Utility Disconnections

1.0 INTRODUCTION

1.01 WORK SPECIFIED

A. All labor, equipment, materials for segregating and isolating, capping, testing and back filling of excavations for abandoned sanitary sewer, storm drain system, fire protection and municipal water systems that serve Building 31. Included are modifications to storm drain system to plug abandoned lines.

B. Excavation.

C. Leakage tests.

D. Thrust block.

E. Line Capping.

F. Backfilling.

G. Surface patching.

1.02 APPLICABLE CODES, STANDARDS AND SPECIFICATIONS

A. American Water Works Association (AWWA).

B. American Society for Testing and Materials (ASTM).

C. Massachusetts Highway Department– Standard Specifications for Highways and Bridges.

1.03 SUBMITTALS

A. Ductile iron cap fittings.

B. Asphaltic coating.

C. Catch basin covers.

D. Submit as-built locations of installed underground caps to owner.

1.04 EXISTING CONDITIONS

A. Coordinate all activities with building demolition activities.

B. All shutdown, draining, filling and testing of municipal and fire protection systems are to be conducted and coordinated with owner's representative and municipal authorities.

C. Provide, erect, and maintain temporary safety and security devices.

D. Provide shoring as required.

E. Protection of all duct banks, duct vaults, manholes, catch basins, steam and condensate lines, and fire protection lines.

2.0 PRODUCTS

2.01 MATERIALS

A. Ductile iron pipe and fittings shall comply with the following standards:

	AWWA	ASTM
Ductile Iron Pipe	C151	
Ductile Iron Fittings	C110	536 Grade 65-1
Bolts and Nuts	C111	
Asphaltic Coating	C151	

1. Mechanical joints shall be assembled in accordance with the Notes on Methods of Installation, AWWA C111, Appendix A. Surface cleaning is of utmost importance. All bolts shall be tightened by means of torque wrenches such that the follower shall be brought up evenly. If effective sealing is not obtained at the specific torques, the joint shall be disassembled, cleaned and reassembled.

B. Thrust Block Material – 3000 PSI @ 28 days.

C. Cast Iron Gratings – Suitable for H-20 loading.

D. Grout plug – Five Star General Purpose Grout.

E. Backfill – Mass. Highway Standards M1.03.0 Type C.

F. Surface patching – Mass. Highway Standards M3.1103, Table A.

3.0 WORK ACTIVITIES

3.01 EXCAVATION

A. Pavement and soil removed shall be tested and disposed of at GE's direction. Contractor to utilize "Protocols for the Management of Excavation Activities" to plan and execute this activity.

B. The Contractor shall, at all times, provide and maintain proper and satisfactory means and devices for the removal of all water entering the excavations including drain and test water, and shall remove all such water as fast as it may collect, in such manner as shall not interfere with

the proper placing of pipes. Removal and disposal of water, which enters excavations, shall be coordinated with GE.

C. Driveways and roadways shall be maintained at all times. At least one-half of the drive or road must be kept open for traffic.

D. Special precautions must be taken to permit access to and to maintain fire hydrants and other points where access may involve the safety and welfare of personnel and others.

E. Shoring and barricades are to be used as required for the safety of direct and indirect on-site personnel.

F. Excavations are to be adequate in size to allow working room for capping, pressure testing and thrust block installation activities.

G. All pipe shall be protected from lateral displacement and possible damage resulting from superimposed backfill loads, impact or unbalanced loading during demolition operations by employing necessary methods.

3.02 SHUTTING DOWN EXISTING LINE SYSTEMS

A. The shutting down of existing live municipal and fire protection water systems shall be coordinated with GE and municipal authorities.

3.03 DRAINING OF SYSTEMS

A. Provisions shall be made with GE for the disposal of water accumulated in the draining of live systems.

3.04 CAPPING AND TESTING OF ACTIVE WATER SYSTEMS

A. Municipal and fire protection systems that are to remain active are to be tested and witnessed with owner's representative. Successful pressure tests are to be documented. Thrust blocks are not to be installed until successful tests have been conducted.

B. Locate caps installed in "as-built" location for submittal to GE.

3.05 GROUT PLUGGING OF ABANDONED LINES

A. For lines selected for hard grouting, refer to drawings for details and locations.

3.06 BACKFILLING

A. All excavations shall be backfilled to the original surface of the ground of to such other grades as may be shown, specified or directed.

B. Any settlement occurring in the backfilled excavations shall be refilled and compacted.

C. Frozen earth shall not be used for backfilling.

D. Compaction shall be 95 percent of maximum dry density as determined by the methods of ASTM D1556 or ASTM D2922. Moisture-density relationship of the backfill materials shall be determined by ASTM D698, Method D.

3.07 PATCHING

A. Patching of excavation shall be 3" bituminous pavement.

Work Task 3

General Electric Company
Pittsfield, Massachusetts

Pre-Demolition Removal Activities

1.0 INTRODUCTION

1.01 WORK INCLUDED

A. This work task shall include all labor, equipment, materials, and services necessary for the removal and processing of select equipment located in Buildings 31, 31-J, and 31-P (Building 31 Area). The work activities described under this work task shall be conducted prior to commencing the demolition of the Building 31 Area.

1.02 EXISTING CONDITIONS

A. The Contractor will remove any and all of the following equipment and materials present in the buildings: (These are in addition to asbestos-containing materials, which are discussed in Work Task 4).

- Potential PCB-containing fluorescent light ballasts;
- Fluorescent light bulbs;
- High-intensity discharge (HID) mercury-containing lamps;
- Chlorofluorocarbons (CFCs) and/or equipment containing CFCs;
- Mercury and/or equipment containing mercury;
- Fire extinguishers;
- Emergency lighting batteries; and
- Liquids present within transformers.

Information regarding the equipment that may still be present in Building 31 is contained in a report included as Attachment D to the Work Plan.

Any additional equipment (or chemical releases from the equipment) discovered by the Contractor shall be removed at no additional cost to GE. The Contractor shall notify GE upon discovering any additional equipment (or associated chemical releases). The Contractor shall not be permitted to address additional equipment (or associated chemical release [if any]) until authorized by GE.

1.03 SUBMITTALS

The Contractor shall submit the following items to GE for review:

A. The names, qualifications, and certifications of personnel removing the CFCs from CFC-containing equipment.

B. A Contingency Plan to respond to the presence of asbestos containing material (ACM) contained within the equipment and to releases of liquids or gases from the equipment during the removal activities. The Contingency Plan shall be prepared in accordance with all local, state, and federal regulations, standards, and codes.

2.0 WORK ACTIVITIES

2.01 REMOVAL OF EQUIPMENT

A. The Contractor shall remove those equipment and materials from the Building 31 Area listed in Section 1.02 above.

B. Prior to removal of any equipment from the Building 31 Area, the Contractor shall visually inspect for and remove ash, coal, brick lining material, or free liquids (liquids which readily separate from the solid portion of a waste under ambient temperature and pressure). The ash or free liquids shall be containerized in USDOT-approved containers, for management as described under Work Task 7. Only compatible liquids shall be placed in the same container. The coal and brick lining material shall be segregated and managed as described in Section 2.02 of Work Task 8.

C. The Contractor shall visually inspect each piece of equipment for mercury switches, gauges, and other mercury-containing appurtenances prior to the removal of the equipment. Mercury contained within these switches, gauges, and appurtenances shall be removed by the Contractor and placed in Contractor-provided, USDOT-approved 55-gallon drums, and managed as described under Work Task 7. If the mercury cannot be safely removed, or if GE elects to remove a piece of equipment entirely, the piece of equipment shall be removed, containerized, and transported off-site for disposal at a GE-approved disposition facility, as described in Work Task 7.

D. Equipment or items containing CFCs will be identified and disconnected and then the CFCs will be drained and removed, all by personnel certified to perform these activities. The disconnection of the equipment and the removal of the CFCs must be performed in accordance with 40 CFR Part 82. If the CFCs cannot be safely removed, or if GE elects to remove a piece of equipment entirely, the piece of equipment shall be removed, containerized, and transported off-site for disposal at a GE-approved disposition facility, as described in Work Task 7.

E. Fluorescent light ballasts and capacitors shall be removed and placed into Contractor-provided drums meeting USDOT and TSCA regulations. Any materials or equipment that comes in contact with potential PCB-containing material (i.e., oil or potting material that is contained within the ballasts) shall be placed in the drums. The fluorescent light ballasts and capacitors shall be managed as described under Work Task 7.

F. Fluorescent light bulbs shall be removed and placed into Contractor-provided packing containers meeting USDOT regulations. Presented below is a description of containers that may be used as packing containers for the fluorescent light bulbs:

1. Whole bulbs shall be packed in cardboard boxes, fiber drums, and/or plastic drums, with the opening of the containers secured to prevent breakage; and

2. Crushed or broken bulbs shall be packed in the USDOT-approved metal drums or USDOT equivalent plastic drums. The top of the containers must be secured.

The fluorescent light bulbs shall be managed as described under Work Task 7.

G. Equipment and methods used for the removal and processing of the materials and/or equipment shall be selected such that a minimum amount of dust and debris is generated.

Work Task 4

General Electric Company
Pittsfield, Massachusetts

Removal of Asbestos-Containing Building Materials

PART 1 – GENERAL

1.01 WORK INCLUDED

A. This work task shall include all labor, equipment, materials, training, insurance, and services necessary for the removal of asbestos-containing material (ACM) present in Buildings 31, 31-J, and 31-P in accordance with applicable regulations.

B. The Contractor shall prepare and submit an Asbestos Abatement Plan (AA Plan) (and other submittals identified under this work task) presenting detailed descriptions of the methods, materials, and equipment to be used for removing, handling, and containerizing any ACMs encountered.

1.02 GENERAL REQUIREMENTS/QUALIFICATIONS

A. The removal of ACMs referenced herein shall be performed by a Massachusetts-licensed Asbestos Abatement Contractor in accordance with Massachusetts Department of Labor and Industry (DLWD) 453 CMR 6.0 Regulations.

B. Qualifications of Asbestos Abatement Contractor

1. The Contractor performing the abatement work of this work task shall use a qualified Asbestos Abatement Contractor (AAC) licensed to perform asbestos operations in the State of Massachusetts. The AAC shall submit their license number and proof of licensure.

2. The Contractor shall provide the following additional information regarding this work task. This information is not required to be submitted with the General Bid, but shall be provided to GE by the successful Contractor. Failure to provide this information and/or meet this qualification to the satisfaction of GE will result in rejection of the Contractor who performs this work task. No additional cost shall be incurred by GE for the Contractor to identify an acceptable AAC.

- The project name, contact person and phone number of five (5) projects completed of similar size and scope.
- A detailed description of the project including contract value and duration.
- A list of all previous and/or pending violations the AAC has received within the last five- (5) years from a state or federal agency with regards to Asbestos Abatement Work.

C. Additional requirements concerning the qualifications of the AAC are addressed in Part 1.04.I and 1.04.J of this work task.

D. The following General Requirements/Provisions shall be applicable for asbestos abatement work at the Site. The AAC shall adhere to all provisions outlined below.

1. The following requirements shall be applicable for removal of floor tile, linoleum and associated mastic under this Work Plan:

- Removal shall include all existing layers of floor tile(s), linoleum, and associated mastic down to the existing concrete or subfloor throughout each area. This includes multiple layers of tile/linoleum as well as additional layers of plywood/flooring that may have been installed over subsequent underlying layers. In addition, all carpet installed over such materials shall be removed and disposed as ACM.

- This AAC shall remove the floor tile, linoleum, and mastic by either manual or mechanical means.

- In addition, if a chemical mastic remover is used, the product shall be properly cleaned and neutralized from the floor surface in accordance with the manufacturer specifications.

2. The following requirements shall be applicable for all work areas that may be considered a Confined Space under OSHA Regulations. This shall include, but not be limited to work in the crawlspaces, wall chases, boiler units, etc.

- It shall be the AAC's responsibility to determine the requirements for confined space entry at all locations and comply with all aspects of OSHA's Confined Space Regulations. A copy of the AAC's Confined Space Program, training certificates, and site-specific monitoring/permitting protocol shall be provided to GE for review and approval prior to commencement of the work.

1.03 EXISTING CONDITIONS

A. Surveys conducted by ATC Associates Inc. in August and December 1999 indicated the presence of ACM in the interior and exterior of Building 31 and in Buildings 31-J and 31-P. The results of the ACM surveys are presented as Attachment D to the Work Plan (Supplemental Information Package). It shall be the Contractor's responsibility to verify all quantity estimates including the location and conditions of all ACMs to be abated, including but not limited to, the following locations:

Building 31

- Select rooms on the first, second, and basement floors;
- Engine room, boiler room, compressor room, and the tank area;
- Select boilers;
- Windows and door caulking/glazing;
- Exterior of main building;
- Select roofs;
- Penthouse associated with Boiler 17;
- Coal bunker;
- Under train tracks, soot hopper building; and

- Electrical wire wrap located throughout Building 31.

Building 31-J

- Room 1;
- Exterior; and
- Roof.

Building 31-P

- Room 1.

Please note that the following areas were not investigated for ACM in Building 31 and will require investigation (and abatement, if necessary) by the Contractor:

- Sub-basement level room on west side of Building 31;
- Interior of boilers 17 and 18;
- Interior of coal bin;
- Interior of brick piles on east side of boiler/engine room;
- Interior of mechanical/electrical equipment;
- Interior of tanks;
- Bottom of elevator shaft;
- Top of water tower; and
- Wiring conduits.

1.04 SUBMITTALS

The Contractor shall submit the following items to GE in accordance with the Work Plan:

A. A list of equipment to be used, along with the catalog sheets.

B. The naming of the AAC and any subcontractors to be used on the project, including their qualifications, locations of origin, and descriptions of the project assignments.

C. The names, qualifications, and certifications of the designated on-site Project Manager responsible for making decisions, and the primary contact for GE during the performance of the work. The Project Manager must be certified in accordance with 453 Code of Massachusetts Regulations Chapter 6 (453 CMR 6) and all other applicable local, state and federal regulations, standards, and codes.

D. An Asbestos Abatement Plan that presents a detailed approach for completing the activities included in the Work Plan in accordance with 453 CMR 6.

E. An Air Quality Monitoring Plan to monitor the personal airspace of personnel involved with the demolition and removal of the ACM in accordance with 29 CFR 1926.1101 and all other applicable local, state, and federal regulations, standards, and codes.

F. A Contingency Plan for responding to releases of ACM during removal activities in accordance with 310 CMR 7 and all other applicable local, state, and federal regulations, standards, and codes.

G. A Decontamination Plan that identifies the appropriate procedures and methods that will be employed to properly decontaminate project-related equipment that comes in contact with site media in accordance with 453 CMR 6 and all other applicable local, state, and federal regulations. The plan must address the generation, collection, and handling of solids, liquids, personal protective equipment (PPE), and other related wastes generated by decontamination activities. In addition, the Decontamination Plan must address methods to be employed for personnel decontamination. Equipment and personnel decontamination activities will be performed in an area to be designated by the Contractor and reviewed by GE. Any liquids generated by decontamination efforts and all disposable equipment shall be containerized for disposal in accordance with applicable local, state, and federal regulations, standards, and codes.

H. A Waste Characterization Plan that identifies the anticipated ACM waste streams and estimated volumes of waste to be generated.

I. The Contractor's AAC shall submit a notarized statement containing the following information:

a. Record of any citations issued (in the past three years) by federal, state, or local regulatory agencies relating to asbestos abatement activity, including projects, dates, and resolutions.

b. List of penalties incurred (in the past three years) through non-compliance with asbestos abatement project specifications, including liquidated damages, overruns in scheduled time limitations, and resolutions.

c. Situations (in the past three years) in which an asbestos-related contract has been terminated, including projects, dates, and reasons for terminations.

d. Listing of any asbestos-related legal proceedings/claims (in the past three years) in which AAC (or employees scheduled to participate in this project) have participated or are currently involved. Include descriptions of role, issue, and resolution to date. This information is not required to be submitted with the General Bid but shall be provided at the request of GE prior to Contract Award to the General Contractor.

J. The following submittals are required for review and approval by GE before the Pre-Construction Meeting:

1. Copy of Massachusetts DLWD Asbestos Abatement Contractor's License.
2. Copies of certifications, notifications and all applicable licenses.
3. Written Medical Surveillance Program including the Physicians' written opinion for employees assigned to the project in accordance with OSHA 29 CFR 1926.1101(m).
4. Copy of Training Records and Current DLWD Licenses for Employees assigned to project.
5. Chain-Of-Command list of all personnel on-site and emergency contact person(s).
6. Work Plan that dictates all removal procedures to be implemented and projected schedule of completion.

1.05 FEES, PERMITS & LICENSES

A. The Contractor shall be responsible for costs for all licensing requirements, where applicable and notification requirements and all other fees related to the AAC's ability to perform the work in this work task.

1.06 SUBSTITUTION OF MATERIALS OR METHODS

A. GE's approval is required for all modifications to methods, procedures, and design, which may be proposed by the Contractor. It is the intent of these documents to allow the Contractor to present alternative methods to the abatement processes herein, for review by GE. Any such modifications or substitutions to methods, procedures, or design shall comply with applicable regulations. The Contractor shall submit the proposed modification or substitution in accordance with the requirements of the General Conditions, and no later than five (5) workdays prior to planned commencement of proposed modification, for review and approval by GE.

B. Unless requests for modification or substitution are made in accordance with the above instructions and the instruction of the General Conditions, supported by sufficient proof of equality, the Contractor shall be required to furnish the specifically named or designed items, methods or procedures designated in this work task.

C. If the modification or substitution necessitates changes or additional work, they shall be provided and the Contractor shall assume the cost and the entire responsibility thereto unless performed under the approved Change Order Process.

D. GE's permission to make such substitution shall not relieve the Contractor from full responsibility for the work.

1.07 PROJECT MONITOR

A. GE may perform monitoring of Contractor work practices and performance, inspection of the worksites, and air sampling and analysis for each phase of the asbestos removal project. Quality control and testing criteria has been established under this work task, and will be strictly enforced. GE will review matters relating to safety, interpretation of the Work Plan, and scheduling of work, and will make decisions upon consultation with the Contractor.

2.0 PRODUCTS

2.01 MATERIAL AND EQUIPMENT

A. All equipment and materials shall be specified and supplied by the Contractor. The Contractor shall provide a submittal on all materials and equipment to be used for review and approval by GE prior to commencement of the work.

3.0 WORK ACTIVITIES

3.01 REMOVAL OF ASBESTOS-CONTAINING MATERIALS

A. The Contractor shall remove ACM from equipment prior to equipment removal and from the buildings prior to commencing the demolition of the Building 31 Area. Personnel who hold a valid license to handle asbestos shall verify the quantity of material. The work shall be performed in strict accordance with all federal, state, and local regulations, standards, and codes governing asbestos removal work in effect at the time of contract award. The ACM removal and containerization for disposal shall be performed in accordance with the following regulations, as well as other applicable regulations:

- 310 CMR 6 and 7;
- 453 CMR 6;
- The Asbestos National Emissions Standards for Hazardous Air Pollutants (NESHAP) contained in 40 CFR Part 61; and
- OSHA requirements contained in Part 1910.1001 of Title 29 of the Code of Federal Regulations (29 CFR Part 1910.1001) and 29 CFR 1926.1101.

B. During and following the removal activities, the Contractor shall containerize and place the removed ACM into a temporary staging area(s) (if needed) separate from any other waste material. The staging area(s) shall be constructed in accordance with all applicable local, state, and federal regulations, standards, and codes to shelter the materials from the elements (e.g., wind, precipitation, surface water runoff, etc.). The ACM containers shall meet the minimum requirements set forth in 453 CMR 6 and 40 CFR 61.50. The Contractor shall submit a description of the proposed design and location of the staging area(s) (if needed) in the Site Management Plan and the AA Plan.

C. GE will provide monitoring, which will include work area review and air sampling outside of the work area.

D. GE will also review the standard operating procedures, engineering control systems, respiratory protection and decontamination systems, packaging and disposal of asbestos waste.

E. GE shall be provided (by the Contractor) with safe access to all areas of the asbestos removal project at all times and will monitor the performance of the Contractor to document that said performance complies with this work task description.

3.04 AIR QUALITY MONITORING

A. The Contractor shall be responsible for all personal and ambient air monitoring as described in the Air Quality Monitoring Plan prepared in accordance with Section 1.03 of this work task description and as required by federal, state, and local regulations in place at the time of Contract award including 453 CMR 6.

B. If during removal activities, air quality regulatory levels related to asbestos are exceeded, the Contractor shall take all appropriate measures to reduce the concentration of airborne

asbestos (e.g., wetting), as described in the Contingency Plan prepared under Section 1.03, at no additional cost to GE.

3.05 TRANSPORTATION AND OFF-SITE DISPOSAL OF ASBESTOS-CONTAINING BUILDING MATERIALS AND ASSOCIATED WASTE STREAMS.

A. General: The Contractor shall place ACM into Contractor-provided containers that meet the minimum requirements set forth in 453 CMR 6. The Contractor shall be responsible for the transportation of ACM to a GE-approved disposal facility. A list of the GE disposal facilities is included in the SIP.

B. Packaging: Prior to post-abatement inspection, asbestos-containing waste shall be packaged in sealed double containers and removed from the work area to a specified transportation vehicle or a designated holding area approved by GE. At the end of each work day, the Contractor shall remove the debris accumulated during that days work activities using procedures outlined herein. The Contractor shall provide a daily tally of all bags removed.

C. Temporary Storage of Waste: During and following the removal activities, the Contractor shall containerize and place the removed ACM into a temporary staging area(s) separate from any other building materials. The staging area(s) shall be constructed in accordance with all applicable local, state, and federal regulations, standards, and codes and will shelter the materials from the elements (e.g., wind, precipitation, surface water runoff). The ACM containers shall meet the minimum requirements set forth in 453 CMR 6. The Contractor shall submit a description of the proposed design and location of the staging area(s) as part of their Site Management Plan and Asbestos Abatement Plan. GE must approve the area for temporary storage of asbestos waste. **All asbestos waste must be stored in closed-top dumpsters that are locked and labeled.** Asbestos waste may only be stored in a restricted area or enclosed container which is posted and secured whenever not in use.

D. OSHA/EPA Labeling: Asbestos warning labels having permanent adhesive and waterproof print, or being permanently printed on the container, shall be affixed to the outside of all asbestos containers, and each inside bag, except that non-friable asbestos-containing waste that has not been and does not have a high probability of becoming, crumbled, pulverized, or reduced to powder need not be labeled. Labels will be conspicuous and legible and shall contain the following warning:

DANGER
CONTAINS ASBESTOS FIBERS
AVOID CREATING DUST
CANCER AND LUNG DISEASE HAZARD

The AAC is directed to properly label each waste bag in accordance with the latest NESHAP standard, Section 61.150, with the following information:

AWARDING AUTHORITY'S NAME
SITE NAME

E. United States Department of Transportation (USDOT) Labeling and Marking: A USDOT class 9 shipping label and USDOT mark shall be applied to or be printed on each packaging of asbestos-containing materials; except for non-friable ACMs that did not become crumbled, pulverized, or reduced to powder; or a limited quantity of ACM which is not being transported by air.

F. Asbestos Waste Shipment Records: The Contractor shall prepare the waste shipment records. Completed waste shipment record(s) signed by the Contractor, all transporter(s), transferor(s), disposal and/or conversion facility(ies) shall be provided to the Awarding Authority within 30 days of the time at which the asbestos-containing wastes are received at the disposal and/or conversion facility (ies), which shall be no longer than 40 days after the waste was accepted by the initial transporter. The Waste Shipment Record shall specify the designating number of bags or cubic yard(s) of asbestos waste.

G. In addition to the labeling requirements specified in Parts D, E, and F above, the Contractor shall -- for purposes of labeling -- label the ACM containers as if they contain PCBs. As such, labeling shall be consistent with all applicable federal, state, and local requirements.

H. Depositing: Asbestos waste shall be deposited as soon as practical at a GE-approved regulated waste disposal site, except for USEPA "Category I" non-friable ACM that has not become friable, nor will be or has been sanded, ground, cut, or abraded. Waste disposal sites for asbestos materials will be in accordance with 40 CFR 61.25, Waste Disposal Sites. The GE-approved waste disposal facility for ACM is provided in the SIP.

3.06 QUALITY CONTROL AND TESTING

A. The Contractor shall be responsible for achieving acceptable visual and final air clearance testing for all abatement areas as follows:

- Clearance Inspection: GE shall inspect the work area and surrounding areas for clearance using visual and physical methods, prior to clearing the project for air monitoring clearance procedures.

- Post-Abatement Clearance Air Monitoring: For each abatement area, post abatement clearance air samples will be taken when a visual inspection by GE indicates no visually accessible debris, and surfaces are encapsulated and dry. Phase Contrast Microscopy (PCM) clearance testing will be performed to confirm the completion of removal. Samples analyzed by Phase Contrast Microscopy (PCM) and the NIOSH 7400 method and must not exceed the maximum airborne fiber concentration of 0.01 fibers per cubic centimeter.

Note: Should results indicate a fiber concentration greater than 0.01 fibers/cc of any one sample, or if the visual inspection fails, AAC shall reclean the entire work area utilizing the methods specified in this work task.

Work Task 5

General Electric Company
Pittsfield, Massachusetts

Closure of Basement Tunnels/Select Piping

1.0 INTRODUCTION

1.01 WORK INCLUDED

A. This work task shall include all labor, equipment, materials, and services necessary to close and seal all subgrade tunnels (as required) located in or below the basement of Building 31.

1.02 EXISTING CONDITIONS

A. Based on drawings and field observations, Building 31 contains the following basement tunnels and select piping:

1. Two parallel ash tunnels oriented in an east-west direction, each approximately 4 feet wide by 4 feet tall. A concrete vault is located at the west end of the ash tunnels and extends past the western exterior wall of Building 31. The ash tunnels reportedly extend beneath the building approximately 140 feet east of the concrete vault.

2. Steam piping/tunnels exit the basement of Building 31 at three locations, as shown in Section 4 of Attachment D to the Work Plan (Supplemental Information Package). One location is on the northern side of the building near the Compressor Room. The second location is on the southern side of the building south of the first location. The third is located on the southern side of the building, in the basement beneath the office area.

3. A 36-inch diameter was intake pipe connects Building 31 to Silver Lake. According to historical GE drawings, the water intake pipe enters the southern side of Building 31 beneath the basement of the office area. The intake pipe is connected to a network of pipes and ducts that are located beneath the basement of Building 31. Field observations indicate that the water intake network is filled with water and contains varying thicknesses of sediment. One manhole is located between Building 31 and Silver Lake. Based on field observations, this manhole is filled with concrete to an elevation of 6 inches below grade. However, it is unknown if the concrete extends vertically to the intake pipe, which would separate the lake water from Building 31.

4. The interior drain piping system consists of floor drains, trench drains, sumps, "hot" wells, piping connecting the drains, and a 36-inch diameter pipe connecting the interior drain system with the exterior storm drain system and outfalls to Silver Lake. Field observations indicate that the 36-inch diameter pipe may be plugged at the first exterior manhole.

Basement tunnels/select piping associated with Building 31 included in Section 4 of Attachment D to the Work Plan (Supplemental Information Package). The Contractor is responsible for verifying all existing basement tunnels.

1.03 SUBMITTALS

The Contractor shall submit the following items to GE for review:

A. A list of equipment to be used, along with the catalog sheets.

B. The names of any subcontractors to be used on the project, including their qualifications, locations of origin, and descriptions of their project assignments.

C. The names, qualifications and certifications of the designated on-site Project Manager responsible for making decisions, and primary contacts for GE during performance of the work.

D. The Contractor shall identify the specific equipment, materials (including grout and concrete mix designs), and methods proposed to close and seal basement tunnels/select piping associated with Building 31 based on the requirements established in this work task.

2.0 PRODUCTS

2.01 MATERIALS AND EQUIPMENT

A. All equipment and materials shall be specified and supplied by the Contractor, unless specified herein.

B. All containers utilized for containerization of water accumulated/removed shall be USDOT-approved and provided by the Contractor.

3.0 WORK ACTIVITIES

3.01 PRE-CLOSURE ACTIVITIES

A. The Contractor shall, prior to closure of basement tunnels/select piping, identify and verify the location of all tunnels/piping, located in the walls and in the floors of the basement of Building 31 as described in Section 3.02 of this work task. The Contractor shall identify and close all basement tunnels/select piping in Building 31, including but not limited to the basement tunnels/select piping listed in Section 1.02 of this work task. The Contractor shall notify GE upon identifying additional basement tunnels beyond those identified herein. The Contractor will not be permitted to close the additional basement tunnels (if any) until authorized by GE.

3.02 CLOSURE OF SUBGRADE TUNNELS/SELECT PIPING

The Contractor shall conduct the following basement tunnel closure activities.

A. The Contractor shall verify the location and extent of the tunnels and associated vaults. The Contractor shall then fill the ash tunnels and associated concrete vaults with flowable fill to the elevation of the top of the basement slab. The closure of the ash tunnels shall include the tunnels themselves and connecting vault area, located in the western portion of Building 31, while the portions of the steam tunnels subject to closure are shown on Figure 3 included in Section 4 of Attachment D. The Contractor shall also seal remaining entrances to the ash tunnels (i.e., boiler hatches, roof drains, discharge piping, trench drains, etc.) with flowable fill or pipe plugs to the top of the basement slab. If required, the Contractor shall be allowed to create access points (e.g., through the basement concrete floor slab) to portions of the ash tunnel. However, the access points must be closed as part of the basement tunnels closure activities (i.e., using flowable fill). Placement of flowable fill shall be done in accordance with the Technical Specifications included in Attachment C to the Work Plan.

B. For the 36-inch diameter water intake and discharge pipelines, the Contractor shall verify the location of these pipes at a location approximately 25 feet adjacent to (external of) Building 31. In the vicinity of this location, the Contractor shall identify any other subsurface features and utilities that may affect the performance of a test pit/pipe excavation activity. Any such subsurface items shall be presented for GE's review and consideration (i.e., the possible relocation of the subsequent test pit/pipe excavation). Once an acceptable location has been identified, the Contractor shall excavate existing materials above the pipeline to locate the pipelines. The Contractor shall assume that all excavated materials shall be placed on (and covered with) a polyethylene sheeting that is suitably anchored to minimize contact between the materials and the existing ground surface, rainfall, or wind. Also, the Contractor shall assume that disposition of the excavated materials will be similar to the disposition of the building demolition debris (which may vary depending on the method of disposition). Once the pipelines have been identified, the Contractor shall remove a section of piping and excavation additional materials such that the following minimum trench dimensions are achieved: 3-foot section of pipe removal; 2-foot of removal beneath pipe invert; and 8-foot removal perpendicular to and centered along the pipe centerline. Once these trench dimensions are achieved, the Contractor shall place flowable fill to backfill the entire excavation area.

Work Task 6

General Electric Company
Pittsfield, Massachusetts

Building Demolition – Environmental Requirements

1.0 INTRODUCTION

1.01 WORK INCLUDED

A. This work task shall include all labor, equipment, materials, and services necessary to demolish Buildings 31, 31-J, and 31-P (Building 31 Area).

1.02 DEMOLITION/DISPOSITION

A. Select work activities under this work task vary depending on the type of demolition/disposition material being removed. As previously indicated in the Work Plan, certain materials are required to be disposed of at an appropriate off-site facility. In addition, materials may be consolidated at the Building 71 OPCA. The Contractor shall be prepared to conduct activities in this work task in accordance with applicable regulations.

1.03 SUBMITTALS

The Contractor shall submit the following documents to GE:

A. The Contractor shall submit to GE an Employee Exposure Assessment, as described in Part 1926.62(d) of Title 29 of the Code of Federal Regulations (29 CFR Part 1926.62(d)). In accordance with this regulation, if the Contractor has previously (within the past 12 months) monitored for lead exposure, the Contractor may be allowed to rely on their previous monitoring data to meet the requirements of employee exposure monitoring. However, to rely on previous monitoring data, the Contractor must demonstrate that the previous data were obtained under work place conditions that closely resemble the processes, type of material, control methods, work practices, and environmental conditions used and prevailing during the demolition of the Building 31 Area.

B. The Contractor shall submit a Demolition Plan for the Building 31 Area for review. The Demolition Plan shall identify the Contractor's equipment, materials, and methods proposed to demolish the Building 31 Area. The Demolition Plan shall identify the Contractor's proposed phasing of the demolition activities. Also, the Demolition Plan shall identify dust control system/methods proposed by the Contractor to be implemented during building demolition activities. In addition, the Contractor shall identify in the Demolition Plan methods for transporting wastes generated during demolition activities to a GE-designated staging area (including transport container types and sizes). The Demolition Plan shall include a figure presenting the staging areas for roll-off containers, demolition support areas, and equipment and personnel decontamination areas. Please note that the Contractor shall use the areas designated for the Contractor's use as shown in the Work Plan (Figure 2). In addition, the Demolition Plan shall also address how the Contractor intends to conduct the demolition activities without damaging adjacent structures.

C. An Air Quality Monitoring Plan shall be prepared in accordance with all applicable local, state, and federal codes, rules, and regulations and the Employee Exposure Assessment.

D. A Dust Control Plan shall be prepared to address how dust generated during the demolition activities shall be suppressed. If the Contractor intends to use water for dust suppression, the Dust Control Plan shall address how the water will be collected and containerized.

E. A Waste Characterization Plan shall be prepared to address the anticipated volume to be generated by the water used (if any) for dust control.

F. Within two weeks of completion of the demolition activities, the Contractor shall submit the following documents to GE.

1. Copies of all project records, as required under 29 CFR Part 1926.62 (n) and 454 Code of Massachusetts Regulations Chapter 22 (454 CMR 22).

2. Copies of the characterization results for dust suppression water (if used).

2.0 PRODUCTS

2.01 MATERIALS AND EQUIPMENT

A. A non-potable water source shall be available to the Contractor by GE for use during the demolition activities. There are two water hydrants available for the Contractors use. One of the hydrants is located on the east side of Building 31 and the other is located on the west side of Building 31 as shown in the Work Plan (Figure 2).

B. Except as specified herein, all equipment and material shall be specified and supplied by the Contractor.

C. The use of flame emitting cutting devices at the GE facility shall only be allowed by permission of GE on a case-by-case basis. The Contractor must identify for review by GE the equipment or building materials that shall be cut using a flame emitting device. The Contractor prior to initiating any cutting activities or flame emitting device must obtain a burning permit through GE Plant Protection. The use of flame emitting cutting devices will not be permitted during the demolition of the remaining portion of the mercury stack.

3.0 WORK ACTIVITIES

3.01 BUILDING DEMOLITION

A. The Contractor shall demolish the Building 31 Area in accordance with the Contractor's reviewed Demolition Plan, 310 Code of Massachusetts Regulations Chapter 7 (310 CMR 7) and all other local, state, and federal codes, rules, and regulations. Wrecking balls or explosives shall not be permitted to demolish any portion of the Building 31 Area.

B. The Contractor shall remove all above-grade structures associated with the Building 31 Area with the exception of the structures noted in paragraphs C, D, and F below and as noted elsewhere in the Work Plan.

C. All interior walls and columns shall be demolished to the basement floor slab. Exterior walls shall be demolished to the adjacent existing grades.

D. The Contractor shall remove Surge Tank 2 of the steel condensate surge tank structure. However, the lower tank (Surge Tank 1) and the steel support for Surge Tank 1 (i.e., the steel support up to the first horizontal I-beam as shown on the Figure F2-P2-F3 in the SIP) shall remain, and be protected during the removal and demolition activities. Damage to Surge Tank 1 and associated steel support structure shall be repaired by the Contractor.

E. The former railroad trestle shall be removed (see Figure 2 in the Work Plan). However, the active steam pipes located below the former railroad trestle and the steel structure that supports the active steam pipes shall remain and shall not be damaged. It is the Contractor's responsibility to protect all active lines. Damage to the active steam pipes and/or the supporting steel structures shall be repaired by the Contractor.

F. The utilities specified as to remain during demolition activities under Work Task 2 shall not be damaged during demolition activities. It is the Contractor's responsibility to protect all active utilities. The Contractor shall repair damage to the active utilities to the pre-demolition condition and to the satisfaction of GE at no additional cost to GE.

G. Equipment and methods used for demolition shall generate a minimum amount of dust and debris during the demolition activities.

H. Wood building materials present within Building 31 Area shall be segregated and placed into Contractor-provided roll-off containers (or other containers as requested by the Contractor and approved by GE) and managed in accordance with the requirements established under Work Task 8.

I. Brick, concrete, masonry, glass, and coal (crushable building debris) shall be segregated and pulverized into pieces no greater than 6 inches in any dimension. In addition, painted and unpainted steel building materials (i.e., beams, columns, catwalks, fire escapes, reinforcing bars, etc.) present within the Building 31 Area shall be segregated and cut (as needed) such that the materials can be handled, placed, and compacted consistent with the procedures specified in Work Task 8. All other demolition debris generated shall be managed as described under Work Task 7.

J. If it is necessary to dispose of building demolition debris at the Building 71 OPCA, debris shall be placed into Contractor-provided roll-off containers (or other containers approved by GE). The Contractor shall transport the containers to the Building 71 OPCA staging location within the GE Pittsfield facility. The traffic route for transporting the building demolition debris is shown in the Work Plan (Figure 1). The Contractor shall not exceed the following weight limits when traveling over the Woodlawn Avenue Bridge:

- 20 tons for trucks designated as Type SU;
- 24 tons for trucks designated as Type 2-S1; and
- 36 tons for trucks designated as Type 3-S2.

K. For building demolition debris that is required to be disposed of at an appropriate off-site facility, debris shall be placed into appropriate containers in accordance with applicable regulations. The Contractor shall transport containers for off-site disposal as described under Work Task 7.

L. The Contractor shall undertake adequate measures to control dust during the project in accordance with their reviewed Demolition and Dust Control Plans, 310 CMR 7, and any other, local state or federal regulations.

Work Task 7

General Electric Company
Pittsfield, Massachusetts

Waste Movement, Staging, and Disposition

1.0 INTRODUCTION

1.01 WORK INCLUDED

A. This work task shall include all labor, equipment, materials, and services necessary to segregate, process, containerize, transport, and dispose the building demolition debris, equipment, and waste materials to be generated during work activities associated with the Work Plan.

B. Where off-site transportation and disposal/disposition is specified under this work task, the Contractor shall be responsible for the transportation of the materials to the appropriate facility (and shall include costs for waste transportation in their bid proposal). GE will be responsible for the actual disposal/disposition costs and will contract directly with the disposition facility.

2.0 WORK ACTIVITIES

Waste movement, staging, and disposition activities for demolition/disposition are presented below.

2.01 DEMOLITION/DISPOSITION

A. Wood Building Debris

1. The Contractor shall segregate and process the wood building materials as described under Section 3.01H of Work Task 6. Wood building materials will be placed into Contractor-provided roll-off (or other approved) containers. The Contractor shall transport the roll-off (or other approved) containers to the Building 71 OPCA staging location within the GE Pittsfield facility. The traffic route for transporting the wood building debris is shown in the Work Plan (Figure 1). The Contractor shall not exceed the following weight limits when traveling over the Woodlawn Avenue Bridge:

   - 20 tons for trucks designated as Type SU;
   - 24 tons for trucks designated as Type 2-S1; and
   - 36 tons for trucks designated as Type 3-S2.

   The Contractor shall manage the wood building material as a TSCA/RCRA-regulated waste.

B. Crushable Building Debris

1. The Contractor shall process the brick, masonry, concrete, glass and coal (and any other crushable building debris) as described in Section 3.01 I of Work Task 6, and place the waste into the temporary staging area for future placement, or

place the waste directly into the basement of Building 31. The Contractor must identify in its Site Management Plan its proposed methods for processing of crushable building debris and whether the Contractor proposes to temporarily stockpile these materials on the site prior to placement in the Building 31 basement. The Contractor shall manage the crushable building debris as a TSCA/RCRA-regulated waste. If utilized, the temporary staging area shall be located within the area designated for the Contractor's use. The crushable building debris shall be placed in the basement of Building 31 in accordance with requirements listed under Work Task 8. Excess crushable building debris shall be placed into Contractor-provided roll-off (or other approved) containers by the Contractor and transported to the Building 71 OPCA located within the Pittsfield facility using the routes previously described.

C. Steel Building Materials

1. The Contractor shall process painted and unpainted steel building materials as described in Section 3.01 I of Work Task 6, and place the waste into the temporary staging area for future placement or directly into the basement of Building 31. The Contractor must identify its Site Management Plan its proposed methods for processing of steel building materials and whether the Contractor proposes to temporarily stockpile these materials on the site prior to placement in the Building 31 basement. The Contractor shall manage the building materials as a TSCA/RCRA-regulated waste. The temporary staging area shall be located within the area designated for the Contractor's use. The steel building material shall be placed in the basement of Building 31 in accordance with the requirements of Work Task 8. Excess steel building materials shall be placed into Contractor-provided roll-off (or other approved) containers by the Contractor. The Contractor shall transport the roll-off (or other approved) containers to the Building 71 OPCA located within the Pittsfield facility using the routes previously described.

D. Other Demolition Debris and Waste Materials

1. All other building demolition debris (i.e., building debris that does not consist of brick, masonry, concrete, glass, structural steel, coal, or wood) is anticipated to be placed within the Building 31 subgrade foundation. Excess demolition debris materials that will not fit in the basement of Building 31 shall be placed into Contractor-provided roll-off (or other approved) containers by the Contractor. The Contractor shall transport the roll-off (or other approved) containers to the Building 71 OPCA located within the Pittsfield facility using the routes previously described.

E. Equipment

1. Mercury

The Contractor shall separate all mercury and containerize the waste as described under Work Task 3. The containers shall be transported (by the Contractor) off-site to a GE-approved disposition facility. If the mercury cannot safely be removed, or if GE elects to remove a piece of equipment entirely, the piece of

equipment shall be removed, containerized, and transported off-site for disposal at a GE-approved disposition facility.

2. CFCs

The Contractor shall remove the CFCs from CFC-containing units and containerize the CFCs as described under Work Task 3. The Contractor shall transport the containers off site to a GE-approved disposition facility. If the CFCs cannot safely be removed, or if GE elects to remove a piece of equipment entirely, the piece of equipment shall be removed, containerized, and transported off-site for disposal at a GE-approved disposition facility.

3. Light Ballasts and Capacitors

The Contractor shall separate all light ballasts and capacitors and containerize the waste as described under Work Task 3. The Contractor shall transport the containers off site to a GE-approved disposition facility.

4. Other Equipment

Where possible for other equipment, the Contractor shall remove any liquids (e.g., hydraulic oil) from the equipment and dispose of such liquids off-site at the appropriate GE-approved disposition facility. The equipment reservoirs will then be filled with a drying agent and the equipment can be left in-place and handled similar to the building demolition materials. The Contractor shall place all other equipment listed under Work Task 3 in the temporary staging area for off-site disposition.

F. Liquid Wastes

Certain project activities (e.g., closure of subgrade tunnels) may involve the displacement of water currently present in Building 31. For those project components in which water removal will be necessary to perform the required activities, the Contractor will be required to containerize such water for subsequent characterization and disposal by GE.

G. Decontamination Waste

1. The Contractor shall place all disposable personal protection equipment (PPE) and all materials generated during the equipment decontamination activities into Contractor provided, USDOT-approved and labeled containers and transport the materials off-site to a GE-approved disposition facility.

2.02 RECORD KEEPING

A. The Contractor shall be responsible for waste profiling. GE will review and sign the waste profiles.

B. The Contractor shall prepare the waste manifests and bills of lading for the transport and off-site disposal of the waste. GE will review and sign the waste manifests and bills of lading.

Work Task 8

General Electric Company
Pittsfield, Massachusetts

Demolition Debris and Equipment/Select Fill Placement

1.0 INTRODUCTION

1.01 WORK INCLUDED

A. This work task shall include all labor, equipment, materials, and services necessary to place the building debris and equipment and/or select fill into the basement of Building 31.

1.02 DEMOLITION/DISPOSITION

A. Select work activities under this work task vary depending on the type of demolition/disposition material being removed. As previously indicated in the Work Plan, certain materials are required to be disposed of at an appropriate off-site facility. In addition, GE may elect to consolidate certain materials at the Building 71 OPCA. The Contractor shall be prepared to conduct activities in this work task in accordance with applicable regulations.

1.03 SUBMITTALS

A. In its Site Management Plan, the Contractor shall submit a Demolition Debris and Equipment/Select Fill Placement Plan (Placement Plan) for the Building 31 Area to GE for review. The Placement Plan shall identify the Contractor's equipment, materials, and methods proposed to place the demolition debris/select fill into the basement of Building 31. The Placement Plan shall identify the Contractor's proposed phasing of the placement activities.

2.0 WORK ACTIVITIES

2.01 PRE-DISPOSITION ACTIVITIES

A. Prior to the disposition activities, the tunnels must be closed and sealed as described under Work Task 5.

B. Prior to the disposition activities, the demolition debris and equipment must be removed and processed as described under Work Task 6.

C. All structures in the basement must be demolished.

2.02 DEMOLITION DEBRIS AND EQUIPMENT DISPOSITION ACTIVITIES

The Contractor shall conduct the activities described below. The general disposition of materials is illustrated on Figure 4 of the Work Plan.

A. Brick, masonry, concrete, glass, and coal building material (crushed building material) will be placed on top of the basement floor. The crushed building material shall be placed in maximum uncompacted lifts of one foot and compacted by passing a minimum 25-ton landfill compactor (equipped with caron compaction wheels) for a minimum of five passes.

B. Structural steel shall be placed in maximum uncompacted lifts of one foot and compacted by passing a 25-ton landfill compactor (equipped with caron compaction wheels) for a minimum of five passes.

C. Following the placement of any discrete structural steel layer, or if excessive void spaces are identified following the placement/compaction of other materials (as determined by GE), the Contractor shall place 6 inches of flowable fill in accordance with the Technical Specifications for Flowable Fill Material provided in Section 1.0 of Attachment C to the Work Plan. The 6-inch thickness shall be measured from the top of the previous layer and not include any flowable fill used to fill any voids in the structural steel layer (if any). The flowable fill must be cured for a minimum of 72 hours [or when minimum compressive strength is 150 pounds per square inch (psi)] prior to placement of any additional materials or equipment on the flowable fill.

D. Throughout the disposition activities, the basement of Building 31 shall be covered with a minimum of two low-permeability, 6-mil high density polyethylene (HDPE) covers overlapping by 2 feet in all areas and secured (e.g., with a sand bags and ropes) at the end of each workday, when placement activities are not being conducted, and during periods of inclement weather. The Contractor may propose alternative methods for covering the Building 31 basement for review by GE.

E. In the event that adequate quantities of processed equipment, structural building material, or crushable building material are not available to complete the placement process or to fill the basement to a depth of 12 inches below grade, the Contractor shall import borrow fill that meets the requirements of the Technical Specifications for Select Fill Material, provided in Section 2.0 of Attachment C to the Work Plan, for filling the Building 31 basement.

Work Task 9

General Electric Company
Pittsfield, Massachusetts

Repair and Modification to Select Structures

1.0 INTRODUCTION

1.01 WORK SPECIFIED

A. All labor, tools, machinery, guarding and protection, including all excavation and incidentals necessary to satisfactorily complete modification and repair of the designated structures, including but not limited to: select electrical distribution vaults at perimeter of Building 31 and ash hopper piers at east side of building.

B. Water used for dust control.

C. Segregation of building materials, if required.

1.02 SUBMITTALS

A. Submit work designated in this section as a specific project activity as part of project schedule under provisions of Contractors submittals.

1.03 EXISTING CONDITIONS

A. Conduct modification and repair operations in such a manner to seal and isolate structures from adjacent Building 31.

B. Provide, erect and maintain temporary safety barriers and security devices.

C. Conduct operations with minimum interference to public or private thoroughfares. Maintain protected egress and access at all times.

D. Do not close or obstruct roadways without permits or GE approval.

E. Operations to be coordinated with Building 31 demolition activities.

F. Refer to details as provided on White Engineering Drawing GE 31-D1.

2.0 PRODUCTS

2.01 CONCRETE

A. All concrete shall have a minimum 28-day compressive strength of 3,000 psi, a maximum water-cement ratio by weight of 0.45, and a minimum cement content of 550 pounds per cubic yard. Cement shall be ASTM C150, Type II.

B. Slump: 4 inch maximum as determined by ASTM C-143.

C. Air Content: 3 percent to 4 percent.

D. Reinforcing bar – Grade 60.

E. Structural Steel – A36.

F. Fastener – threaded rod A36.

G. Anchors.

H. Bonding Material for patching – SIKP Products Sikadur 32, Hi-Mod LPL.

I. Resurfacing and repair material – SIKA Products Sikadur 45 Epocem.

3.0 WORK ACTIVITIES

3.01 EXECUTION

A. Modification and repair of designated structures and appurtenances shall be done in an orderly and careful manner.

B. Cease operations and notify GE immediately if adjacent structures appear to be endangered. Do not resume operations until corrective measures have been taken and approval by GE has been granted.

C. No burning or torching shall be allowed at the demolition site without prior written approval from GE.

D. Comply with the elements of the Dust Control Plan as outlined in the contractors submittal.

E. Preparation shall consist of, but not limited to, the following:

1. Surface preparation and penetration shaping to allow for effective pourbacks and patching.

2. Core drilling vault top to allow placement of concrete, as required.

F. Accurate placement and securing of form work and associated anchors and reinforcement.

G. Application of bonding adhesives.

H. Placing of concrete to insure no pin pockets or voids exist after forms are removed.

I. Application of patching material after forms are removed on Stru-1. Patching and repair material to be applied to all horizontal and vertical exterior surfaces to grade.

J. Installation of structural steel in areas designated in details.

K. Placing of concrete on top of Stru-5 to bring top of total structure to uniform grade. See Drawing GE-31-S3.

L. Preserve two easternmost piers at ash hopper structure to east side of building. Cut columns on these piers at elevation of top of steam and condensate pipes preserving pipe supports that are welded to columns.

Work Task 10

General Electric Company
Pittsfield, Massachusetts

Placement of a Surface Cover

1.0 INTRODUCTION

1.01 WORK INCLUDED

A. This work task shall include all labor, equipment, and materials required for placement of an engineered barrier over the basement of Building 31 and a surface cover over areas outside of the Building 31 foundation area, as shown on the Figures provided following the Work Task descriptions.

2.0 PRODUCTS

2.01 SURFACE COVER (Areas outside of the Building 31 foundation)

The following products shall be supplied by the Contractor.

A. Subbase Course

1. Subbase course shall be gravel borrow. The gravel borrow shall be bank run, or filler may be added by approved methods, and shall consist of sound, durable particles of crushed or uncrushed gravel free from loam, clay, soft vegetable matter, and elongated pieces of rock. The material shall conform to the Massachusetts Department of Highways Standard Specifications for Highways and Bridges for M1.030, Type C gravel borrow.

B. Base Course Aggregate

1. The crushed stone aggregate for the bituminous concrete base course shall conform to the requirements of the Massachusetts Department of Highways Standard Specifications for Highways and Bridges Division III Section M. The maximum aggregate size shall be 2.5 inches.

C. Bituminous Binder

1. The binder shall be asphalt cement conforming to the requirements of AASHTO 20.

D. Wearing Surface

1. The wearing surface shall be Type 1-2. The material shall conform to the quality requirements as stated in the Massachusetts Department of Highways Standard Specifications for Highways and Bridges Division III Section M.

E. Tack Coat

1. Tack coat shall be Asphalt Emulsion, RS-1. The material shall conform to the quality requirements as stated in the Massachusetts Department of Highways Standard Specifications for Highways and Bridges Division III Section M.

2.02 ENGINEERED BARRIER (Area of the Building 31 foundation)

The following products shall be supplied by the Contractor, as shown on the Figures.

A. HDPE Geomembrane Liner

1. The geomembrane shall be a 60-mil thick high density polyethylene (HDPE) liner with a textured surface on each side. The material and performance requirements for the geomembrane liner are specified in Section 9.0 of Attachment C to this Work Plan.

B. Geosynthetic Drainage Composite

1. The geosynthetic drainage composite (GDC) shall be composed of an HDPE drainage net composited with two (2), 6 oz/yd^2 non-woven geotextiles. The geotextiles shall be heat bonded to both sides of the drainage net. The material and performance requirements for the GDC are provided in Section 10.0 of Attachment C to this Work Plan.

C. Subbase Course

1. The subbase course shall meet the same requirements listed in Section 2.0.1.A.1 above, but shall consist entirely of uncrushed (i.e., round, run-of-bank) gravel.

D. Base Course Aggregate

1. The crushed stone aggregate for the bituminous concrete base course shall conform to the requirements of the Massachusetts Department of Highways Standard Specifications for Highways and Bridges Division III Section M. The maximum aggregate size shall be 2.5 inches.

E. Bituminous Binder

1. The binder shall be asphalt cement conforming to the requirements of AASHTO 20.

F. Wearing Surface

1. The wearing surface shall be Type 1-2. The material shall conform to the quality requirements as stated in the Massachusetts Department of Highways Standard Specifications for Highways and Bridges Division III Section M.

G. Tack Coat

1. Tack coat shall be Asphalt Emulsion, RS-1. The material shall conform to the quality requirements as stated in the Massachusetts Department of Highways Standard Specifications for Highways and Bridges Division III Section M.

3.0 WORK ACTIVITIES

3.01 GENERAL

The following activities shall be conducted by the Contractor.

A. HDPE Geomembrane Liner

1. The geomembrane shall be installed and tested in accordance with Section 9.0 – Flexible Membrane Liner of Attachment C to this Work Plan.

B. Geosynthetic Drainage Composite

1. The GDC shall be installed and tested in accordance with Section 10.0 – Geosynthetic Drainage Composite of Attachment C to this Work Plan.

C. Subbase Course

1. The subbase course shall consist of gravel borrow and be placed over the GDC located above the basement of Building 31, or above existing soils outside the footprint of Building 31 foundation. The material shall be placed in maximum uncompacted lift thicknesses of 12 inches and a final compacted elevation of four inches below finished grade. Final subbase grades shall be as identified under Work Task 11.

2. Rolling shall begin at the sides and continue toward the center, and shall continue until there is no movement ahead of the roller. Compaction shall be to 95 percent compaction throughout the subbase as determined by ASTM D1557. GE shall perform testing at no additional cost to the Contractor. Failure to meet the 95 percent compaction shall result in the Contractor recompacting the subbase course.

3. All depressions that develop during compaction shall be filled with subbase material and the area re-compacted.

4. Soft areas shall be removed and filled with subbase materials and re-compacted.

5. Should the subbase become rutted or displaced prior to the placing of the bituminous concrete base course, the subbase shall be reworked to bring to the final elevation of the compacted subbase course to four inches below grade.

6. After completion of the subbase course compaction, there shall be no hauling over the subbase course other than the delivery of the material for the bituminous concrete course.

7. Following completion of the subbase preparation and immediately prior to bituminous concrete installation, the compacted area shall be proof rolled with a 20-ton fully loaded tandem. Uncompacted (areas indicating a one-inch or deeper impression) areas identified as a result of the proof rolling activities shall be re-compacted at no additional cost to GE and the repaired areas re-proof rolled to verify adequate compaction. In the event that precipitation occurs following completion of a successful proof roll, but prior to placement of the bituminous concrete layer, GE may decide to re-proof roll the subbase layer at no additional cost to GE.

D. Bituminous Concrete

1. Paving

a. Place concrete mixture on prepared surface, spread, and strike-off. Spread mixture at temperatures in the range specified in Section 460 of the Massachusetts Department of Highways Standard Specifications for Highways and Bridges. Place inaccessible and small areas by hand. Place the bituminous concrete base course to a compacted thickness of 2.5 inches and the bituminous concrete wearing surface to a compacted thickness of 1.5 inches. Tack coating shall be applied to the exposed sidewalls of the basement of Building 31 prior to placement of the base course and in between the bituminous concrete base course and the bituminous wearing surface. The Contractor shall apply the tack coat at the rate specified in Section 460 of the Massachusetts Department of Highways Standard Specifications for Highways and Bridges.

b. Place pavement in accordance with Section 460 of the Massachusetts Department of Highways Standard Specifications for Highways and Bridges.

c. Completed grade of bituminous cap shall meet the requirements set forth under Work Task 11, Final Site Grading.

2. Compaction

a. Bituminous concrete base course and wearing surfaces shall be compacted in accordance with Section 460 of the Massachusetts Department of Highways Standard Specifications for Highways and Bridges.

b. After final rolling, do not permit vehicular traffic on pavement until pavement has cooled and hardened (minimum 72 hours).

c. Erect barricades to protect paving from traffic until the mixture has cooled enough not to become marked.

3. Testing

a. The finish pavement shall be to grade.

b. Variations exceeding 1/4-inch or depressions shall be satisfactorily corrected. There shall be no depressions that shall retain standing water.

c. GE may authorize additional testing of the finished pavement. Failure by the Contractor to meet these specifications as a result of the additional testing shall require the Contractor to replace unsatisfactory pavement.

Work Task 11

General Electric Company
Pittsfield, Massachusetts

Final Site Grading

1.0 INTRODUCTION

1.01 WORK SPECIFED

A. All labor, supervision, materials, tools, and equipment for the site grading to be executed subsequent to the demolition and capping activities associated with the removal of Building 31.

B. Backfilling, compaction and bringing to grade all materials to achieve final site contours.

C. Installation of drainage materials.

D. Installation of geotextile fabrics.

E. Installation of bituminous curbing.

F. Application of topsoil to existing slope east of Building 31 to restore grade.

G. Application of topsoil as required to smooth out and dress existing contours north of building.

H. Application of seed and associated fertilizers.

1.02 SUBMITTALS

A. Procedures to be used in the installation of geotextile materials.

B. Sample of geotextile material to be used.

C. Location of source, and pH and organic content testing results of topsoil used at site.

D. Sieve analysis for gravel borrow material to be used on site. Contractor to provide a minimum of one sieve analysis for each 100 cubic yards of material to be imported to the site. Analysis must indicate compliance with specifications.

E. The Contractor shall provide GE with the laboratory analytical results indicating that PCBs are present in the gravel borrow material at concentrations not greater than method detection limit.

F. A listing of the source of the gravel borrow material shall be submitted for approval by GE.

G. Sieve analysis for planting material to be used on site. Contractor to provide a minimum of one sieve analysis for each 50 cubic yards of topsoil to be imported to the site. Analysis must indicate compliance with specifications.

H. The Contractor shall provide GE with the laboratory analytical results indicating that PCBs are present in the topsoil material at concentrations not greater than method detection limit.

I. Moisture density curve for each material to be used for embankment construction.

J. Compaction density reports.

1.03 SCHEDULE

A. A schedule of restoration operations shall be submitted to the Contractor for review.

1. After an accepted schedule has been agreed upon, it shall be adhered to unless otherwise revised with the approval of GE.

B. The replacement of surfaces at any times, as scheduled or directed, shall not relieve the Contractor of responsibility to repair damages by settlement or other failures which may occur after restoration of surfaces.

2.0 PRODUCTS

2.01 MATERIAL AND EQUIPMENT

A. Borrow Material – Massachusetts Highway Department Standard Specification M1.03.0, Type B.

B. Rip-Rap – Rip-rap shall be sound, durable rock, which is angular in shape and nominal dimension to be 4 inch to 6 inch.

C. Bituminous Curb (dense mix) – Massachusetts Highway Department Standard Specification M3.11.03, Table A, Type 2.

D. Topsoil – Any topsoil brought from off-site locations shall be unfrozen, friable, natural loam and shall be free of clay lumps, brush needs, litter, stumps, stones, and other extraneous matter. The topsoil shall have an organic content between 5 and 20 percent and a pH between 5.5 and 7.5 percent.

E. Fertilizer – Massachusetts Highway Department Standard Specification M6.02.0.

F. Seeds – Massachusetts Highway Department Standard Specification M6.03.0. Mix to meet proportions for slopes and shoulders.

G. Interface Between Rip-Rap and Borrow Fill – Mirafi 140 N.

H. Erosion Control/Turf Reinforcement – North American Green C-350.

3.0 WORK ACTIVITIES

3.0.1 EMBANKMENT CONSTRUCTION

A. The sequence of embankment construction shall be coordinated with building demolition activities and to plans and details as shown on attached drawings.

B. Placement of gravel borrow. Place fill layers with a maximum loose thickness of 12 inches prior to compaction. Compact each layer to at least 95 percent maximum dry density at optimum moisture content, as determined by standard ASTM D1557, Method D.

C. Place geotextile as indicated in areas shown on plans and associated details.

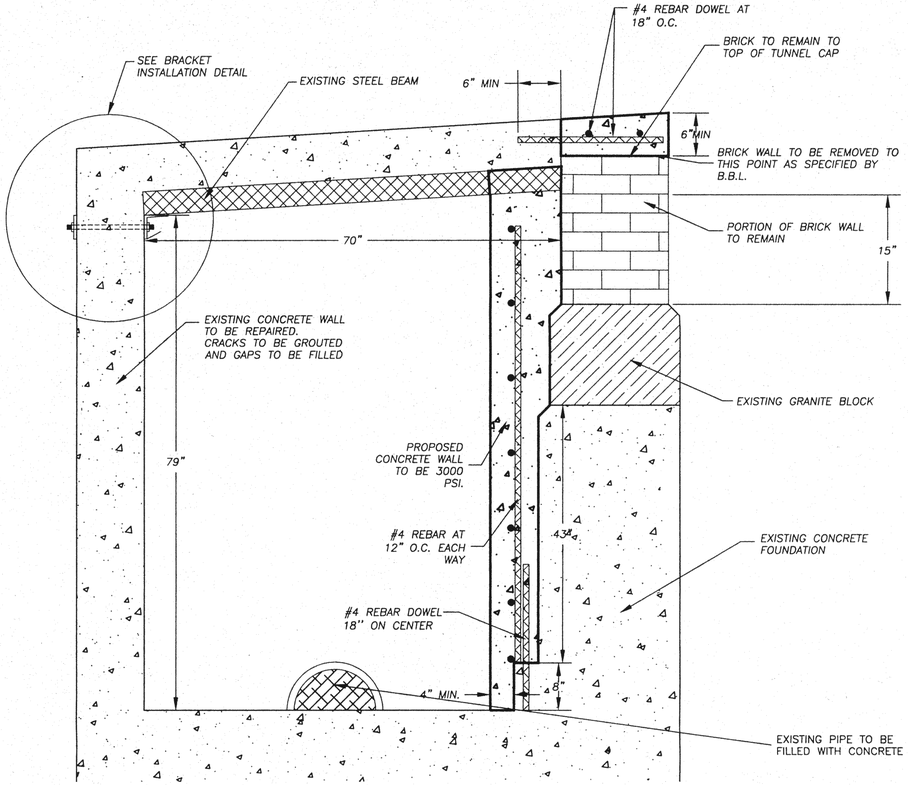
D. Install curbing as shown on plans and associated details. Locate openings in curbs where shown. Curbing to be set on binder course of substrate.

3.02 FINAL GRADING

A. Place topsoil as shown on embankment. Fill and dress low areas of existing bank. At north side of building site, dress by filling only. Level new material only. Existing fill is not to be excavated and is to remain undisturbed.

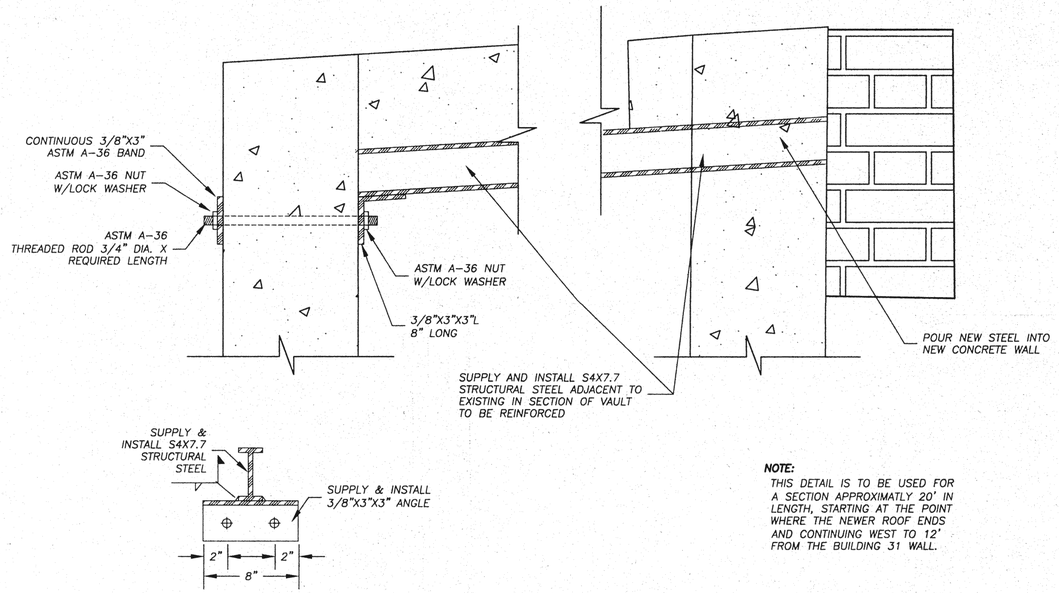
B. Seed and fertilize to meet specifications.

Figures



UTILITY TUNNEL REPAIR, STRU–1

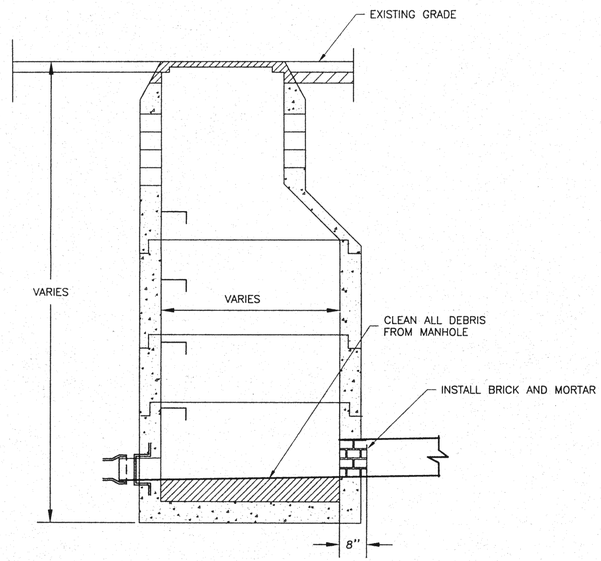
SCALE: 1"=1'



NOTE:
THIS DETAIL IS TO BE USED FOR A SECTION APPROXIMATLY 20' IN LENGTH, STARTING AT THE POINT WHERE THE NEWER ROOF ENDS AND CONTINUING WEST TO 12' FROM THE BUILDING 31 WALL.

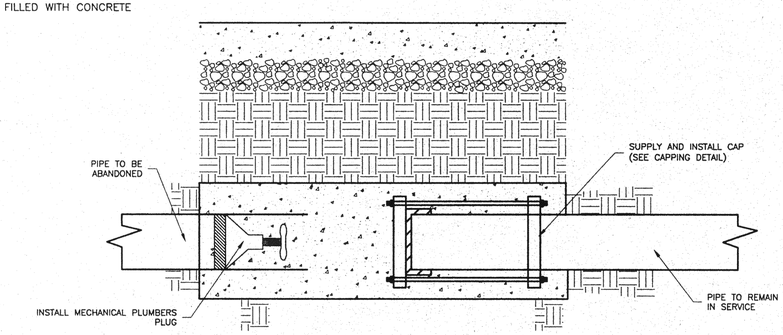
BRACKET & STEEL NSTALLATION DETAIL

SCALE: 1"=.5'



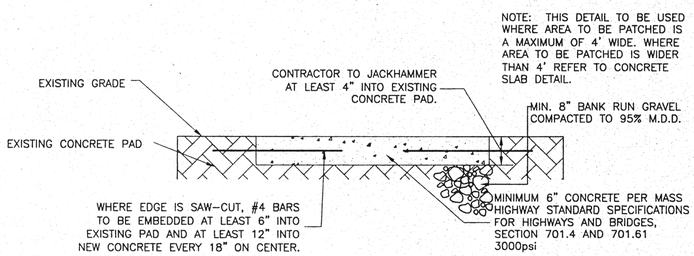
TYPICAL MANHOLE CLOSURE

N.T.S.



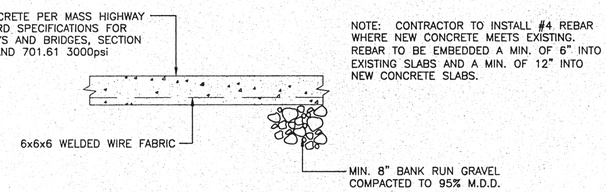
WATER MAIN CUT AND CAP

N.T.S.



CONCRETE PATCHING DETAIL

N.T.S.



NOTE: CONTRACTOR TO INSTALL #4 REBAR WHERE NEW CONCRETE MEETS EXISTING. REBAR TO BE EMBEDDED A MIN. OF 6" INTO EXISTING SLABS AND A MIN. OF 12" INTO NEW CONCRETE SLABS.

CONCRETE SLAB DETAIL

N.T.S.

SCALE: AS NOTED

TITLE:

BUILDING 31 DETAILS for GENERAL ELECTRIC

GENERAL ELECTRIC — PITTSFIELD, MA

NO.	REVISION	BY	DATE
1	INCORPORATE IMPERVIOUS CAP	TMA	06/08/01

WHITE ENGINEERING, INC.
CIVIL AND ENVIRONMENTAL

55 SOUTH MERRIAM STREET
PITTSFIELD, MASSACHUSETTS 01201

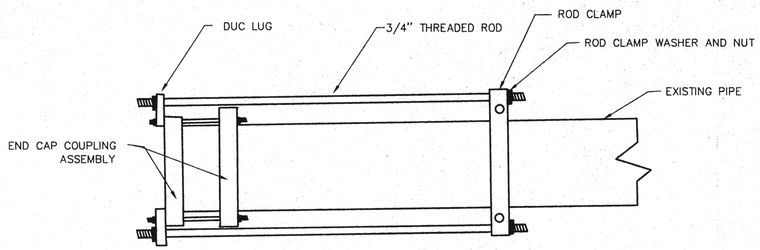
FAX (413) 443–8012 PHONE (413) 443–8011

DATE: MARCH 6, 2001 CK'D:
DR'N: JWC AP'VD:

GE31– D1

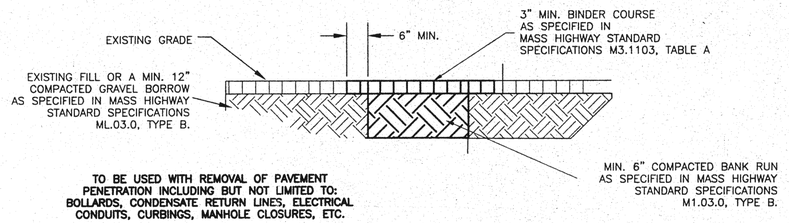
NOMINAL DIAMETER OF FITTING	BEARING AREAS – SQUARE FEET				
	FITTING				
	DEAD END	BRANCH OF TEE	90° BEND	45° BEND	BEND <45° >10°
6"	2	2	3	2	2
8"	4	4	5	3	2
10"	6	6	8	4	2
12"	8	8	10	6	3
14"	12	12	16	9	4
16"	12	12	20	10	5

1. ALL BENDS, TEES, HYDRANTS, AND DEAD ENDS SHALL BE BRACED WITH CONCRETE THRUST BLOCKS.
2. BEARING AREA IS AREA OF CONCRETE IN CONTACT WITH WALL OF TRENCH = H X L.
3. HEIGHT (H) AND LENGTH (L) AS REQUIRED TO OBTAIN BEARING AREA IN TABLE.



TYPICAL CAPPING DETAIL

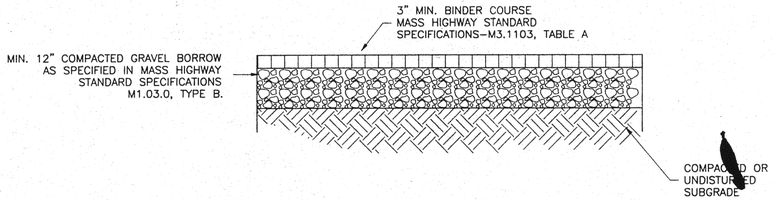
N.T.S.



TO BE USED WITH REMOVAL OF PAVEMENT PENETRATION INCLUDING BUT NOT LIMITED TO: BOLLARDS, CONDENSATE RETURN LINES, ELECTRICAL CONDUITS, CURBINGS, MANHOLE CLOSURES, ETC.

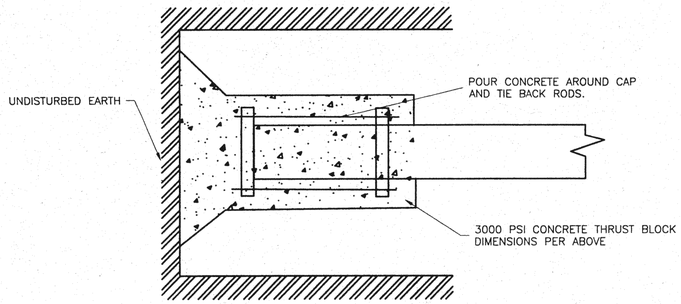
PAVEMENT PATCHING DETAIL

N.T.S.



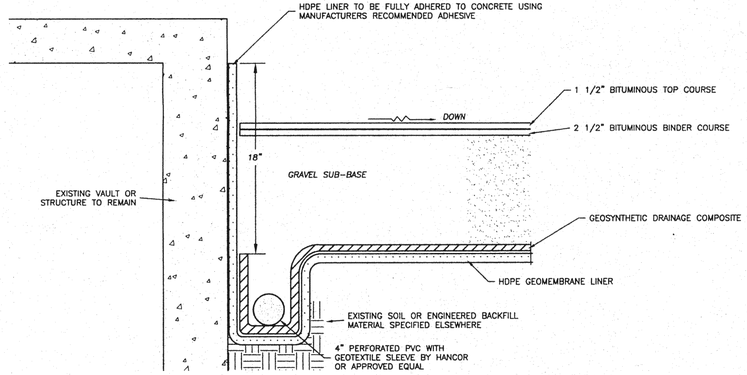
PAVEMENT RESTORATION DETAIL

N.T.S.



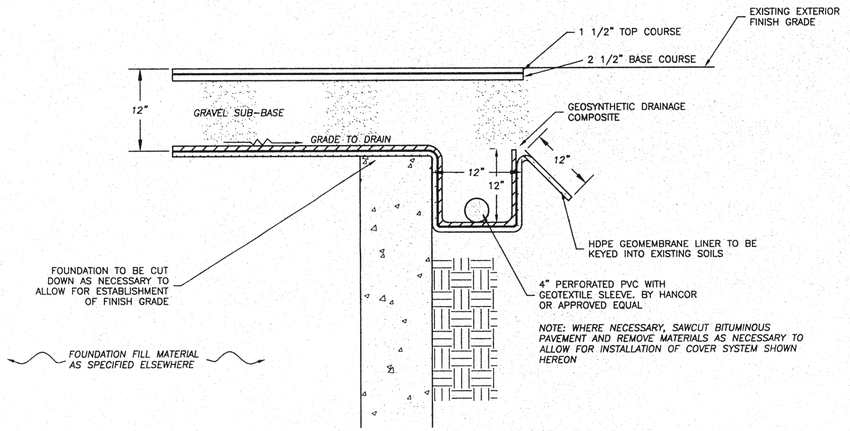
THRUST BLOCK DETAIL

N.T.S.



IMPERMEABLE ASPHALT COVER @ VAULT (TYPICAL)

N.T.S.



IMPERMEABLE ASPHALT COVER @ FOUNDATION WALL (TYPICAL)

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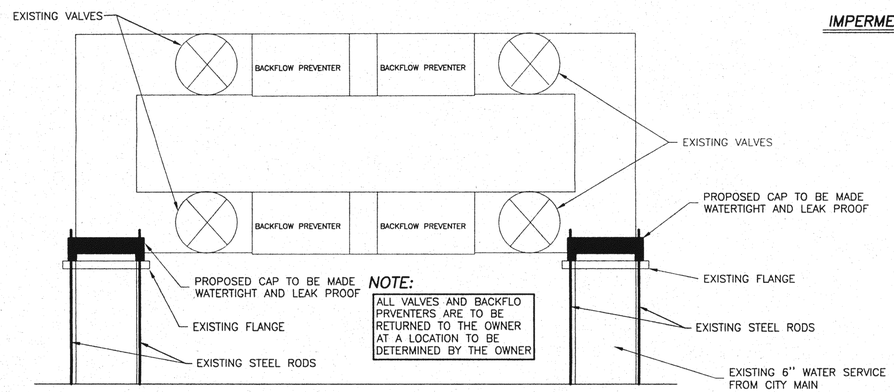


BUILDING 43A CAPPING DETAIL

N.T.S.

SCALE: AS NOTED

TITLE:

BUILDING 31 DETAILS for GENERAL ELECTRIC

GENERAL ELECTRIC — PITTSFIELD, MA

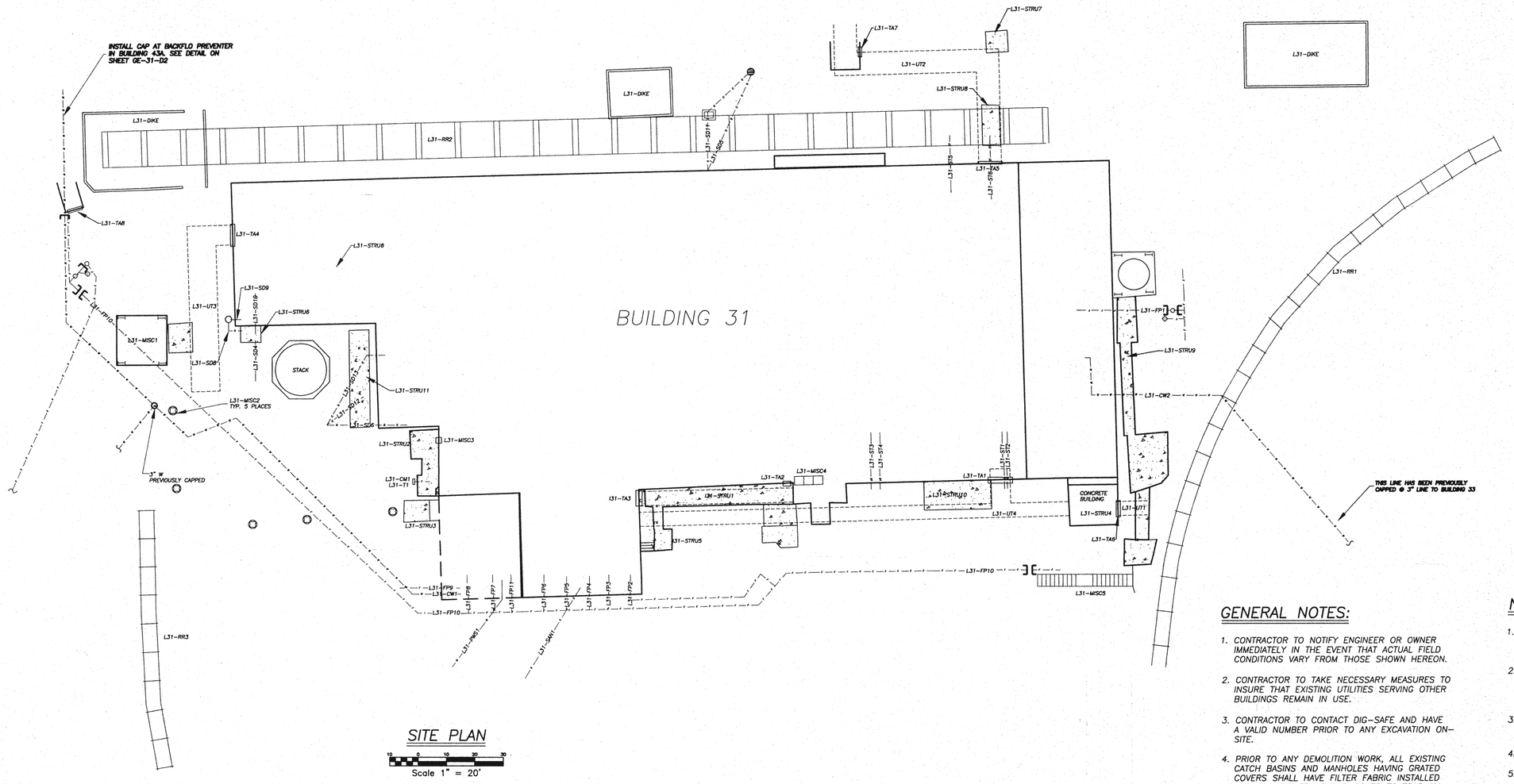
NO.	REVISION	BY	DATE
1	INCORPORATE IMPERVIOUS CAP	TMA	06/08/01

WHITE ENGINEERING, INC.
CIVIL AND ENVIRONMENTAL

55 SOUTH MERRIAM STREET
PITTSFIELD, MASSACHUSETTS 01201

FAX (413) 443-8012 PHONE (413) 443-8011

DATE: MARCH 6, 2001	CK'D:	GE31-D2
DR'N: JWC	AP'VD:	



SITE PLAN

10 0 10 20 30

Scale 1" = 20'

LEGEND

○	BOLLARD
○	ABOVE GROUND VALVE
◇	HYDRANT
◎	2' DIAMETER CATCH BASIN
⊙	CONCRETE PIPE SUPPORT
[	CUT AND CAPPING LOCATION (APPROXIMATE)
—st—	STEAM SYSTEM LINE
—d—	DRAIN LINE
—f—	FIRE PROTECTION LINE
—s—	SEWER LINE
—t—	TELEPHONE LINE
—w—	WATER LINE
L31-FP1	FIRE PROTECTION LINE ID (1-11)
L31-CW1	CITY WATER LINE ID (1-2)
L31-SAN1	SANITARY SEWER LINE ID (1 ONLY)
L31-SD1	STORM DRAIN ID (1-14)
L31-ST1	STEAM LINE ID (1-6)
L31-T1	TELEPHONE LINE ID
L31-CM1	COMMUNICATION LINE ID (1 ONLY)
L31-PWS1	PROCESS WATER SUPPLY ID (1 ONLY)
L31-STRU1	STRUCTURE ID (1-11)
L31-TA1	TUNNEL ACCESS ID (1-8)
L31-UT1	UNDERGROUND TUNNEL ID (1-4)
L31-RR1	RAILROAD LINE ID (1-3)
L31-MISC1	MISCELLANEOUS ITEM ID (1-5)
L31-DIKE	DIKE (NO ID NUMBERS)

GENERAL NOTES:

1. CONTRACTOR TO NOTIFY ENGINEER OR OWNER IMMEDIATELY IN THE EVENT THAT ACTUAL FIELD CONDITIONS VARY FROM THOSE SHOWN HEREON.
2. CONTRACTOR TO TAKE NECESSARY MEASURES TO INSURE THAT EXISTING UTILITIES SERVING OTHER BUILDINGS REMAIN IN USE.
3. CONTRACTOR TO CONTACT DIG-SAFE AND HAVE A VALID NUMBER PRIOR TO ANY EXCAVATION ON-SITE.
4. PRIOR TO ANY DEMOLITION WORK, ALL EXISTING CATCH BASINS AND MANHOLES HAVING GRATED COVERS SHALL HAVE FILTER FABRIC INSTALLED BETWEEN THE FRAME AND COVER TO TRAP ALL SEDIMENT RESULTING FROM DEMOLITION ACTIVITIES AND SHALL BE MAINTAINED UNTIL DEEMED REMOVABLE BY THE OWNER.
5. CONTRACTOR TO PROVIDE ACCURATE AS-BUILT LOCATION SKETCH OF INSTALLED UNDERGROUND CAPS. DIMENSIONS OF CAPS FROM AT LEAST TWO EXISTING PERMANENT STRUCTURES, TO BE PROVIDED.

NOTES:

1. THIS PLAN DEPICTS SELECT STRUCTURES AND UTILITIES ENTERING BUILDING 31. IT DOES NOT REPRESENT AN INVENTORY OF ALL PENETRATIONS.
2. CONTRACTOR TO NOTIFY AND COORDINATE WITH OWNER ALL ACTIVITIES REQUIRED TO WITNESS INTEGRITY OF CAPPED AND PRESSURIZED MUNICIPAL AND FIRE PROTECTION SUPPLY LINES.
3. CONTRACTOR TO NOTIFY AND COORDINATE WITH OWNER ALL ACTIVITIES REQUIRED TO ISOLATE, SHUTDOWN AND DRAIN ALL MUNICIPAL AND FIRE PROTECTION SUPPLY LINES.
4. SEE ASSOCIATED DRAWINGS FOR ADDITIONAL INFORMATION.
5. REFER TO SPECIFICATIONS ON REQUIREMENTS FOR EXCAVATION, LINE PRESSURE TESTING, BACKFILL, AND SURFACE PATCHING.
6. USE DETAIL SHEETS WITH THIS DRAWING.

INFORMATION ON THIS DRAWING WAS COMPILED USING THE FOLLOWING AS REFERENCE:

BBL DWG - (5/96) GE ASSESSMENT OF PREFERENTIAL PATHWAYS STORM SEWER FIGURE 2-1
BBL DWG - (3/96) GE ASSESSMENT OF PREFERENTIAL PATHWAYS SANITARY SEWER FIGURE 2-2
BBL DWG - (3/96) GE ASSESSMENT OF PREFERENTIAL PATHWAYS MUNICIPAL WATER MAINS FIGURE 2-3
BBL DWG - (3/96) GE ASSESSMENT OF PREFERENTIAL PATHWAYS (WATER MAINS) FIRE PROTECTION FIGURE 2-4
BBL DWG - (3/96) GE ASSESSMENT OF PREFERENTIAL PATHWAYS NATURAL GAS MAINS FIGURE 2-5
BBL DWG - (4/97) GE ASSESSMENT OF PREFERENTIAL PATHWAYS UNDERGROUND ELECT. DUCTS FIGURE 2-6
BBL DWG - (4/96) GE ASSESSMENT OF PREFERENTIAL PATHWAYS UNDERGROUND TUNNELS FIGURE 2-7
BBL DWG - (5/96) GE ASSESSMENT OF PREFERENTIAL PATHWAYS PROCESS AND PRODUCT LINES FIGURE 2-8
BBL DWG - (5/96) GE ASSESSMENT OF PREFERENTIAL PATHWAYS OTHER PIPING NETWORKS FIGURE 2-9
VARIOUS NOTED DRAWINGS FROM OWNER:
G.E. WATER MAIN SHEET 2 OF 6 NO. 113-D-6082
G.E. SKETCH NUMBER 25 , MANHOLE 135 , 137 , 139.
WHITE ENGINEERING AND OWNER FIELD VISITS.

SCALE: AS NOTED

TITLE:

GENERAL ELECTRIC BUILDING 31 IDENTIFICATION OF UTILITY CAPPING LOCATIONS AND EXTERIOR STRUCTURES

WOODLAWN AVE. PITTSFIELD, MA

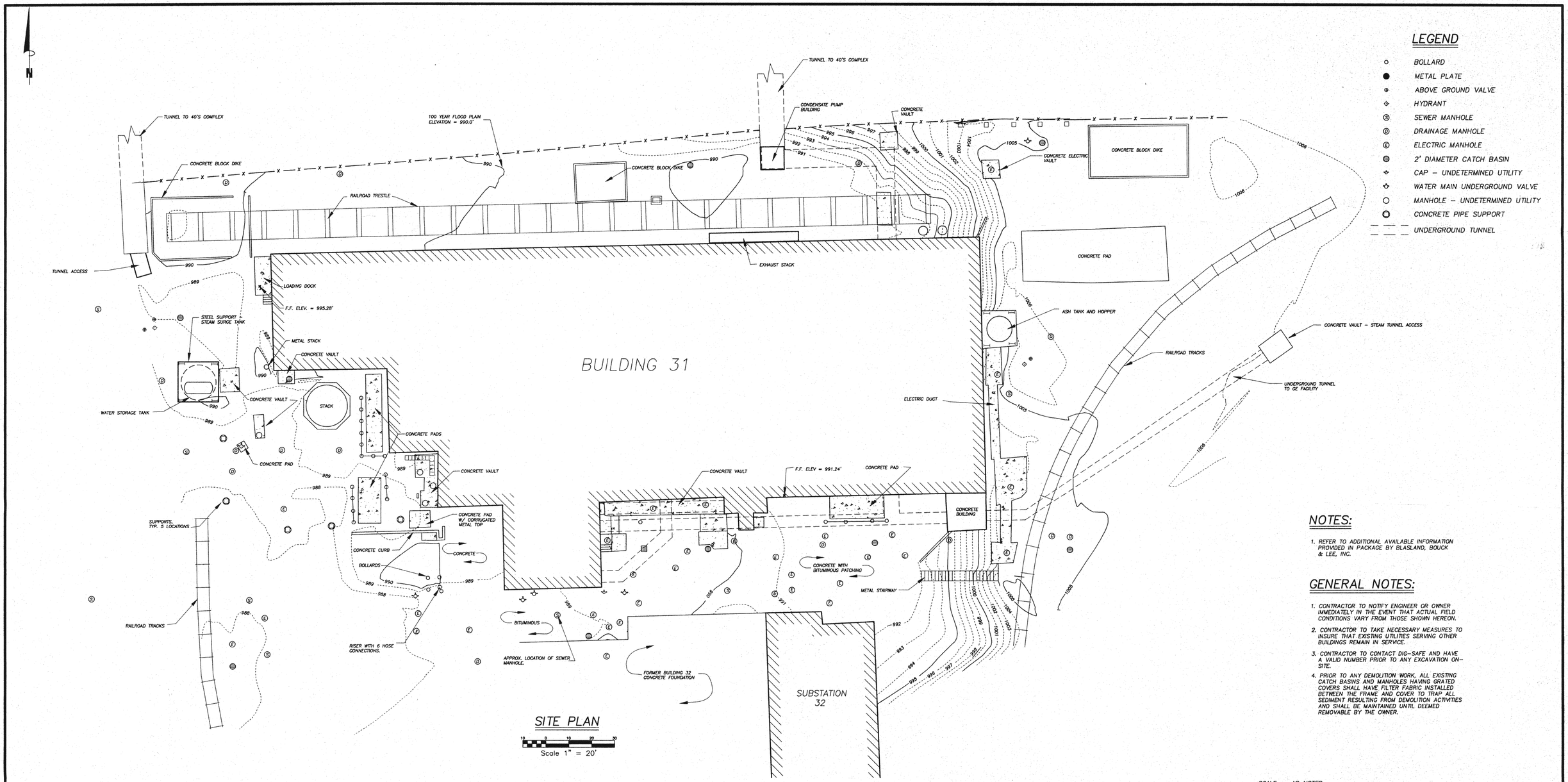
NO.	REVISION	BY	DATE

WHITE ENGINEERING, INC.
CIVIL AND ENVIRONMENTAL

55 SOUTH MERRIAM STREET
PITTSFIELD, MASSACHUSETTS 01201

FAX (413) 443-8012 PHONE (413) 443-8011

DATE: MARCH 6, 2001	CK'D:	GE-31-P1
DR'N: BCM & SNM	AP'VD:	



SITE PLAN

Scale 1" = 20'

LEGEND

- BOLLARD
- METAL PLATE
- ABOVE GROUND VALVE
- HYDRANT
- SEWER MANHOLE
- DRAINAGE MANHOLE
- ELECTRIC MANHOLE
- 2' DIAMETER CATCH BASIN
- CAP – UNDETERMINED UTILITY
- WATER MAIN UNDERGROUND VALVE
- MANHOLE – UNDETERMINED UTILITY
- CONCRETE PIPE SUPPORT
- UNDERGROUND TUNNEL

NOTES:

1. REFER TO ADDITIONAL AVAILABLE INFORMATION PROVIDED IN PACKAGE BY BLASLAND, BOUCK & LEE, INC.

GENERAL NOTES:

1. CONTRACTOR TO NOTIFY ENGINEER OR OWNER IMMEDIATELY IN THE EVENT THAT ACTUAL FIELD CONDITIONS VARY FROM THOSE SHOWN HEREON.
2. CONTRACTOR TO TAKE NECESSARY MEASURES TO INSURE THAT EXISTING UTILITIES SERVING OTHER BUILDINGS REMAIN IN SERVICE.
3. CONTRACTOR TO CONTACT DIG-SAFE AND HAVE A VALID NUMBER PRIOR TO ANY EXCAVATION ON-SITE.
4. PRIOR TO ANY DEMOLITION WORK, ALL EXISTING CATCH BASINS AND MANHOLES HAVING GRATED COVERS SHALL HAVE FILTER FABRIC INSTALLED BETWEEN THE FRAME AND COVER TO TRAP ALL SEDIMENT RESULTING FROM DEMOLITION ACTIVITIES AND SHALL BE MAINTAINED UNTIL DEEMED REMOVABLE BY THE OWNER.

INFORMATION ON THIS DRAWING WAS COMPILED USING THE FOLLOWING AS REFERENCE:

TOPOGRAPHICAL SURVEY PERFORMED BY WHITE ENGINEERING ON JULY 20, 21, 22, 1999
BBL DWG – (5/96) GE ASSESSMENT OF PREFERENTIAL PATHWAYS STORM SEWER FIGURE 2-1
BBL DWG – (3/96) GE ASSESSMENT OF PREFERENTIAL PATHWAYS SANITARY SEWER FIGURE 2-2
BBL DWG – (3/96) GE ASSESSMENT OF PREFERENTIAL PATHWAYS MUNICIPAL WATER MAINS FIGURE 2-3
BBL DWG – (3/96) GE ASSESSMENT OF PREFERENTIAL PATHWAYS (WATER MAINS) FIRE PROTECTION FIGURE 2-4
BBL DWG – (3/96) GE ASSESSMENT OF PREFERENTIAL PATHWAYS NATURAL GAS MAINS FIGURE 2-5
BBL DWG – (4/67) GE ASSESSMENT OF PREFERENTIAL PATHWAYS UNDERGROUND ELECT. DUCTS FIGURE 2-6
BBL DWG – (4/96) GE ASSESSMENT OF PREFERENTIAL PATHWAYS UNDERGROUND TUNNELS FIGURE 2-7
BBL DWG – (5/96) GE ASSESSMENT OF PREFERENTIAL PATHWAYS PROCESS AND PRODUCT LINES FIGURE 2-8
BBL DWG – (5/96) GE ASSESSMENT OF PREFERENTIAL PATHWAYS OTHER PIPING NETWORKS FIGURE 2-9

SCALE: AS NOTED

TITLE:

GENERAL ELECTRIC BUILDING 31
PLAN OF
EXISTING SITE CONDITIONS

WOODLAWN AVE. PITTSFIELD, MA

NO.	REVISION	BY	DATE

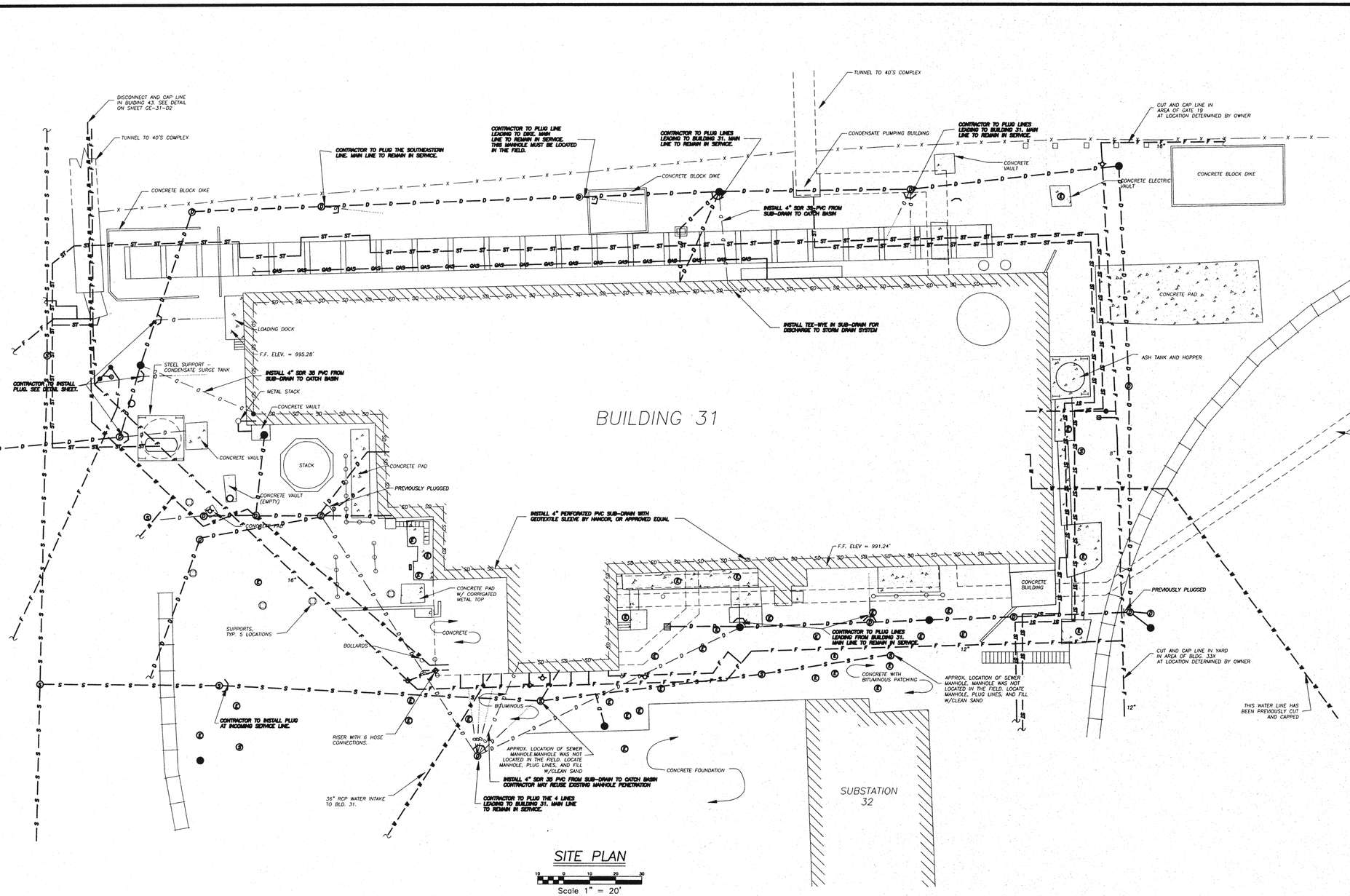
WHITE ENGINEERING, INC.
CIVIL AND ENVIRONMENTAL

55 SOUTH MERRIAM STREET
PITTSFIELD, MASSACHUSETTS 01201

FAX (413) 443-8012 PHONE (413) 443-8011

DATE: MARCH 6, 2001 CK'D:
DR'N: BCM & SNM AP'VD:

GE-31-S1



SITE PLAN

10 0 10 20 30

Scale 1" = 20'

LEGEND

- BOLLARD
- ABOVE GROUND VALVE
- HYDRANT
- SEWER MANHOLE
- DRAINAGE MANHOLE
- ELECTRIC MANHOLE
- 2' DIAMETER CATCH BASIN
- CAP – UNDETERMINED UTILITY
- WATER MAIN UNDERGROUND VALVE
- MANHOLE – UNDETERMINED UTILITY
- CONCRETE PIPE SUPPORT
- ST — STEAM SYSTEM LINE
- D — STORM DRAIN LINE
- E — ELECTRIC LINE
- F — FIRE PROTECTION LINE
- GAS — GAS LINE
- W — MUNICIPAL WATER LINE
- S — SEWER LINE
- T — TELEPHONE LINE
- APPROXIMATE PLUG LOCATION
- SD — PROPOSED SUB-DRAIN

NOTES:

1. ELECTRICAL VAULTS AND DUCT RUNS TO BE PROTECTED FROM DAMAGE DURING DEMOLITION.
2. ALL STEAM SYSTEM LINES, ASSOCIATED EQUIPMENT, STRUCTURES, UNDERGROUND TUNNELS AND CONDENSATE SURGE TANK TO BE PROTECTED FROM DAMAGE DURING DEMOLITION.
3. NATURAL GAS LINE IS INACTIVE AND PARTIALLY REMOVED.
4. REFER TO DRAWING GE-31-E2 FOR INFORMATION REGARDING UNDERGROUND ELECTRIC LINES.
5. THERE ARE NUMEROUS ELECTRIC VAULTS IN THE AREA BETWEEN SUBSTATION 32 AND THE SOUTHEAST PORTION OF BUILDING 31. CAUTION SHOULD BE USED WITH HEAVY EQUIPMENT IN THIS AREA.

GENERAL NOTES:

1. CONTRACTOR TO NOTIFY ENGINEER OR OWNER IMMEDIATELY IN THE EVENT THAT ACTUAL FIELD CONDITIONS VARY FROM THOSE SHOWN HEREON.
2. CONTRACTOR TO TAKE NECESSARY MEASURES TO INSURE THAT EXISTING UTILITIES SERVING OTHER BUILDINGS REMAIN IN USE.
3. CONTRACTOR TO CONTACT DIG-SAFE AND HAVE A VALID NUMBER PRIOR TO ANY EXCAVATION ON-SITE.
4. PRIOR TO ANY DEMOLITION WORK, ALL EXISTING CATCH BASINS AND MANHOLES HAVING GRATED COVERS SHALL HAVE FILTER FABRIC INSTALLED BETWEEN THE FRAME AND COVER TO TRAP ALL SEDIMENT RESULTING FROM DEMOLITION ACTIVITIES AND SHALL BE MAINTAINED UNTIL DEEMED REMOVABLE BY THE OWNER.

INFORMATION ON THIS DRAWING WAS COMPILED USING THE FOLLOWING AS REFERENCE:

TOPOGRAPHICAL SURVEY PERFORMED BY WHITE ENGINEERING ON JULY 20, 21, 22, 1999
BBL DWG – (5/96) GE ASSESSMENT OF PREFERENTIAL PATHWAYS STORM SEWER FIGURE 2-1
BBL DWG – (3/96) GE ASSESSMENT OF PREFERENTIAL PATHWAYS SANITARY SEWER FIGURE 2-2
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BBL DWG – (5/96) GE ASSESSMENT OF PREFERENTIAL PATHWAYS PROCESS AND PRODUCT LINES FIGURE 2-8
BBL DWG – (5/96) GE ASSESSMENT OF PREFERENTIAL PATHWAYS OTHER PIPING NETWORKS FIGURE 2-9
FIELD RESEARCH PERFORMED BY BB&L, AUGUST, 1999
INFORMATION PROVIDED BY OWNER

SCALE: AS NOTED

TITLE:

GENERAL ELECTRIC BUILDING 31
SITE PLAN OF UNDERGROUND UTILITIES

WOODLAWN AVE. PITTSFIELD, MA

NO.	REVISION	BY	DATE
1	INCORPORATE IMPERVIOUS CAP	TMA	06/08/01

WHITE ENGINEERING, INC.
CIVIL AND ENVIRONMENTAL

55 SOUTH MERRIAM STREET
PITTSFIELD, MASSACHUSETTS 01201

FAX (413) 443-8012 PHONE (413) 443-8011

DATE: MARCH 6, 2001 CK'D:

DR'N: BCM & SNM AP'VD:

GE-31-S2

N

BUILDING 31

SUBSTATION 32

TUNNEL TO 40'S COMPLEX

CHANGE SOLID COVERS TO HEAVY DUTY GRATES

100 YEAR FLOOD PLAIN ELEVATION = 990.0'

APPROXIMATE LOCATION OF 990 CONTOUR, NORTH OF FENCE.

ADD TOPSOIL AS NECESSARY TO INSURE DRAINAGE. AREA TO BE RESEEDED.

CONCRETE BLOCK DIKE

CONCRETE VAULT

CONCRETE ELECTRIC VAULT

TOP DRESS AREA WITH TOPSOIL AND RESEED.

CONCRETE PAD

ASH TANK AND HOPPER

CONCRETE SLAB TO REMAIN

PORTION OF COLUMNS TO REMAIN TO SUPPORT STEAM LINES.

UNDERGROUND TUNNEL TO GE FACILITY

LOADING DOCK

F.F. ELEV. = 995.28'

STEEL SUPPORT STEAM SURGE TANK

METAL STACK

STACK

AREA TO BE FILLED WITH CONCRETE. MATCH SURROUNDING TOP OF VAULT ELEVATIONS.

CONCRETE VAULT STRUCTURE TO REMAIN

F.F. ELEV = 991.24'

FINISH GRADE TO REMAIN AT EXISTING ELEVATION, AT OUTSIDE BUILDING FACE

GRADE TO DRAIN

CONCRETE BUILDING TO REMAIN

CONCRETE PAD W/ CORRIGATED METAL TOP

BOLLARDS

CONCRETE

CONCRETE WITH BITUMINOUS PATCHING

SECTION OF ELECTRIC VAULT TO BE REINFORCED. SEE DETAIL.

BITUMINOUS

CONCRETE FOUNDATION

CONCRETE VAULT STRUCTURE TO REMAIN

TOP DRESS AREA WITH TOPSOIL AND RESEED.

LEGEND

- BOLLARD
- ABOVE GROUND VALVE
- HYDRANT
- SEWER MANHOLE
- DRAINAGE MANHOLE
- ELECTRIC MANHOLE
- 2' DIAMETER CATCH BASIN
- CAP – UNDETERMINED UTILITY
- WATER MAIN UNDERGROUND VALVE
- MANHOLE – UNDETERMINED UTILITY
- CONCRETE PIPE SUPPORT
- 100 YEAR FLOOD PLAIN
- 991 PROPOSED CONTOUR ELEVATION
- 992 EXISTING CONTOUR ELEVATION
- × EXISTING ELEVATION SPOT GRADE

NOTES:

CONTRACTOR TO NOTIFY ENGINEER OR OWNER IMMEDIATELY IN THE EVENT THAT ACTUAL FIELD CONDITIONS VARY FROM THOSE SHOWN HEREON.

CONTRACTOR TO TAKE NECESSARY MEASURES TO INSURE THAT EXISTING UTILITIES SERVING OTHER BUILDINGS REMAIN IN SERVICE.

CONTRACTOR TO CONTACT DIG-SAFE AND HAVE A VALID NUMBER PRIOR TO ANY EXCAVATION ON SITE.

PRIOR TO ANY DEMOLITION WORK, ALL EXISTING CATCHBASINS AND MANHOLES HAVING GRATED COVERS SHALL HAVE FILTER FABRIC INSTALLED BETWEEN THE FRAME AND COVER TO TRAP ALL SEDIMENT RESULTING FROM DEMOLITION ACTIVITIES, AND SHALL BE MAINTAINED UNTIL DEEMED REMOVABLE BY THE OWNER.

THIS DRAWING WAS COMPILED USING THE FOLLOWING DRAWINGS AS REFERENCES

TOPOGRAPHICAL SURVEY PERFORMED BY WHITE ENGINEERING ON JULY 20, 21, 22, 1999
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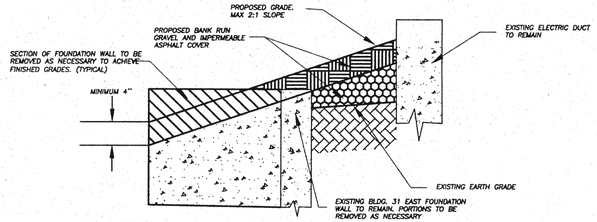
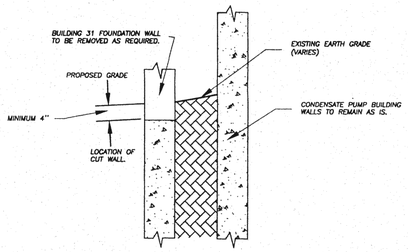


SECTION AA

N.T.S.



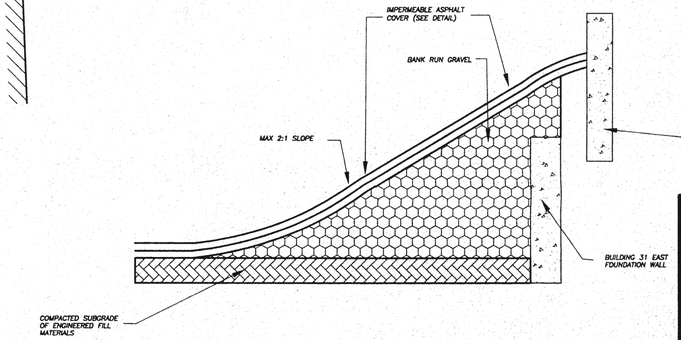
SECTION BB

N.T.S.

SITE PLAN

10 0 10 20 30

Scale 1" = 20'



SECTION CC

N.T.S.

SCALE: AS NOTED

TITLE:

GENERAL ELECTRIC BUILDING 31

FINAL SITE GRADING PLAN

WOODLAWN AVE. PITTSFIELD, MA

NO.	REVISION	BY	DATE
1	INCORPORATE IMPERVIOUS CAP	TMA	06/08/01

WHITE ENGINEERING, INC.
CIVIL AND ENVIRONMENTAL

55 SOUTH MERRIAM STREET
PITTSFIELD, MASSACHUSETTS 01201

FAX (413) 443-8012 PHONE (413) 443-8011

DATE: MARCH 6, 2001 CK'D:

DR'N: BCM & SNM AP'VD:

GE-31-S3

Appendix 1

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

Pittsfield Conservation Commission Order of Conditions

Bureau of Resource Protection – Wetlands

WPA Form 5 - Order of Conditions

BK 16581 PG 331
for Registry Use Only
10/18/99 01:39 DOC. 526605

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

A Applicant Information

From:
PITTSFIELD
Conservation Commission

For:
#263- 662
Project File Number

To:
General Electric Co.
Applicant Name
100 Woodlawn Avenue
Mailing Address
Pittsfield, MA 01201
City/Town

State *Zip Code*

The Notice of Intent for this project was filed on:
September 20, 1999
Date

The public hearing was closed on:
September 30, 1999
Date

Title and Date of final Plans and Other Documents:
N.O.I. WPA Form 3
Wetlands Permitting Plan 9/22/99

The project site is located at: Silver Lake Boulevard and East Street
Pittsfield
City/Town
I10-4-3 and I10-4-15
Assessors Map/Plat # *Parcel/Lot #*

and the property is recorded at the Registry of Deeds for:
Berkshire Middle District 896 96
County *Book* *Page*

Certificate (if registered land)

B Findings

Findings pursuant to the Massachusetts Wetlands Protection Act:

Following the review of the above-referenced Notice of Intent and based on the information provided in this application and presented at the public hearing, this commission finds that the area in which work is proposed is significant to the following interests of the Wetlands Protection Act (check all that apply):

- ☐ Public Water Supply
- ☐ Private Water Supply
- ☐ Groundwater Supply
- ☒ Flood Control
- ☐ Land Containing Shellfish
- ☐ Fisheries
- ☒ Storm Damage Prevention
- ☐ Prevention of Pollution
- ☐ Protection of Wildlife Habitat

Furthermore, this Commission hereby finds that the project, as proposed, is:
(check one of the following boxes)

Approved subject to:

☒ the following conditions which are necessary, in accordance with the performance standards set forth in the wetlands regulations, to protect those interests checked above. This Commission orders that all the work shall be performed in accordance with the Notice of Intent referenced above, the following General Conditions, and any other special conditions attached to this Order. To the extent that the following conditions modify or differ from the plans, specifications, or other proposals submitted with the Notice of Intent, these conditions shall control.

BK 1690 PG 332

WPA Form 5 - Order of Conditions

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

B Findings (cont.)

Denied because:

☐ the proposed work cannot be conditioned to meet the performance standards set forth in the wetlands regulations to protect those interests checked above. Therefore, work on this project may not go forward unless and until a new Notice of Intent is submitted which provides measures which are adequate to protect these interests, and a final Order of Conditions is issued.

☐ the information submitted by the applicant is not sufficient to describe the site, the work, or the effect of the work on the interests identified in the Wetlands Protection Act. Therefore, work on this project may not go forward unless and until a revised Notice of Intent is submitted which provides sufficient information and includes measures which are adequate to protect the Act's interests, and a final Order of Conditions is issued. A description of the specific information which is lacking and why it is necessary is attached to this Order as per 310 CMR 10.05(b)(c).

General Conditions

1. Failure to comply with all conditions stated herein, and with all related statutes and other regulatory measures, shall be deemed cause to revoke or modify this Order.

2. The Order does not grant any property rights or any exclusive privileges; it does not authorize any injury to private property or invasion of private rights.

3. This Order does not relieve the permittee or any other person of the necessity of complying with all other applicable federal, state, or local statutes, ordinances, bylaws, or regulations.

4. The work authorized hereunder shall be completed within three years from the date of this Order unless either of the following apply:
(a) the work is a maintenance dredging project as provided for in the Act; or
(b) the time for completion has been extended to a specified date more than three years, but less than five years, from the date of issuance. If this Order is intended to be valid for more than three years, the extention date and the special circumstances warranting the extended time period are set forth as a special condition in this Order.

5. This Order may be extended by the issuing authority for one or more periods of up to three years each upon application to the issuing authority at least 30 days prior to the expiration date of the Order.

6. Any fill used in connection with this project shall be clean fill. Any fill shall contain no trash, refuse, rubbish, or debris, including but not limited to lumber, bricks, plaster, wire, lath, paper, cardboard, pipe, tires, ashes, refrigerators, motor vehicles, or parts of any of the foregoing.

7. This Order does not become final until all administrative appeal periods from this Order have elapsed, or if such an appeal has been taken, until all proceedings before the Department have been completed.

8. No work shall be undertaken until the Order has become final and then has been recorded in the Registry of Deeds or the Land Court for the district in which the land is located, within the chain of title of the affected property. In the case of recorded land, the Final Order shall also be noted in the Registry's Grantor Index under the name of the owner of the land upon which the proposed work is to be done. In the case of registered land, the Final Order shall also be noted on the Land Court Certificate of Title of the owner of the land upon which the proposed work is done. The recording information shall be submitted to this Conservation Commission on the form at the end of this Order, which form must be stamped by the Registry of Deeds, prior to the commencement of the work.

9. A sign shall be displayed at the site not less than two square feet or more than three square feet in size bearing the words,
"Massachusetts Department of Environmental Protection" [or, "MA DEP"] "File Number

263-662
Project File Number

10. Where the Department of Environmental Protection is requested to issue a Superseding Order, the Conservation Commission shall be a party to all agency proceedings and hearings before the Department.

11. Upon completion of the work described herein, the applicant shall submit a Request for Certificate of Compliance (WPA Form 8A) to the Conservation Commission.

12. The work shall conform to the following attached plans and special conditions:

Final Approved Plans (attach additional plan references as needed) :

Wetlands Permitting Plan
Title

September 22, 1999
Dated

Marshall White, P.E.
Signed and Stamped by

DEP and PITTSFIELD CONSERVATION COMM.
On the each

BK 10310 PG 333

WPA Form 5 - Order of Conditions

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

B Findings (cont.)

13. Any changes to the plans identified in Condition # 12 above shall require the applicant to inquire of the Conservation Commission in writing whether the change is significant enough to require the filing of a new Notice of Intent.

14. The Agent or members of the Conservation Commission and Department of Environmental Protection shall have the right to enter and inspect the area subject to this Order at reasonable hours to evaluate compliance with the conditions stated in this Order, and may require the submittal of any data deemed necessary by the Conservation Commission or Department for that evaluation.

15. This Order of Conditions shall apply to any successor in interest or successor in control of the property subject to this Order and to any contractor or other person performing work conditioned by this Order.

16. Prior to the start of work, and if the project involves work adjacent to a Bordering Vegetated Wetland, the boundary of the wetland in the vicinity of the proposed work area shall be marked by wooden stakes or flagging. Once in place, the wetland boundary markers shall serve as the limit of work (unless another limit of work line has been noted in the plans of record) and be maintained until a Certificate of Compliance has been issued by the Conservation Commission.

17. All sedimentation barriers shall be maintained in good repair until all disturbed areas have been fully stabilized with vegetation or other means. At no time shall sediments be deposited in a wetland or water body. During construction, the applicant or his/her designee shall inspect the erosion controls on a daily basis and shall remove accumulated sediments as needed. The applicant shall immediately control any erosion problems that occur at the site and shall also immediately notify the Conservation Commission, which reserves the right to require additional erosion and/or damage prevention controls it may deem necessary.

Special Conditions (Use additional paper if necessary)

SEE ATTACHED LIST OF SPECIAL CONDITIONS

Findings as to municipal law, bylaw, or ordinance

Furthermore, the

_____
Conservation Commission

hereby finds (check one that applies):

☐ that the proposed work cannot be conditioned to meet the standards set forth in a municipal law, ordinance, or bylaw, specifically

_____
Name and citation of municipal law, bylaw, or ordinance

Therefore, work on this project may not go forward unless and until a revised Notice of Intent is submitted which provides measures which are adequate to meet these standards, and a final Order of Conditions is issued.

☐ that the following additional conditions are necessary to comply with a municipal law, bylaw, or ordinance, specifically

_____
Name and citation of municipal law, bylaw, or ordinance.

The Commission orders that all the work shall be performed in accordance with the said additional conditions and with the Notice of Intent referenced above. To the extent that the following conditions modify or differ from the plans, specifications, or other proposals submitted with the Notice of Intent, the conditions shall control.

Additional conditions relating to municipal law, bylaw, or ordinance:

WPA Form 5 - Order of Conditions

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

B Findings (cont.)

This Order is valid for three years, unless otherwise specified as a special condition pursuant to General Conditions #4, from the date of issuance.

September 30, 1999
Date

This Order must be signed by a majority of the conservation commission. The Order must be mailed by certified mail (return receipt requested) or hand delivered to the applicant. A copy also must be mailed or hand delivered at the same time to the appropriate regional office of the Department of Environmental Protection.

Signatures:

On this 30th

day of September
Month

1999
Year

before me personally appeared

Caleb Mitchell

to me known to be the person described in and who executed the foregoing instrument and acknowledged that he/she executed the same as his/her free act and deed.

Susan Santolin
Notary Public SUSAN SANTOLIN
12/10/04
My commission expires

This Order is issued to the applicant as follows:

☐ by hand delivery on

Date

☒ by certified mail, return receipt requested, on

October 1, 1999
Date

DEP FILE # 263- 662

C Appeals

The applicant, the owner, any person aggrieved by this Order, any owner of land abutting the land subject to this Order, or any ten residents of the city or town in which such land is located, are hereby notified of their right to request the appropriate Department of Environmental Protection Regional Office to issue a Superseding Order of Conditions. The request must be made by certified mail or hand delivery to the Department, with the appropriate filing fee and a completed Appendix E: Request for Departmental Action Fee Transmittal Form, as provided in 310 CMR 10.03(7) within ten business days from the date of issuance of this Order. A copy of the request shall at the same time be sent by certified mail or hand delivery to the conservation commission and to the applicant, if he/she is not the appellant.

The request shall state clearly and concisely the objections to the Order which is being appealed and how the Order does not contribute to the protection of the interests identified in the Massachusetts Wetlands Protection Act (M.G.L. c. 131, §40 and is inconsistent with the wetlands regulations (310 CMR 10.00). To the extent that the Order is based on a municipal bylaw, and not on the Massachusetts Wetlands Protection Act or regulations, the Department of Environmental Protection has no appellate jurisdiction.

WPA Form 5 - Order of Conditions

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

D Recording Information

This Order of Conditions must be recorded in the Registry of Deeds or the Land Court for the district in which the land is located, within the chain of title of the affected property. In the case of recorded land, the Final Order shall also be noted in the Registry's Grantor Index under the name of the owner of the land subject to the Order. In the case of registered land, this Order shall also be noted on the Land Court Certificate of Title of the owner of the land subject to the Order of Conditions. The recording information shall be submitted to the

PITTSFIELD

Conservation Commission

on the form below, which must be stamped by the Registry of Deeds.

Detach on dotted line and submit to the Conservation Commission.

To: _____

Conservation Commission

Please be advised that the Order of Conditions for the project at

_____

Project Location *DEP File Number*

has been recorded at the Registry of Deeds of

_____

County

and has been noted in the chain of title of the affected property in

_____

Book

_____

Page

in accordance with the Order of Conditions issued on

_____

Date

If recorded land, the instrument number which identifies this transaction is

_____

Instrument Number

If registered land, the document number which identifies this transaction is

_____

Document Number

_____

Signature of Applicant

Special Conditions for DEP File #263-662

In addition to the State mandated General Conditions 1-17 attached hereto, the applicant also must meet the following Special Conditions.

18. Except as noted in this order, all work shall be done in accordance with all approved plans and information on file with the conservation commission, all special conditions and supporting documentation submitted to the commission as revised in this order or at the public hearing, and any commitments made by the applicant, owner or their representatives at the public hearing or in writing.

19. It is the responsibility of the applicant/owner to procure all other applicable federal, state, and local permits and approvals associated with this project.

20. The conservation office will not sign-off on the building permit for this work until the Order of conditions is filed in the Registry of Deeds in accordance with general condition #8.

21. All correspondence to the Commission on this project shall reference the DEP file # and be copied to the Western regional office of DEP in Springfield.

22. This order shall be made part of any contract documents for the project and shall be furnished to all contractors and sub-contractors. This Order shall apply to and be binding upon the applicant/owner, their employees, vendors, contractors, sub-contractors, and all successors and assigns in interest and control of the property.

23. Any changes, additions or omissions in the approved project shall be submitted in writing to the Commission for prior approval and determination of whether an amendment or new notice of intent is required. A copy of such request shall be sent to DEP in Springfield.

24. Erosion controls shall be installed in accordance with the approved plans. Haybales shall be double staked and entrenched. Silt fence shall be entrenched and of sufficient porosity to pass detained water without allowing suspended sediments to pass through the fence. An adequate stockpile of erosion control materials shall be on site at all times for emergency or routine replacement and repair.

25. The Commission office shall be notified at least 48 hours prior to commencement of work to inspect erosion controls. (499-9359)

26. Following the installation of the erosion controls, the applicant/owner shall hold a pre-construction meeting with all the individuals responsible for work at the project site.

27. The work site shall be left in stable condition at the close of each day. Erosion controls shall be inspected at that time and after each storm event and maintained or reinforced if necessary. Accumulated sediments shall be removed whenever they build up to a foot in depth behind the erosion control barriers.

28. The applicant/owner or their representative must take necessary erosion control measures to prevent silt or sediments from entering wetland resource areas. Additional erosion control measures deemed necessary by the Commission or its Agent shall be instituted by the applicant.

29. Written verification describing the disposal location of all material to be removed from the site must be submitted to the Commission.

30. Until the Certificate of Compliance is issued the applicant/owner shall notify the Commission in writing within 10 days of the subdivision or sale of the property or any portion of the property. Notification shall include the new owner's name, address and telephone number, DEP File #, and the assessor's map/block /lot numbers.

31. If work will not be completed before this Order expires, a written request for an extension must be submitted to the Commission at least 30 days before the Order expires. A copy of the request must be sent to the DEP in Springfield.

32. No later than three (3) months after project completion, the applicant shall request in writing a Certificate of Compliance from the Commission and submit the following information with the request A written statement by a professional engineer or land surveyor registered in the Commonwealth of Massachusetts certifying compliance with the approved plans referenced above and this Order and setting forth deviations, if any exist;

One set of as-built site plans prepared by a registered land surveyor or registered professional engineer showing grades, utilities, building footprints and landscaping. Plans shall show the dates of all field survey work. Information submitted in compliance with this condition shall at the same time be copied and sent to DEP in Springfield.

33. The total flood storage volume gained as a result of building and tank removal on the site is calculated to be 292,935 cubic feet. This gained flood storage volume is banked and may be used for future development of the site. All future development on the site will reference this banked flood storage volume and subtract used flood storage volume from the previous banked total.

END OF DOCUMENT

Attachment B

General Project Conditions

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GENERAL ELECTRIC COMPANY
PITTSFIELD, MASSACHUSETTS

GENERAL PROJECT CONDITIONS

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1.1 REGULATORY REQUIREMENTS

The Contractor shall comply with all federal, state, and local regulations and guidance. The Contractor shall be familiar with and adhere to all applicable regulations and shall be subject to requirements of such whether specifically addressed herein or not. Such local, state, and federal regulations and guidelines include, but may not be limited to, the following:

REGULATION	TOPIC
40 CFR 761 (TSCA)	Handling, Treatment, Storage, Transportation, and Disposal of PCB-Containing Materials
40 CFR 260-267 (RCRA)	Hazardous Waste Management Regulations
29 CFR 1910 and 1926	OSHA Standards
CFR Title 49	Department of Transportation (DOT) Requirements
310 CMR 30.0000	Massachusetts Hazardous Waste Regulations
310 CMR 40.0000	Massachusetts Contingency Plan (MCP)
310 CMR 6	Ambient Air Quality Standards for the Commonwealth of Massachusetts
310 CMR 7	Air Pollution Control
453 CMR 6	Removal, Containment or Encapsulation of Asbestos
454 CMR 22	De-leading
40 CFR Part 61	Asbestos National Emissions Standards for Hazardous Air Pollutants (NESHAP)

The Contractor will be obligated to meet the requirements of applicable environmental permits (to be obtained by GE) and/or regulations.

The Contractor shall obtain all other permits that may be required under local jurisdictions. These permits include, but are not necessarily limited to, those related to work within public roadways (Section 1.13), building permits, and zoning regulations.

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1.2 CONTRACTOR SUBMITTALS

The Contractor must provide the following information to GE:

- A detailed plan outlining the methods, equipment, and products (including manufacturer's literature) to be used to perform the work activities as described in the Work Plan and accompanying attachments.

- A detailed plan outlining the methods, equipment, and products to be used to control dust during the dismantling, demolition, debris processing/segregation and disposition activities. This plan must include a general description of the method(s) to be employed during the dust generating activities. In addition, the proposed methods for controlling dust during transport of the demolition debris from the removal area to transportation containers must be provided with the bid.

- An estimate of the quantity of debris, and liquid to be generated by the work activities, and the number of containers anticipated to be utilized during the demolition activities. The estimate shall include a breakdown of the anticipated amount of personal protective equipment, demolition debris, and liquids generated by the work activities.

- Specifications for the number and type of containers to be used for storage of dust, debris, and liquids generated by the work activities prior to transportation and off-site disposal. The Contractor is responsible for providing all necessary containers. The Contractor shall also identify the proposed location(s) for staging of containers for the storage and transport of wastes generated during the demolition activities. The proposed location for staging demolition debris prior to placement in the basement shall also be identified.

- A bar graph type schedule presenting the time required to complete each work activity.

- Contractor's Certificates of Insurance.

- A Project Management Chart presenting the names and titles of individuals responsible for conducting the work activities. GE requires that the Contractor's Project Manager be on-site at all times during the work activities.

- A site-specific Health and Safety Plan (HASP) and Contingency Plan to be used during the work activities prepared in accordance with the Work Plan and all applicable rules and regulations contained in 29 CFR 1910 (OSHA), and which shall, at a minimum, include the items identified in Sections 1.4 and 1.5.

- A Decontamination Plan to be used during personnel and equipment decontamination activities as part of the work activities described in the Work Plan. All wash water from decontamination activities shall be placed in appropriate containers for transportation and off-site disposal by GE.

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- A Site Management Plan that provides the information required under Section 1.3. (The reviewed Site Management Plan shall be provided to the Contractor's personnel and subcontractors directly involved in the completion of the demolition activities outlined in the Work Plan.)

- Other submittals as required under each Work Task (refer to Attachment A to the Work Plan) as well as under the Technical Specifications (Attachment C to the Work Plan).

1.3 SITE MANAGEMENT PLAN

Prior to site mobilization, the Contractor shall prepare a Site Management Plan for GE review and approval. This plan shall address, but not be limited to, the following items:

- Identification of Contractor Site Manager;

- List of equipment to be used on-site;

- Access control and sign-in/sign-out procedures;

- Safety, security, and protection of all adjacent properties;

- Security provisions for Building 31 Area;

- Work schedule;

- Plan for controlling vehicular and pedestrian traffic during construction and operational activities;

- Stormwater (including run-on and run-off), erosion, noise, and dust control measures;

- Copies of all permits necessary to implement the demolition activities including the Asbestos Removal Notification form required by the State of Massachusetts and the demolition permit required by the City of Pittsfield;

- Figures that depict the Contractor's approach to completing the activities presented in the Work Plan;

- Plans and sections depicting sizes and materials of construction for the staging areas, on-site storage areas, equipment, and personnel decontamination areas;

- Methods to be used to verify the locations of existing utilities, structures, etc. located in the vicinity of the work area;

- Lists of anticipated waste streams to be generated for off-site disposal (by GE) and anticipated volumes;

- Proposed methods for handling and containerizing each waste stream;

- Equipment cleaning procedures; and

- All other plans, submittals, documents, etc. required in the Work Tasks (Attachment A to the Work Plan).

The purpose of the Site Management Plan will be to summarize the materials, procedures, and controls that the Contractor intends to utilize during demolition and construction activities. The Site Management Plan should address all appropriate issues described in the Work Plan.

1.4 HEALTH AND SAFETY PLAN

The Contractor shall prepare, submit, and implement a site-specific HASP that, at a minimum, meets the requirements of 29 CFR 1910 and 29 CFR 1926 (which includes 29 CFR 1926.65), and which is consistent with the requirements of GE's site HASP which was previously provided to EPA on January 24, 2001. The Contractor's HASP shall cover all personnel who will be employed by the Contractor to perform demolition/consolidation work at the site, including direct employees as well as subcontractors. If the Contractor does not wish to include subcontractors under its HASP, then each subcontractor will be responsible for developing and implementing a HASP that meets the requirements outlined in the Work Plan. The Contractor will be responsible for ensuring that all of its subcontractors have adequate HASPs prior to any on-site work by the subcontractor, and are adhering to the HASPs during the work activities. If a subcontractor agrees to be included under the Contractor's HASP, then a statement to this effect shall be submitted to GE.

The areas and materials subject to demolition/construction as part of this Contract may contain hazardous constituents. The results of prior investigation activities related to this Contract are available, and are attached to the Work Plan. It is the Contractor's responsibility to understand and incorporate the information obtained from these prior activities in the preparation of the cost proposal and in the development of a HASP.

For work required by the Contract involving the potential for personnel contact or exposure to PCBs and other hazardous constituents, the Contractor must comply with 29 CFR 1910, 29 CFR 1926, 40 CFR 260-267, and related regulations which call for the development and implementation of a safety and health program for employees involved in hazardous waste operations. The Contractor will be required to comply with all requirements under these regulations for this project.

The Contractor shall also assume that the building materials are regulated as a hazardous waste under Resource Conservation and Recovery Act (RCRA). In addition, the Contractor shall assume that painted equipment and building materials contain lead-based paint.

Prior to commencement of site activities, the Contractor must certify that personnel employed at the site, who are directly involved with removal measures, including employees and subcontractors, have completed a 40-hour hazardous waste site health and safety training course (and annual refresher training) in accordance with 29 CFR 1910.120 and 29 CFR 1926.65. The Contractor must also certify that any individuals who later became employed by the Contractor also receive such training prior to performing work at the site.

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The Contractor must certify that all personnel who will be employed by the Contractor to perform work at the site, including direct employees as well as subcontractors, have received the initial and annual (if applicable) medical examinations and are enrolled in an on-going medical surveillance program as required by 29 CFR 1910 and 29 CFR 1926.

The Contractor must also comply with the Department of Labor Safety and Health Regulations for construction promulgated under the Occupational Safety and Health Act of 1970 (PL 91-596) and under Section 107 of the Contract Work Hours and Safety Standards Act (PL 91-54).

The Contractor will be responsible for the safety of its employees, subcontractors, suppliers, and other parties at the work area as a result of the Contractor's direction.

The Contractor must prepare, submit, and implement a HASP in accordance with 40 CFR 1910.120, 29 CFR 1926.65. The plan must address, but not be limited to, the following components:

1. Identification of Key Personnel - Identify, by name and by title, the on-site and off-site health and safety personnel responsible for the implementation of health and safety procedures. All on-site personnel involved in the measures must have OSHA 40-hour Hazardous Waste Training (29 CFR 1910.120 and 1926.65) and the corresponding 8-hour refresher course update.

2. Training - Describe and provide certification of all supervisory and on-site personnel having received appropriate health and safety training. Training requirements shall also include attending an initial site orientation prior to engaging in any on-site activities. Sign-off sheets acknowledging attendance shall be provided.

3. Medical Surveillance - Certify that all supervisory and on-site personnel have received appropriate medical examinations and are able to conduct the tasks required for this project including, but not limited to, working with chemicals, using respiratory protection, using personal protective equipment and conducting hazardous waste operations in accordance with 29 CFR 1910.120 and 1926.65.

4. Task-specific Hazard/Risk Analysis - Identify and provide a means of mitigating all foreseeable biological, chemical, and physical hazards associated with the work, including, but not limited to, hazards associated with exposure to constituents of concern, heavy equipment operation, site conditions, weather, biological hazards, materials handling, and work around excavated areas.

5. Work Zones - Provide a Site Plan which depicts the designation of zones including: (1) Exclusion Zones (2) Decontamination Zones, and (3) Support Zones. The level of personal protection for each zone must be included.

6. Personal Safety Equipment and Protective Clothing - Identify personal safety equipment and protective clothing to be used and available on-site. This shall include identification of expected levels of protection (A, B, C, and D) for each task and the action levels for personal protective equipment upgrades. A respiratory protection program that meets the requirements of 29 CFR 1910.134, and which establishes specific requirements for any respirator use shall be included.

7. Personal Air Monitoring - Identify protocols and criteria associated with personal air monitoring of on-site personnel.

8. Equipment Decontamination - Describe methods and procedures to be used for personnel, vehicle, and equipment decontamination.

9. Material Safety Data Sheets - Provide Material Safety Data Sheets (MSDSs) for all materials to be brought on site, as well as constituents that are expected to be encountered in the course of the construction activities.

10. Construction Safety Procedures (OSHA 1926.1 - 1926.652, Subpart A-P) to address excavation and trenching safety procedures, as well as daily site safety inspection checklist to evaluate these items.

11. Standard Operating Procedures and Safety Programs as required by applicable sections of 29 CFR 1910 and 1926.

The HASP, and all subcontractor HASPs, shall be submitted to GE for recordkeeping purposes (i.e., a formal review of the plan will not be performed) at least 7 days prior to mobilization to the site. Determination of the appropriate level of worker safety equipment, procedures, or modification to equipment and procedures based on site conditions must be made by the Contractor as a result of site visit(s), review of available information, and anticipated site activities.

Should the Contractor identify any unforeseen or site-specific safety-related factor, hazard, or condition, or if one should become evident during the performance of work at the site, it will be the Contractor's responsibility to bring such to the attention of GE both verbally and in writing as quickly as possible for resolution. In the interim, the Contractor should take prudent action to establish and maintain safe working conditions and to safeguard employees, the public, and the environment.

Should the Contractor seek relief from, or substitution for, any portion or provision of the HASP, such relief or substitution must be requested of GE in writing, and if approved, be authorized in writing.

Any disregard for the provisions of these Health and Safety requirements will be deemed just and sufficient cause for termination of the Contract without compromise.

1.5 CONTINGENCY PLAN

The Contractor must prepare, submit, and implement a Contingency Plan that includes, at a minimum, the following items:

- A spill prevention control and countermeasures plan for all materials brought on the site;
- Emergency vehicular access/egress;

- Evacuation procedures of personnel from the work site;

- A listing of all contact personnel with phone numbers to include: GE, the Contractor; the City of Pittsfield; fire officials; ambulance service; local, county, and State Police; and local hospitals, including routes to local hospitals and procedures for notifying each; and

- Identification of responsible personnel who will be in a position at all times to receive incoming phone calls and to dispatch Contractor personnel and equipment in the event of an emergency situation. The telephone number(s) must be supplied to GE not less than five (5) days prior to the commencement of work.

The Contractor's Contingency Plan must be consistent with the Contingency and Emergency Procedures Plan prepared by GE, which was submitted to EPA in January 2001.

1.6 PROJECT SCHEDULE

As part of the Site Management Plan (see Section 1.3), the Contractor must submit a proposed draft Construction Schedule to GE for review and approval. The draft schedule should be a horizontal bar graph including all elements of the construction activities, and be neatly prepared and labeled indicating all anticipated start and completion dates. Additional requirements are provided below:

- Provide separate lines for each section of work, identifying the first work day of each week;

- Schedule for completion for each Work Task specified in this Scope of Work;

- Show complete sequence of construction by activity, identifying work of separate stages and other logically grouped activities including work by subcontractors. Indicate the early and late start, early and late finish, float dates, and duration; and

- Revise and resubmit a construction progress schedule on a weekly basis.

1.7 PROJECT MEETINGS

A pre-construction meeting will be held following award of the Contract and prior to Contractor mobilization to the site. This meeting will be scheduled by GE after the award of Contract. The purpose of the Pre-Construction Meeting is to review Contract requirements, review/modify the Contractor's Construction Schedule (Section 1.6), discuss the development of the Contractor's Site Management Plan (Section 1.3), introduce various project team members representing the Contractor and GE, and resolve any questions raised by said parties.

Informal or "Tailgate" meetings will routinely be held at the work site. These meetings will be attended by on-site representatives of the Contractor and GE to discuss day-to-day operations, schedule, health and safety items, outstanding issues, and the general status of the project. More formal meetings (scheduled approximate weekly) will be held on-site among representatives of the Contractor and GE. These meetings

will be held to discuss issues including, but not limited to, project status, schedule, scope of work, and overall project implementation issues.

1.8 OFFICE TRAILER AND SUPPORT SERVICES

An existing trailer equipped with heat, and electric and telephone service, is located adjacent to the Hill 78 Consolidation Area and can be used by the Contractor throughout the demolition activities. The Contractor is required, however, to provide portable sanitary facilities at or near the Building 31 Area for the duration of the project. If a trailer is desired in the vicinity of the Building 31 Area, the contractor shall supply its own (including all utilities and hook-ups) at its own expense.

In addition, the Contractor shall provide a cellular phone at the work site for the duration of site activities. The cellular phone shall be accessible to key site personnel so that they can contact others or be contacted as required.

1.9 WORK HOURS

GE anticipates that on-site work activities can be conducted during daylight hours (as restricted by any local ordinances), five days per week (Monday through Friday), except in cases of emergency or unless prior approval has been obtained from GE.

1.10 WORKING LIMITS

The Contractor must restrict all work activities including, but not limited to, storage of materials and equipment to be incorporated in the project, as well as parking of vehicles, heavy equipment, project trailers, etc., to those areas approved by GE (also refer to Section 1.16). Figure 2 of the Work Plan provides a delineation of the work area that can be used by the Contractor. As noted on the figure, no demolition materials can be stockpiled/stored within the 100-year floodplain.

1.11 EXISTING CONDITIONS

It is the Contractor's responsibility to understand and verify the exact nature, character, quality, and quantity of all conditions to be encountered, and develop an independent estimate of material quantities. Locations, depths, lengths, etc. of existing structures (e.g., pipes, tunnels, utilities, etc.) described in the Work Plan, shown on the site figures, and/or provided in the SIP are estimates only, and as such are approximate, and must be field verified prior to the demolition activities.

1.12 WORK WITHIN PUBLIC ROADWAYS

The use and protection of all public roadways involved in this Contract must be in accordance with all applicable federal, state, county, and local requirements. All transportation of equipment and materials along

public roadways must be preceded by the application and issuance of all necessary road and bridge crossing permits from the appropriate public agencies. The Contractor will be responsible for all permits and associated fees. Repair and/or replacement of any damages to existing roadways or bridges will be the Contractor's responsibility.

In accordance with City of Pittsfield requirements, the Contractor will provide and pay for all required and appropriate traffic warnings and controls for all points of equipment access to the site. Such warnings and controls will include, but are not limited to, warning signs, barriers, and the use of a flagperson or police officer during instances when heavy equipment enters or exits the site. The use of such controls must be maintained for the duration of on-site activities.

At a minimum, the Contractor shall assume that a flagperson will be needed at the work site when oversized vehicles (e.g., cranes) are entering or exiting the work site. Depending on the amount of work activities being performed and the volume of vehicular/pedestrian traffic, the Contractor may elect to use more than one flagperson or police officer to facilitate construction activities and to control vehicular/pedestrian traffic. The Contractor's proposed method for controlling vehicular/pedestrian traffic during construction activities at each work site should be included in the Site Management Plan (see Section 1.3).

1.13 PROTECTION OF EXISTING STRUCTURES AND UTILITIES

During the course of this Contract, it will be necessary to work adjacent to existing utilities, structures, and equipment. The Contractor must not interfere with or cause damage to any existing structures or utilities. The Contractor must notify the utility companies (and/or any private organization who is authorized by the utility companies to delineate the presence of all subsurface services [e.g., Massachusetts DIGSAFE]) at least seventy-two (72) hours before on-site activities are started. The Contractor will provide the necessary utility contact information for GE to verify that such notification has occurred prior to initiating on-site activities. The utilities (including utilities associated with the active railroad system) must be protected in a manner prescribed by the utility company. Any existing structure or utility which is damaged during the construction activities must be immediately reported to the respective utility company (if applicable) and GE. Appropriate repairs shall be made at the expense (time, labor, materials, etc.) of the Contractor.

1.14 PROTECTION OF THE ENVIRONMENT

During the performance of construction activities, the Contractor must take all necessary precautions to protect the environment. In doing so, the Contractor must protect all water courses, surface waters, groundwater, soils, and air from degradation or damage in accordance with all federal, state, and local laws and regulations.

To prevent off-site material migration due to precipitation run-off (or wind) in areas subject to erosion (e.g., soil piles, demolition material stockpiles, etc.) and to prevent excess sedimentation in site drainage pathways (e.g., manholes, catch basins, ditches, etc.), the Contractor must utilize appropriate soil erosion and control measures. This will include the placement and maintenance of plastic liners and covers, staked hay bales, silt fences, lined berms, and/or other surface water diversions around temporary soil/material staging areas, and in additional areas as noted by GE during the course of demolition activities. All erosion control

measures must be inspected on a daily basis and after any rainfall to assure that maximum control is being provided. Following inspection, and as necessary, the erosion control measures should be modified, cleaned, reinforced, replaced, and/or maintained.

The Contractor must take adequate measures for keeping noise levels produced by construction and demolition equipment, to safe and tolerable limits as set forth by OSHA, EPA, Massachusetts codes or ordinances, and/or any local requirements. All construction equipment presenting a potential noise nuisance must be provided with noise muffling devices.

The Contractor will make available to GE (on a timely basis) the results of any air monitoring conducted by the Contractor as a form of worker or work area monitoring. The Contractor's proposed air monitoring approach must be identified in its HASP.

1.15 TEMPORARY FENCING

The Contractor must install and maintain temporary fencing or other temporary barriers to minimize unauthorized or unknowing access to the work site. At a minimum, the following areas will be subject to this requirement:

- Areas where any demolition or other construction-related activities occur;
- Areas designated as Contractor-identified health and safety zones (e.g., Exclusion Zones, Support Zones, etc.);
- Areas utilized for personal or equipment cleaning activities;
- Any areas where the activities of the Contract may cause a disruption to the normal vehicular or pedestrian traffic at the site; and
- Existing fence line areas that are temporarily removed to facilitate construction activities.

The temporary fencing or barrier should be construction-type fencing, constructed of high-density polyethylene (HDPE), or equivalent, 4 feet in height (minimum), and orange in color. The fencing should be supported by vertical posts installed into the ground and at an interval and depth that will withstand normal wind loads. Where the surface does not allow the use of support posts driven into the ground, alternate means should be utilized by the Contractor. Wood barriers are an acceptable alternative for paved areas or areas where the fencing/barrier is needed on a short-term basis only.

1.16 EQUIPMENT STORAGE

The area anticipated to be available for storage of the Contractor's equipment and materials is shown on Figure 2 of the Work Plan. If the Contractor requires additional on-site storage space, it may notify GE, who will attempt to make arrangements for additional storage areas in the vicinity of the work. All areas that are

used for storage of equipment and materials, including parking areas, shall be used solely at the Contractor's risk, and shall be restored to original conditions upon completion of work activities.

Space may be made available for storage of equipment and materials at other locations at the GE facility. The Contractor may use this or other off-site storage areas provided that such use does not impede the progress of the work and is at no additional cost to GE.

1.17 AMBIENT AIR MONITORING

An ambient air monitoring program will be performed to assess potential off-site impacts related to the Building 31 Area demolition activities. Ambient air monitoring will be performed at a minimum of three locations around the work area based on the location and nature of the site activities, predominant wind direction, location of potential off-site receptors, site accessibility, site security, and any existing ambient air monitoring data. The sampling equipment will be installed to collect ambient air at a height of between 4- and 6-feet above ground surface to monitor ambient air that is representative of the breathing zone of potential off-site receptors.

During the performance of demolition activities, monitoring for airborne particulates will be performed to measure ambient dust levels (potentially related to response action activities) on a real-time basis and, as such, will facilitate decision-making relative to potential off-site impacts, the need for dust control measures, and the relative success of such measures, if implemented.

Particulate monitoring will involve daily real-time monitoring performed using a MIE dataRAM Model DR-2000 or Model pDR-1000. The dataRAM uses a passive sampling technique and light scattering photometer to determine particulate concentrations. At each station, real-time particulate monitoring will be performed following the procedures presented in Appendix J of GE's approved FSP/QAPP. In general, each monitor will be equipped with a temperature conditioning heater and in-line impactor head to monitor and record concentrations of particulate matter with a mean diameter less than 10 micrometers (PM_{10}). Monitoring will be conducted during construction-related activities for approximately 10 hours daily, from 7:00 a.m. to 5:00 p.m. Particulate data will be recorded and averaged by the instruments' datalogger for each hour of the day and for each preceding 10-hour period. Barometric pressure will be measured and recorded manually on each day of monitoring. In addition, a portable relative humidity indicator will be used for field verification of humidity conditions.

Notification levels and action levels for particulate monitoring will be used to evaluate: 1) the levels of airborne particulates during construction-related response activities, and 2) the need for additional measures related to monitoring and/or dust control. The notification level will be a downwind 10-hour average PM10 concentration greater than the corresponding average upwind (background) concentration and greater than 120 $\mu g/m^3$ (micrograms per cubic meter), as specified in Section 2.4 of Appendix J to the FSP/QAPP. The latter level represents 80% of the current 24-hour National Ambient Air Quality Standard (NAAQS) for PM_{10}, which is 150 $\mu g/m^3$. The action level for particulate matter will be a 10-hour average PM10 concentration of 150 $\mu g/m^3$ (equivalent to the level of the 24-hour NAAQS). Additional information regarding these levels is presented below.

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Actions If Notification Level Is Exceeded

Particulate monitoring data will be compared to the notification level to determine if site-related activities are causing an unacceptable increase in airborne particulate concentrations. On a daily basis during the response actions, the particulate data from the downwind monitors will be compared with the data from the upwind (background) monitor(s). If the 10-hour average PM_{10} concentration at a downwind monitor exceeds the corresponding average upwind concentration, the downwind concentration will be compared to the notification level of 120 $\mu g/m^3$. Any exceedences of this level will be immediately reported to EPA, and GE will discuss with EPA the need for and type of response measures.

In the event that ambient particulate concentrations at any downwind location consistently exceed the particulate notification level (i.e., 120 $\mu g/m^3$), GE will initiate ambient air monitoring for PCBs. Specifically, if the detected particulate levels at the downwind monitoring location(s) exceed the notification level on three consecutive 10-hour days or five days in any two-week period, PCB air monitoring will be implemented on a bi-weekly basis in accordance with the procedures specified in the FSP/QAPP (specific information regarding PCB monitoring locations, frequency, and duration would be developed by GE). For PCBs, the notification level will be a 24-hour average PCB concentration of 0.05 $\mu g/m^3$ and the action level will be a 24-hour average concentration of 0.1 $\mu g/m^3$. Any exceedence of the PCB notification level will be immediately reported to EPA and an evaluation will be made and provided to the EPA concerning the cause of the exceedence and the need for corrective action to prevent exceedences of the action level. Following initiation of PCB air monitoring, if PCB ambient air concentrations are less than the PCB action level for two consecutive bi-weekly events, then PCB monitoring will be discontinued.

Actions If Action Level Is Exceeded

In the event that any 10-hour average PM_{10} concentration or 24-hour average PCB concentration (if PCB monitoring is being conducted) exceeds the action levels presented above, GE will immediately report such exceedence to EPA and will discuss with EPA appropriate immediate response actions, including temporary stoppage of work activities.

In the event that (1) action levels are exceeded, (2) the monitoring data indicate a significant increase in downwind versus upwind readings, or (3) visible dust related to site operations is observed, dust control measures will be implemented. Such measures may include water spray, modification of work procedures, and/or suspension of work. If such measures do not result in reductions to below the action levels, work will be stopped pending further evaluation of work practices, potential upwind particulate sources, and additional control measures. Also, certain other site controls and practices will be implemented to limit the potential for and amount of dust generation. These include covering exposed areas when not in active use, covering soil stockpiles, reducing vehicle speeds, and utilizing water sprays as necessary (e.g. in roads, work areas, etc.).

1.18 DUST SUPPRESSION

The Contractor shall be responsible for controlling any/all dust generated as a result of demolition, backfilling, unloading of imported materials, or any other site activities. Dust will be controlled based on visual observations, monitoring performed by the Contractor, and/or the results of any airborne particulate

monitoring. The presence of large amounts of uncontrolled, visible dust during the performance of demolition/construction activities is not acceptable and will require the temporary suspension of work activities and the implementation of appropriate dust control measures. Appropriate dust control measures include the following:

- Spraying water;
- Hauling demolition debris in properly tarped vehicles;
- Restricting vehicle speeds; and
- Covering demolition debris piles with polyethylene sheeting.

The Contractor shall make every attempt to use existing water supplies (e.g., fire hydrants, piping networks, etc.) at no cost to GE. However, a source of water (water tank truck, storage tank, etc.) should also be made available by the Contractor at the work site. The Contractor will be responsible for maintaining, in the immediate vicinity of the work, a supply of water and means of dispersion (e.g., a water tank and sprayer, tanker truck with hose, etc.) such that water may be applied for dust control immediately as required. If the dust control measures being utilized by the Contractor do not eliminate or substantially lower dust levels as determined by GE based on visual observations and/or the results of airborne particulate monitoring, work activities must be suspended until the Contractor develops the appropriate corrective measure(s) to remedy the situation.

1.19 SURVEY CONTROL

The Contractor will be responsible for performing all survey activities, using a Massachusetts-licensed land surveyor, during the performance of construction activities. The survey activities will include, at a minimum, the following:

- Reviewing existing information related to the site prior to initiating site activities, and thoroughly evaluating the existing conditions at the work site;
- Staking out existing utilities and maintaining the stakes during the performance of demolition/ construction activities;
- Installing additional stakes prior to the completion of work activities to establish final elevations and facilitate site restoration activities;
- Performing a detailed survey following site restoration activities to verify that the site is restored in accordance with the provisions of the Contract;
- Performing a detailed survey following closure activities to develop final quantities for payment purposes; and

- Providing all survey notes (e.g., control points, baseline data, etc.) to GE to allow survey replication by GE.

GE may periodically audit the Contractor's surveyor, both in the field and office, to review all accumulated data and evaluate the surveyor's performance. The Contractor should assume that these periodic audits may be performed on a bi-weekly basis.

1.20 CONTRACTOR EQUIPMENT AND MATERIALS CLEANING

All reusable equipment and materials utilized by the Contractor in the performance of this Contract must be cleaned prior to its re-location within the site, prior to handling "clean" materials, and prior to its departure from the site. All cleaning activities will be performed at the site in an area approved by GE.

Non-disposable equipment cleaning shall be deemed complete based on a review by GE and the analytical results of wipe samples. GE will collect a minimum of three wipe samples from each piece of Contractor-controlled equipment prior to demobilization from the site. The wipe samples will be submitted to a GE-approved laboratory for PCB analysis on a 24-hour turnaround basis to confirm that PCBs are not present at concentrations greater than or equal to 10 micrograms per 100 square centimeters (10 $\mu g/100\ cm^2$). Equipment that does not meet this objective will be recleaned by the Contractor.

Wash water, solids, and other materials generated during equipment cleaning operations must not contact native soils, pavements, and existing facilities, and must be collected by the Contractor and placed into designated containers. Liquids, with low solids content, must be transported to the GE treatment facility for treatment by GE. Solids, soils, and other materials contained within sealed containers will be transported to the OPCAs for final disposal.

The Contractor must submit proposed equipment cleaning procedures as part of the Site Management Plan (see Section 1.3).

1.21 SOIL FILL SOURCES

Only soil fill approved by GE may be utilized in the Building 31 foundation. The Contractor is required to specify the name and location of the proposed fill sources. Representative samples of each fill material will be analyzed for PCBs and the volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), and metals listed in Appendix IX of 40 CFR 264, plus benzidene, 2-chloroethyl vinyl ether, and 1,2-diphenylhydrazine (Appendix IX+3 VOCs, SVOCs, and metals) in accordance with GE's approved FSP/QAPP.

The frequency of sampling and testing will depend on the source/location of the potential material. If the candidate material is from an undisturbed in-place source (e.g., an active gravel/borrow pit), one representative sample will be collected and analyzed. For off-site materials that have been generated from prior excavation/handling activities (e.g., materials located in a stockpile), the frequency of characterization testing will involve the collection of 10 discrete "grab" samples for each volume of such material containing up to 2,000 cubic yards (cy). (If the volume of material to be characterized is less than 2,000 cy, 10 "grab"

samples will still be collected from that material.) These discrete grab samples will be collected at spatially distributed locations within the source material and will be composited into a single sample for performance of the appropriate analyses.

It is not expected that appreciable levels of PCBs, VOCs, or SVOCs or concentrations of metals above background will be present in soil cover or backfill materials that originate from an undisturbed, off-site, in-place source. However, in the event that such constituents are present in the candidate material, the materials will be evaluated further in accordance with the proposed criteria described below.

- Soil cover/backfill materials originating from an off-site location will be acceptable if the material does not contain PCB concentrations exceeding 2 ppm.

- The analytical data for VOCs, SVOCs, and metals will initially be compared with the applicable EPA Region 9 Preliminary Remediation Goals (PRGs) for commercial/industrial areas. If the maximum concentration of each constituent is below the PRG, the material will be considered suitable for use without limitation. If the comparisons indicate that certain constituents are present at concentrations above the PRGs, material, a comparison to background soil concentrations will be performed, consistent with Technical Attachment F to the SOW. If the material contains constituent concentrations that are less than or consistent with background levels of those constituents, then that material will be considered suitable for use in the Building 31 foundation. If the candidate soil fill material contains VOCs, SVOCs, or metals at concentrations that exceed both the PRG screening criteria and background levels, GE may further evaluate the material and, if it still wishes to use the material as fill in the Building 31 foundation, will submit a proposal for such use to EPA.

In addition to or in lieu of the use of fill material from off-site sources, GE may propose to use soil and debris removed as part of Removal Actions conducted within the GE Plant Area under the CD and the SOW, riverbank soils removed as part of the Upper ½-Mile Reach Removal Action for the Housatonic River, and/or building demolition debris and other materials related to GE's Brownfield activities conducted under the DEDA. Such potential use is discussed in Section 5 of the Work Plan. Any such proposal will be submitted to EPA for review and approval.

1.22 RESIDUAL WASTES

Residual wastes, including used personal protective equipment, gloves, solids, soils, and other materials, generated by the Contractor and GE must be collected by the Contractor, placed into appropriate containers (when necessary), and transported and disposed of in the appropriate consolidation area. Liquids with low solids content must be containerized and transported to a staging area designated by GE for future handling and disposal.

1.23 SITE RESTORATION AND WARRANTY

Site restoration activities will be required for all disturbed areas. Portions of fencing that are relocated as part of the construction activities must be restored by the Contractor as required to match the existing

fencing. The restoration of any areas resulting from damage by the Contractor due to negligence or improper activities must be repaired by the Contractor.

The finished products of restoration must be maintained and adequately protected as appropriate, such that conditions at the completion of construction (as determined by GE) exist during a period of one year following the date of completion of work. Any settlement (including visible cracks and depressions greater than 1 inch) occurring in the restored areas during this time period, must be repaired by the Contractor.

1.24 RECORD DRAWINGS

During implementation of the construction activities, the Contractor must keep one set of the site figures provided with the Work Plan at the site on which the Contractor must clearly document all construction activities. The drawings must accurately shows all changes in, or directly associated with, the work under this Contract. Such changes must be neatly and clearly marked on the drawings using colored ink or red pencil, and the entire set of figures must be kept current on a day-to-day basis in concert with the progress of the work. Where applicable, the change marked on a drawing is to carry the notation "per Change Order No. ___," or similar reference which cites the reason for the change. The day to day construction Record Drawings must be made available to GE for review upon request.

The following items are examples of some of the types of changes that could occur and are to be recorded on the Record Drawings by the Contractor.

- Change in location of project components, including vertical elevations;
- Modified construction limits and explanation for change;
- Change in materials;
- Additions to project;
- Elimination of a project component;
- Relocation of existing underground utilities made necessary because of interference with project components;
- Unforeseen modifications made to existing structures made necessary by requirements of the work; and
- Site restoration modifications made at the request of GE.

If no changes were made to certain components of the work, a note should be added to the construction detail or drawing indicating such.

Attachment C

Technical Specifications

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

ATTACHMENT C

GENERAL ELECTRIC COMPANY
PITTSFIELD, MASSACHUSETTS

TECHNICAL SPECIFICATIONS

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ATTACHMENT C

GENERAL ELECTRIC COMPANY
PITTSFIELD, MASSACHUSETTS

TECHNICAL SPECIFICATIONS

SECTION 1.0 - FLOWABLE FILL MATERIAL

PART 1 – GENERAL

1.01 WORK SPECIFIED

A. Work under this section shall include, but not necessarily be limited to, supplying all labor, equipment and materials, and transporting and placing flowable fill in the basement penetrations/openings as required under Work Task 5 (see Attachment A to the Work Plan).

1.02 SUBMITTALS

A. Test results for aggregates, water, and field tests.

B. Mill test certificates and test reports for cement indicating compliance with these specifications.

C. Flowable fill mix designs for all classes and types of concrete to be used in the work.

D. Proposed methods of flowable fill curing.

E. Manufacturers' literature for admixtures, curing compounds, sealers, surface hardeners, etc.

F. Name and location of flowable fill supplier.

1.03 REFERENCES

A. Massachusetts Department of Highways Standard Specifications for Highways and Bridges:

1. M.4.08.0 Controlled Density Fill.

B. American Concrete Institute (ACI). The following codes, standards and recommendations are intended to specify minimum standards of performance:

1.	ACI 301	Specifications for Structural Concrete for Buildings
2.	ACI 523.1	Guide for Cast-in-Place Low Density Concrete
3.	ACI 318	Building Code Requirements for Reinforced Concrete
4.	ACI229R	Controlled Low-Strength Materials

C. American Society for Testing and Materials (ASTM). The following ASTM specifications are referred to in these specifications (in addition to those ASTM specifications listed in ACI) and are to be considered a part of these specifications:

ATTACHMENT C

GENERAL ELECTRIC COMPANY
PITTSFIELD, MASSACHUSETTS

TECHNICAL SPECIFICATIONS

1. C31 Standard Method of Making and Curing Concrete Test Specimens in the Field

2. C39 Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens

3. C150 Standard Specification for Portland Cement

4. C260 Standard Specification for Air-Entraining Admixtures for Concrete

5. C494 Standard Specification for Chemical Admixtures for Concrete

6. C495 Standard Test Method for Compressive Strength of Lightweight Insulating Concrete

7. C513 Standard Test Method for Obtaining and Testing Specimens of Hardened Lightweight Insulating Concrete for Compressive Strength

8. C618 Standard Specifications for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use as a Mineral Admixture in Portland Cement Concrete

1.04 QUALITY ASSURANCE

A. American Association of State Highway and Transportation Officials (AASHTO).

B. Massachusetts Department of Highways Standard Specifications for Highways and Bridges.

C. In each case the latest revision (including any supplements) shall apply.

1.05 SOURCE QUALITY CONTROL

A. Portland Cement, Type I or Type II - Mill test certificates identifying chemical and physical analysis.

B. Aggregates - Perform tests by an approved independent testing laboratory, prior to use, to show compliance with these specifications:

1. Such tests which have been made within six months prior to the use of the aggregates will be acceptable.

2. Gradation tests shall be performed at the point of use.

3. The source of the material shall not be changed without retesting.

4. All aggregates shall be tested for compliance with the specifications at a minimum of one-year intervals during the course of the work.

5. Coarse aggregates shall be obtained from a Massachusetts Department of Highways- approved operating source.

6. The gradation of the aggregate shall have 100% passing the ¾" sieve and a maximum of 20% passing the No. 200 sieve.

7. Use fly ash conforming to the chemical and physical requirements for mineral admixture, Class F listed in A.S.T.M. C618, including Table 2 (except for Footnote A). Waive the loss on ignition requirement.

1.06 TESTS AND INSPECTIONS

A. All required field and laboratory tests shall be at the Contractor's expense. Should any additional tests be necessary due to inadequate test results (i.e., core testing, load testing, etc.), the Contractor shall also be responsible for the cost. The Contractor shall use only an approved commercial testing laboratory.

B. The Contractor shall provide facilities necessary to obtain and handle representative samples of materials to be tested and shall furnish all necessary cooperation and assistance as requested by the Engineer. The Contractor shall provide sufficient notification to the testing laboratory and shall plan and schedule their operations to allow adequate time for all required testing and review.

C. The testing laboratory shall be responsible to GE for the field control of all flowable fill and may reject batches for high slump, uncontrolled air entrainment or delays. Written reports shall be issued immediately after the testing is complete. However, if at any time the results are questionable, GE shall be notified immediately so that corrective steps may be taken. All tests and reports submitted for review shall be only for those specific items used in the work. One copy of the test reports shall be submitted directly to GE by the testing laboratory for review.

D. Criteria for the acceptance of flowable fill shall be as detailed in ACI 318, Chapter 4, and include the following tests:

1. Flowable Fill Test Cylinders

a. During the progress of the work, a set of six 6" x 12" cylinders shall be made for each day flowable fill is placed. These cylinders shall be made up and cured in accordance with ASTM C31 and shall be tested in accordance with ASTM C39. The following schedule shall be used in the testing procedure:

1. Two shall be tested at seven days.

2. Two shall be tested at twenty-eight days.

3. The remaining two shall be tested at forty days or as directed by the Engineer.

b. The making, pick-up, and curing of the cylinders shall be the responsibility of the testing laboratory, but the Contractor shall cooperate in protecting the cylinders and in notifying the testing lab of scheduled pours.

c. The report shall indicate the mix proportions, air content, water content, slump, batching time, placing time and a detailed description where the tested concrete was placed in the structure. All items shall be completely filled in on each test report.

2. Water

a. Mixing water shall be clear and free from deleterious amounts of oil, acid, alkali, organic matter, and other substances. Water from an unpotable water source must be approved by GE prior to use. Questionable sources of water, as determined by GE, shall be tested in accordance with ACI 301.

PART 2 - PRODUCTS

2.01 FLOWABLE FILL MATERIALS

A. Cement

1. Conform to ASTM C150 Type I or Type II.

2.02 FLOWABLE FILL MIX DESIGN

A. All mix designs shall be proportioned in accordance with Massachusetts Department of Highways Standard Specifications for Highways and Bridges, M4.08.0 for Type I Controlled Density Fill.

B. The proposed mix design shall be designed to achieve a 28-day compressive strength of 150 pounds per square inch (psi).

C. Mix design submittals shall indicate the amounts of all ingredients including cement, admixtures and the weight of the aggregates stated in a saturated surface dry condition.

D. Batching and Mixing

1. Batching

a. The Contractor shall have at their disposal a modern and dependable batch plant within a reasonable distance from the work.

b. The batching and mixing shall conform to ACI 304.

c. The batching shall be done only with materials previously favorably reviewed by GE.

2. Mixing, Transporting, and Discharging

a. Conform to ASTM C94.

b. Wastewater must be discharged and not used as mixing water for the next batch.

c. Maximum interval between successive truckloads of flowable fill discharged into the work shall not exceed 30 minutes when the portion of the work being placed requires more than one load of flowable fill.

PART 3 - EXECUTION

3.01 PLACING FLOWABLE FILL

A. Flowable fill shall be placed in conformance to ACI 304, and Section M.4.08.0 of the Massachusetts Department of Highways Standard Specifications for Highways and Bridges and with these specifications.

B. Prior to placing flowable fill:

1. All form work, embedded parts, reinforcements, foundation surfaces and joints involved in the work must be visually reviewed by GE.

2. All surfaces that will be in contact with the poured flowable fill shall be free from standing water, sediments, mud, debris, frost, snow and ice. The Contractor shall clean the areas of flowable fill placement, subject to a visual review by GE, prior to placement of flowable fill.

3. Earth surfaces which are absorptive shall be moistened to a depth of 1 inch.

4. When the ambient temperature is above 40°F, all subgrade surfaces shall be wetted down with cool water just prior to placement.

C. Placement of Flowable Fill

1. Flowable fill shall be conveyed by means that will prevent segregation and loss of mortar from the mix.

2. Adequate manpower and equipment in the form of buckets, buggies, chutes, conveyors, or other approved means shall be provided and properly maintained by the Contractor to ensure continuous operations.

D. *Pneumatic Placement*

1. Pneumatic placement of flowable fill will be permitted only if authorized by GE in writing.

2. The equipment shall be suitable in kind and adequate in capacity for the work.

3. The equipment shall be operated and placed so that no vibrations result which may damage freshly placed flowable fill.

4. The machine shall be located as close as practicable to the place of deposit.

5. The position of the discharge end of the line shall not be more than 8 feet from the point of deposit.

6. The discharge lines shall be horizontal or inclined upward from the machine.

7. At the conclusion of placement, the equipment shall be thoroughly cleaned.

E. Pumping

1. Pump placement of flowable fill will be permitted only if authorized by GE, in writing.

2. The equipment shall be suitable in kind and adequate in capacity for the work.

3. The operation of the pump shall be such that a continuous stream of flowable fill, without air pockets, is produced.

4. When pumping is completed, the flowable fill remaining in the pipeline, if it is to be used, shall be ejected in such a manner that will not produce contamination of the flowable fill or separation of the flowable fill ingredients.

5. Prior to starting the pumping operations, the equipment and pipeline shall be thoroughly lubricated with a flowable fill slurry in a manner approved by the Engineer.

6. After the pumping operation has been completed, the entire equipment shall be thoroughly cleaned.

3.02 COLD WEATHER PLACEMENT

A. Adequate equipment shall be provided for heating the flowable fill materials and protecting the flowable fill during freezing or near freezing weather.

B. No frozen materials or materials containing ice shall be used.

C. All flowable fill operations in cold weather, when temperatures are at, or expected to be below 40°F, shall conform to ACI 306.

1. Special attention is drawn to the minimum required placing and curing temperatures.

D. Only the non-chloride accelerators specified in ACI 306 may be used. Calcium chloride or admixtures containing more than 0.1 percent chloride ions are not permitted.

D. Flowable fill damaged by freezing shall be removed and replaced at the Contractor's expense.

3.03 HOT WEATHER PLACEMENT

A. Care shall be taken to protect the flowable fill or to schedule operations to avoid problems with flash set or conditions that produce excessively rapid drying.

B. All flowable operations during hot weather shall conform to the requirements of ACI 305.

C. During hot weather, consideration shall be given to maintaining the temperature of the flowable fill, aggregates, and mixing water, such that the temperature of the flowable fill at the time of delivery to the job site in no case exceeds 90°F.

D. When the temperature of the flowable fill exceeds 80°F, the water reducing, retarding admixture, Type "D", may be required.

- END OF SECTION -

ATTACHMENT C

GENERAL ELECTRIC COMPANY
PITTSFIELD, MASSACHUSETTS

TECHNICAL SPECIFICATIONS

SECTION 2.0 - SELECT FILL MATERIAL

PART 1 – GENERAL

1.01 WORK SPECIFIED

A. Work under this section shall include, but not necessarily be limited to, supplying all labor, equipment, and materials for excavating, transporting, placing, spreading, and compacting select fill material in the basement of Building 31.

1.02 RELATED WORK SPECIFIED ELSEWHERE

A. Technical Specification entitled Earthwork (Section 6.0).

1.03 SUBMITTALS

A. Identification of names and addresses of proposed select fill source.

B. Proposed dust control measures to be implemented.

C. Sample(s) for analytical testing by GE.

D. One particle size (ASTM D422) analysis test shall be conducted on the select fill materials and submitted to GE for review.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Select fill shall be gravel borrow as specified as Type B in M1.030 of the Massachusetts Department of Highways Standard Specifications for Highways and Bridges.

B. Select fill must meet the chemical criteria set forth in Section 1.21 of the General Project Conditions (Attachment B) or as otherwise approved by EPA.

PART 3 - EXECUTION

3.01 PLACEMENT

A. For all select fill, the following preparation and inspection shall be conducted by the Contractor prior to placement:

1. Verify fill material to be used has been favorably reviewed by GE.
2. Verify areas to be filled are properly compacted.
3. Verify areas to be filled are free of debris, snow, ice or water and ground surfaces are not frozen.

4. Identify required levels.
5. Grade and uniformly compact subgrade, to the required depths and grades. The maximum uncompacted fill layer shall be 6 inches and the minimum compaction shall be 92 percent as determined by the ASTM testing Method D1557. Refer to the Technical Specification entitled Earthwork (Section 6.0) for additional compaction requirements.
6. Demonstrate completeness of subgrade preparation in a manner acceptable to GE.

3.02 FIELD TESTING AND QUALITY CONTROL

A. In-place density testing may be performed by an independent testing laboratory (selected by GE). Testing shall be performed in accordance with ASTM D1557.

- END OF SECTION -

ATTACHMENT C

GENERAL ELECTRIC COMPANY
PITTSFIELD, MASSACHUSETTS

TECHNICAL SPECIFICATIONS

SECTION 3.0 - WASHED STONE

PART 1 - GENERAL

1.01 WORK SPECIFIED

A. Work under this section shall include, but not necessarily be limited to, supplying all labor, equipment, and materials for excavating, transporting, placing, spreading, and compacting modified rockfill in the basement of Building 31.

1.02 RELATED WORK SPECIFIED ELSEWHERE

A. Technical Specification entitled Earthwork (Section 6.0).

1.03 SUBMITTALS

A. Identification of names and addresses of proposed select fill source.

B. Proposed dust control measures to be implemented.

C. Sample(s) for analytical testing by GE.

D. One particle size (ASTM D422) analysis test shall be conducted on the select fill materials and submitted to GE for review.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Modified rockfill shall meet the requirements specified in M2.02.4. of the Massachusetts Department Standard Specifications for Highway and Bridges Specification.

B. All modified rockfill shall be free from detectable levels of target compound list organic chemical contaminants and shall not contain target analyte list inorganics at concentrations above site background levels.

PART 3 - EXECUTION

3.01 PLACEMENT

A. For all modified rockfill, the following preparation and inspection shall be conducted prior to placement:

1. Verify washed stone material to be used has been favorably reviewed by GE.
2. Verify areas to be filled are free of debris, snow, ice or water and ground surfaces are not frozen.

3. Identify required levels.
4. Grade and uniformly compact subgrade, to the required depths and grades.
5. Demonstrate completeness of subgrade preparation in a manner acceptable to GE.

- END OF SECTION -

ATTACHMENT C

GENERAL ELECTRIC COMPANY
PITTSFIELD, MASSACHUSETTS

TECHNICAL SPECIFICATIONS

SECTION 4.0 - GEOTEXTILE FABRIC

PART 1 – GENERAL

1.01 WORK SPECIFIED

A. Work under this section shall include, but not necessarily be limited to, supplying all labor, equipment, and materials for placement of non-woven geotextile fabric.

1.02 REFERENCES

A. American Society for Testing and Materials (ASTM)

1. ASTM D3776 Unit Weight
2. ASTM D4632 Grab Tensile
3. ASTM D4632 Grab Elongation
4. ASTM D3786 Mullen Burst
5. ASTM D4833 Puncture
6. ASTM D4533 Trapezoid Tear
7. ASTM D4751 Apparent Opening Size
8. ASTM D4491 Permittivity
9. ASTM D1777 Thickness

1.03 SUBMITTALS

A. Manufacturer's data for geotextile including , at a minimum, physical properties, packaging, and installation techniques.

B. Manufacturer's quality assurance/quality control program.

C. Certified results of all quality control testing.

D. Contractor's proposed transportation, handling, storage, and installation techniques.

E. Shop drawings.

F. Manufacturer's standard warranty provided for the geotextiles.

PART 2 - PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS FOR GEOTEXTILE FABRIC

A. Synthetics Industries;
B. Amoco; or
C. Reviewed equal.

ATTACHMENT C

GENERAL ELECTRIC COMPANY
PITTSFIELD, MASSACHUSETTS

TECHNICAL SPECIFICATIONS

2.02 MATERIALS

A. For the purpose of these specifications and Contract Documents, the terms "geotextile" and "geotextile fabric" shall be considered synonymous.

B. The geotextile fabric to be used shall be non-woven geotextile.

C. The non-woven geotextile shall be of needle-punched construction and consist of long-chain polymeric fibers or filaments composed of polypropylene; shall be free of any chemical treatment that reduces permeability and shall be inert to chemicals commonly found in soil.

E. The non-woven geotextile shall have the minimum physical properties listed below:

Property	Unit of Measure	Test Method	Minimum Test Value
Grab Tensile	lbs.	ASTM D4632	200
Grab Elongation	%	ASTM D4632	50
Mullen Burst	psi	ASTM D3786	400
Puncture	lbs	ASTM D4833	130
Trapezoid Tear	lbs	ASTM D4533	85
Apparent Opening Size	US Sieve Number	ASTM D4751	80
Permittivity	sec^{-1}	ASTM D4491	1.50

2.03 DELIVERY, STORAGE, AND HANDLING

A. The geotextile shall be furnished in a protective wrapping which shall be labeled with the following information: manufacturer's name, product identification, lot #, roll #, and dimensions.

B. The geotextile shall be protected from ultraviolet light, precipitation, mud, soil, excessive dust, puncture, cutting and/or other damaging conditions prior to and during delivery and on-site storage. The geotextile shall be capable of withstanding 30 days of sunlight without measurable deterioration. The geotextile shall be stored on-site at a location reviewed by GE.

2.04 QUALITY ASSURANCE

A. The field delivered material shall meet the specification values according to the manufacturer's specification sheet. The Contractor shall submit written certification that the delivered material meets the manufacturer's specifications. The Contractor shall provide the quality control test results conducted by the manufacturer during the manufacturing of the geotextile fabric delivered to the project site. The results shall identify the sections/panels of field delivered fabric they represent. The Contractor shall also provide the lot and roll number for the material delivered to the site.

B. The manufacturer shall have developed and shall adhere to its own quality assurance program in the manufacture of the geotextile.

C. The installer shall verify in writing prior to installation that the geotextile fabric has not been damaged due to improper transportation, handling, or storage.

PART 3 - EXECUTION

3.01 GEOTEXTILE INSTALLATION

The following procedures and requirements shall be followed during the installation of geotextile.

A. Placement

1. The placement of the geotextile shall not be conducted during adverse weather conditions. The geotextile shall be kept dry during storage and up to the time of deployment. During windy conditions, all geotextiles shall be secured with sandbags or an equivalent reviewed anchoring system. Removal of the sandbags or equal shall only occur upon placement of an overlying select fill.

2. Proper cutting tools shall be used to cut and size the geotextile materials. Extreme care shall be taken while cutting in-place geotextiles.

3. The geotextile shall be covered within the time period recommended by the manufacturer, and in no case later than two weeks after its placement.

B. Seaming or Joining

1. Geotextiles shall be seamed using either a 12-inch overlap or by sewing.

2. Sewing shall be done using a polymeric thread with chemical compatibility resistance equal to or exceeding the geotextile being sewn. Thread and the sewing device shall be reviewed by GE prior to its use in the field.

3. Repair of tears or holes in the geotextile shall require a patch made from the same geotextile spot-seamed in place with a minimum 12-inch overlap in all directions.

3.02 POST-CONSTRUCTION

A. Upon completion of the installation, the Contractor shall submit to GE the warranty obtained from the Manufacturer/Fabricator.

3.03 WARRANTY

A. The Contractor shall obtain from the manufacturer and submit to GE, a standard warranty provided for the geotextiles.

- END OF SECTION -

ATTACHMENT C

GENERAL ELECTRIC COMPANY
PITTSFIELD, MASSACHUSETTS

TECHNICAL SPECIFICATIONS

SECTION 5.0 - SELECT SOIL FILL MATERIAL

PART 1 – GENERAL

1.01 WORK SPECIFIED

A. Work under this section shall include, but not necessarily be limited to, supplying all labor, equipment, and materials for excavating, transporting, placing, spreading, and compacting select soil fill material in the basement of Building 31.

1.02 RELATED WORK SPECIFIED ELSEWHERE

A. Technical Specification entitled Earthwork (Section 6.0)

1.03 SUBMITTALS

A. Identification of names and addresses of proposed select soil fill source.

B. Proposed dust control measures to be implemented.

C. Sample(s) for analytical testing by GE.

D. One particle size (ASTM D422) analysis test shall be conducted on the select soil fill materials and submitted to GE for review.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Select soil fill shall be M1.01.0 of the Massachusetts Department of Highways Standard Specifications for Highways and Bridges and shall be free of large (greater than 3 inches) objects, sticks, roots, or other deleterious materials. Materials must be capable of achieving the minimum compaction requirements presented in the Technical Specification entitled Earthwork.

B. Select soil fill must meet the chemical criteria set forth in Section 1.21 of the General Project Conditions (Attachment B) or as otherwise approved by EPA.

PART 3 - EXECUTION

3.01 PLACEMENT

A. For all select soil fill, the following preparation and inspection shall be conducted by the Contractor prior to placement:

1. Verify fill material to be used has been favorably reviewed by GE.

2. Verify areas to be filled are properly compacted.
3. Verify areas to be filled are free of debris, snow, ice or water and ground surfaces are not frozen.
4. Identify required levels.
5. Grade and uniformly compact subgrade, to the required depths and grades. The maximum uncompacted fill layer shall be 6 inches and the minimum compaction shall be 92 percent as determined by the ASTM testing Method D1557. Refer to the Technical Specification entitled Earthwork (Section 6.0) for additional compaction requirements.
6. Demonstrate completeness of subgrade preparation in a manner acceptable to GE.

3.02 FIELD TESTING AND QUALITY CONTROL

A. In-place density testing may be performed at GE's expense by an independent testing laboratory (selected by GE). Testing shall be performed in accordance with ASTM D1557.

- END OF SECTION -

ATTACHMENT C

GENERAL ELECTRIC COMPANY
PITTSFIELD, MASSACHUSETTS

TECHNICAL SPECIFICATIONS

SECTION 6.0 - EARTHWORK

PART 1 - GENERAL

1.01 DESCRIPTION

A. All labor, materials, services and equipment necessary to complete the earthwork activities as described in the Work Plan and/or as directed by GE.

1.02 SUBMITTALS

A. Contractor's proposed method(s) of compaction and equipment.

1.03 APPLICABLE CODES, STANDARDS AND SPECIFICATIONS

A. American Society for Testing and Materials (ASTM)

1.04 DEFINITION

A. Earthwork is defined to include, but is not limited to, clearing, pavement removal, rough grading, excavation for subgrades, trenching, handling and disposal of surplus materials, maintenance of excavations, removal of water, backfilling operations, embankments and fills, and compaction.

PART 2 - PRODUCTS

Specified elsewhere.

PART 3 - EXECUTION

3.01 UNAUTHORIZED EXCAVATION

A. The Contractor shall not be entitled to any compensation for excavations carried beyond or below the lines and subgrades prescribed in the Work Plan. The Contractor shall refill such unauthorized excavations at its own expense and in conformance with the provisions of this section.

B. Should the Contractor, through negligence or for reasons of its own, carry its excavation below the designated subgrade, appropriate materials specified in the Technical Specification entitled Select Fill Material (Section 2.0) shall be furnished and placed as backfill in sufficient quantities to reestablish the required subgrade surface. Soil fill materials used for backfilling shall be spread and compacted in conformance with the requirements of later subsections of this section and to the percentage compaction outlined therein. The cost of any tests required as a result of this refilling operation shall be borne by the Contractor.

C. All material which slides, falls, or caves into the established limits of excavations due to any cause whatsoever, shall be removed and disposed of at the Contractor's expense and no extra compensation will be paid to the Contractor for any materials ordered for refilling the void areas left by the slide, fall, or cave-in.

3.02 BACKFILL MATERIALS

A. Soil fill material or select fill or modified rockfill shall be used as specified for backfill. Requirements for off-site fill materials are specified under Work Tasks 9 and 11.

3.03 GENERAL BACKFILLING REQUIREMENTS

A. Backfill shall be started at the lowest section of the area to be backfilled.

B. Drainage of the areas being backfilled shall be maintained at all times.

C. Areas to be backfilled shall be inspected prior to backfilling operations. All unsuitable materials and debris shall be removed.

D. Backfill material shall be inspected prior to placement and all roots, vegetation, organic matter, or other foreign debris shall be removed.

E. Stones larger than 6 inches in any dimension shall be removed or broken.

F. Stones shall not be allowed to form clusters with voids.

G. Backfill material shall not be placed when moisture content is too high to allow proper compaction.

H. When material is too dry for adequate compaction, water shall be added to the extent necessary.

I. No backfill material shall be placed on frozen ground nor shall the material itself be frozen or contain frozen soil fragments when placed.

J. No calcium chloride or other chemicals shall be added to prevent freezing.

K. Material incorporated in the backfilling operation that is not in satisfactory condition shall be subject to rejection and removal at the Contractor's expense.

L. If the Contractor fails to stockpile and protect on-site excavated material acceptable for backfill, then the Contractor shall provide an equal quantity of acceptable off-site material.

3.04 METHOD OF COMPACTION

A. General

1. The Contractor shall adopt compaction methods that shall produce the degree of compaction specified herein, prevent subsequent settlement, and provide adequate support.

2. Methods used shall avoid disturbance to underlying fine-grained soils and to subsurface utilities.

3. Before filling or backfilling is begun, the Contractor shall submit in its Site Management Plan the equipment and method for compaction which it proposes to use.

4. Hydraulic compaction by ponding or jetting shall not be permitted.

5. Backfill material shall not be left in an uncompacted state at the close of a day's construction.

6. Prior to terminating work, the final layer of compacted fill, after compaction, shall be rolled with a smooth-drum roller if necessary to eliminate ridges of soil left by tractors, trucks or other equipment used for compaction.

7. As backfill progresses, the surface shall be graded such that no ponding of water shall occur on the surface of the fill.

8. Fill shall not be placed on snow, ice or soil that was permitted to freeze prior to compaction.

9. Unsatisfactory materials shall be removed prior to fill placement.

B. Equipment

1. Unless specified otherwise in the Work Plan, equipment for compaction shall be the largest equipment consistent with space limitations of the work areas and the need to protect adjacent facilities.

2. Compaction of fill material in areas with limited access, such as over the base liner anchor trench, shall be accomplished by means of a drum-type, power driven, hand-guided vibratory compactor, or by hand-guided vibratory plate tampers.

3. If the proposed method does not produce the degree of compaction required, an alternate method shall be adopted until the required compaction is achieved.

4. The moisture content of backfill or fill material shall be adjusted, if necessary, to achieve the required degree of compaction.

C. Minimum Compaction Requirements

1. Unless specified otherwise in the Work Plan, the degree of compaction specified for the various items listed in Table 1 shall be the minimum allowable.

2. Unless the Contractor can successfully demonstrate that its methods shall produce the required degree of compaction, materials to be compacted shall be placed in layers not exceeding the uncompacted thicknesses listed in Table 1.

3. GE may order in-place density tests to ascertain conformance with the compaction requirements shown in Table 1.

4. The Contractor shall dig test holes at no additional cost to GE when requested for the purpose of taking an in-place density test below the current fill level.

5. The Contractor shall provide free access to trenches and fill areas for the purpose of making such tests. Payment for these tests shall be made by the Contractor.

6. The Contractor shall anticipate time needed due to testing procedures and shall not have claims for extra compensation occasioned by such time.

7. Minimum field compaction requirements in Table 1 are expressed as a percentage of the maximum dry unit weight of the material compacted using the Modified Proctor Compaction Test (ASTM D1557).

TABLE 1

MINIMUM COMPACTION REQUIREMENTS

Type of Backfill	Maximum Uncompacted Fill Layer Thickness (Inches)	Minimum Compaction (Percent)
1. Subgrade – Native Soil	Not-applicable	Proof-rolling
2. Embankments and Fills	12	92
3. Pipe Trenches	8	92
4. Pipe and Manhole Bedding	8	92

8. Compaction curves for the full range of soil materials shall be developed by the Contractor.

9. When proof-rolling existing (or native) soils, the layer shall be acceptable when deformations caused by site equipment (e.g., roller, dump truck) are no deeper than one-inch. All soft or wet materials that continue to deform more than one-inch shall be removed and replaced with suitable material.

3.05 BACKFILL EMBANKMENTS AND FILLS

A. General

1. Embankment areas shall be cleared and grubbed prior to initiating fill operations.

2. Embankments shall be formed of satisfactory materials placed in successive layers, approximately horizontal, of not more than 12-inches in loose depth for the full width of the embankment.

3. All materials placed in constructing the embankment shall be free of organic matter, leaves, grass, roots, and other objectionable material.

4. At all times the Contractor shall slope the embankment to provide surface drainage.

5. The materials placed in the layers shall be of the proper moisture content to obtain the prescribed compaction.

6. Wetting or drying of the material to secure a uniform moisture content throughout the layer may be required.

B. Compaction

1. Rolling operations shall be continued until the embankment is compacted to the density as specified in the subsection above entitled Method of Compaction.

2. Any areas inaccessible to rollers shall be compacted by mechanical tampers.

3. In the construction of embankments, starting layers shall be placed in the deepest portion of the fill, and as placement progresses, layers shall be constructed approximately horizontal, maintaining drainage and keying layers into adjoining slopes.

4. The compaction equipment shall be of such design, weight and quantity as to obtain the required density.

3.06 GRADING

A. After the completion of all fill and backfill operations, the Contractor shall grade the site to the lines, grades and elevations indicated in the Work Plan, taking into account any subsequent site restoration requirements.

3.07 EXISTING FACILITIES

A. General

1. Existing subsurface facilities may be encountered during construction of the work, or located in close proximity to the work.

2. These facilities may include, but are not necessarily limited to, sewers, drains, water mains, conduits and their appurtenances. These facilities may not be indicated in the Work Plan. However, the sizes, locations, and heights or depths, if indicated, are only approximate and the Contractor shall conduct its operations with caution and satisfy itself as to the accuracy of the information given. The Contractor shall not claim nor shall it be entitled to receive compensation for damages sustained by reason of the inaccuracy of the information given or by reason of its failure to properly maintain and support such structures.

3. There may be other subsurface facilities, the existence and/or location of which are not known, such as individual water and gas services, electrical conduits, storm drains, etc. The Contractor shall consult with GE of such facilities and, if possible, shall determine, prior to construction, the location and depth of any such facilities that may exist in the area to be excavated.

4. If underground facilities are known to exist in an area but their location is uncertain, the Contractor shall exercise reasonable care in its excavation technique to avoid damage to them.

5. The Contractor shall notify Massachusetts DIGSAFE 72 hours prior to any site work.

B. Notification and Protection Procedures

1. Except where superseded by state or local regulations, or in the absence of any applicable regulations, the Contractor shall, as a minimum, include the following procedures in its operations:

a. Prior to Excavating

1. Determine correct field location of all nearby underground facilities or arrange for Representatives of the utilities to locate them.

2. Notify owners of nearby underground facilities when excavation is to take place, allowing them reasonable time to institute precautionary procedures or preventive measures which they deem necessary for protection of their facilities.

3. In cooperation with owners of nearby facilities, provide temporary support and protection of those underground facilities that may be especially vulnerable to damage by virtue of their physical condition or location, or those which could create hazardous conditions if damaged.

b. Immediately notify any utility owner of any damage to its underground facilities resulting from the Contractor's operations, and arrange for repairs to be made as soon as possible.

c. In case of an electrical short or escape of gas or hazardous fluids (resulting from damage to an underground facility), immediately notify the local Fire Department and all persons who might be endangered and assist in evacuation of people from the area.

3.08 OTHER REQUIREMENTS

A. Unfinished work

1. When, for any reason, the work is to be left unfinished, all trenches and excavations shall be filled and all roadways and watercourses left unobstructed with their surfaces in a safe and satisfactory condition. The surface of all roadways shall have temporary pavement.

B. Hauling Material on Street

1. When hauling material over the streets or pavement, the Contractor shall provide suitable tight vehicles so as to prevent deposits on the streets or pavements. In all cases where any materials are dropped from the vehicles, the Contractor shall clean up the same as often as required to keep the crosswalks, streets, and pavements clean and free from dirt, mud, stone, and other hauled material.

2. When hauling materials that contain PCBs or other hazardous constituents, the Contractor shall abide by all applicable federal, state, and local codes including, but not limited to, manifesting and placarding (if necessary).

C. Dust Control

1. It shall be the sole responsibility of the Contractor to control the dust created by any and all of its operations to such a degree that it will not endanger the safety and welfare of the general public.

- END OF SECTION -

ATTACHMENT C

GENERAL ELECTRIC COMPANY
PITTSFIELD, MASSACHUSETTS

TECHNICAL SPECIFICATIONS

SECTION 7.0 - SOIL FILL MATERIAL

PART 1 – GENERAL

1.01 WORK SPECIFIED

A. Work under this section shall include, but not necessarily be limited to, supplying all labor, equipment, and materials for excavating, transporting, placing, spreading, and compacting soil fill material in the basement of Building 31.

1.02 RELATED WORK SPECIFIED ELSEWHERE

A. Technical Specification entitled Earthwork (Section 6.0).

1.03 SUBMITTALS

A. Identification of names and addresses of proposed select fill source.

B. Proposed dust control measures to be implemented.

C. Sample(s) for analytical testing by GE.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Soil fill material shall consist of material free from excessive amounts of clay and silt, stones larger than 2 inches, large sticks and roots, and other deleterious materials. Material shall have a pH and organic content sufficient to promote vegetative growth.

B. Soil fill material must meet the chemical criteria set forth in Section 1.21 of the General Project Conditions (Attachment B) or as otherwise approved by EPA.

PART 3 - EXECUTION

3.01 PLACEMENT

A. For all soil fill, the following preparation and inspection shall be conducted prior to placement:

1. Verify fill material to be used is approved.
2. Verify areas to be filled are properly compacted.
3. Verify areas to be filled are free of debris, snow, ice or water and ground surfaces are not frozen.
4. Identify required levels.

5. Grade and uniformly compact subgrade, to the required depths and grades. The maximum uncompacted fill layer shall be 6 inches and the minimum compaction shall be 90 percent as determined by the ASTM testing Method D1557.
6. Demonstrate completeness of subgrade preparation in a manner acceptable to GE.

B. Where required, the Contractor shall, at its own expense, moisture condition the fill to meet the compaction requirements. If, due to rain or other causes, the material is too wet for satisfactory compaction, it shall be allowed to dry or be removed as required, before compaction.

3.02 FIELD TESTING AND QUALITY CONTROL

A. In-place density testing shall be performed by an independent testing laboratory approved by GE. Testing shall be performed in accordance with ASTM D1557.

- END OF SECTION -

ATTACHMENT C

GENERAL ELECTRIC COMPANY
PITTSFIELD, MASSACHUSETTS

TECHNICAL SPECIFICATIONS

SECTION 8.0 - TOPSOIL, SEEDING, AND MULCH

PART 1 – GENERAL

1.01 WORK INCLUDED

A. Work under this section consists of furnishing and placement of topsoil, fertilizer, seed, and mulch.

B. Maintenance of seeded areas until final acceptance.

1.02 RELATED WORK SPECIFIED ELSEWHERE

A. Technical Specification entitled Earthwork (Section 6.0).

1.03 SUBMITTALS

A. Analysis of the seed (to demonstrate compliance with the seed mix identified in Section 2.01 of this specification) and fertilizer (to identify chemical composition), and proposed application rates for seed mix and fertilizer.

B. If hydroseed is used, the Contractor shall submit all data including material and application rates.

C. Location of source, and pH and organic content testing of off-site topsoil (if required).

D. Manufacturer's specifications for Contractor's proposed temporary and permanent erosion control matting if other than North American Green.

E. Sample(s) for analytical testing by GE.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Any off-site topsoil shall be unfrozen, friable, natural loam and shall be free of clay lumps, brush weeds, litter, stumps, stones, and other extraneous matter. The topsoil shall have an organic content between 5 and 20 percent, and a pH between 5.5 and 7.5.

B. Fertilizer shall be a standard quality commercial carrier of available plant food elements. A complete prepared and packaged natural containing a minimum of 5% nitrogen, 10% phosphoric acid, and 10% potash.

1. Each bag of fertilizer shall bear the manufacturer's guaranteed statement of analysis.

C. Seed mixtures shall be of commercial stock of the current season's crop and shall be delivered in unopened containers bearing the guaranteed analysis of the mix.

1. All seed shall meet the State standards of germination and purity.

D. Seed mix:

- 60% Kentucky Blue Grass
- 20% Perennial Rye Grass
- 15% Fescue

E. Mulch shall be stalks of oats, wheat, rye or other approved crops free from noxious weeds and coarse materials.

F. Temporary erosion control matting shall be S75 as manufactured by North American Green or required equivalent.

G. Permanent erosion control matting shall be P300P as manufactured by North American Green or required equivalent.

PART 3 - EXECUTION

3.01 INSTALLATION

A. The topsoil shall be applied in a single loose lift of not less than six inches. No compaction is required or allowed.

1. Following placement of topsoil and prior to fertilizer application, all stones greater than 1-inch in diameter, sticks, and other deleterious material shall be removed.

B. The fertilizer shall be applied to the surface uniformly at the rate of 20 pounds per 1,000 square feet.

1. Following the application of the fertilizer and prior to application of the seed, the topsoil shall be scarified to a depth of at least 2 inches with a disk or other suitable method traveling across the slope if possible.

C. After the soil surface has been fine graded, the seed mixture shall be uniformly applied upon the prepared surface with a mechanical spreader at a rate specified by the seed manufacturer.

1. The seed shall be raked lightly into the surface.

2. Seeding and mulching shall not be done during windy weather.

D. The mulch shall be hand or machine spread to form a continuous blanket over the seed bed, approximately 2 inches in uniform thickness at loose measurement with a minimum of 90% surface coverage. Excessive amounts or bunching of mulch shall not be permitted.

1. Mulch shall be anchored by an acceptable method.

2. Unless otherwise specified, mulch shall be left in place and allowed to decompose.

3. Any anchorage or mulch that has not disintegrated at time of first mowing shall be removed. For peg-type anchors, anchors may be removed or driven flush with ground surface.

E. Seeded areas shall be watered as often as required to obtain germination and to obtain and maintain a satisfactory sod growth. Watering shall be in such a manner as to prevent washing out of seed and mulch.

F. Hydroseeding may be accepted as an alternative method of applying fertilizer, seed and mulch. The Contractor must submit all data regarding materials and application rates to GE for review.

3.02 MAINTENANCE

A. All erosion rills or gullies within the topsoil layer shall be filled with additional topsoil and graded smooth, and reseeded and mulched.

B. The Contractor shall also be responsible for repairs to all erosion of the seeded areas until all new grass is firmly established and reaches a height of not less than 4 inches. All bare or poorly vegetated areas must be reseeded and mulched.

- END OF SECTION -

ATTACHMENT C

GENERAL ELECTRIC COMPANY
PITTSFIELD, MASSACHUSETTS

TECHNICAL SPECIFICATIONS

SECTION 9.0 – FLEXIBLE MEMBRANE LINER

PART 1 - GENERAL

1.01 DESCRIPTION

A. Work Specified

1. Under this section, the Contractor shall furnish and install 60-mil thick, textured high density polyethylene (HDPE) FML material as shown on the Technical Drawings and as specified herein and/or directed.

2. The Contractor shall be responsible for all QA/QC testing specified herein and as indicated on the Technical Drawings. All QA/QC testing, with the exception of non-destructive tests, shall be conducted by an independent laboratory at the Contractor's expense.

1.02 RELATED WORK SPECIFIED ELSEWHERE

A. Section 10.0 - Geosynthetic Drainage Composite

1.03 APPLICABLE CODES, STANDARDS, SPECIFICATIONS, AND PUBLICATIONS

A. American Society for Testing and Materials (ASTM)

1. D413-88 Rubber Property -- Adhesion to Flexible Substrate

2. D638-89 Tensile Properties of Plastics

3. D746-79 Brittleness Temperature of Plastics and (Rev 1987) Elastometers by Impact

4. D751-89 Coated Fabrics

5. D792-86 Specific Gravity and Density of Plastics by Displacement

6. D882-90 Tensile Properties of Thin Plastic Sheeting

7. D1004-90 Initial Tear Resistance of Plastic Film and Sheeting

8. D1203-89 Volatile Loss from Plastics Using Activated Carbon Methods

9. D1204-89 Linear Dimensional Changes of Nonrigid Thermoplastic Sheeting or Film at Elevated Temperature

10. D1238-90 Flow Rates of Thermoplastics by Extrusion Plastometer

11. D1505-85 Density of Plastics by the Density Gradient Technique

12. D1603-76 Carbon Black in Olefin Plastics (Rev. 1988)

13. D5397 Environmental Stress-Cracking of Ethylene Plastics

14. D1790-90 Brittleness Temperature of Plastic Film by Impact

15. D5996 Recommended Practice for Microscopical Examination of Pigment Dispersion in Plastic Compounds

16. D4833 Puncture Resistance

B. Geosynthetic Research Institute (GRI)

GRI Test Method GM 13 — Test Properties, Testing Frequencies and Recommended Warrant for High-Density Polyethylene (HDPE) Smooth and Textured Geomembranes

C. Where reference is made to one of the above codes, standards, specifications or publications the revisions in effect at the time of bid shall apply.

1.04 QUALIFICATIONS

A. FML Manufacturer

1. The Contractor shall submit to GE or GE's Representative for approval the following information regarding the FML Manufacturer:

a. Corporate background and information.

b. Manufacturing capabilities including:

- Quality control procedures for manufacturing; and
- List of material properties including certified test results, to which FML samples are attached.

c. A list of at least ten completed facilities, totaling a minimum of 10,000,000 ft2, for which the Manufacturer has manufactured FMLs. For each facility, the following information shall be provided:

- Name and purpose of facility, its location and date of installation
- Name of Owner, Project Manager, Designer, Fabricator (if any), and Installer
- Thickness of FML, surface area of FML manufactured

d. Origin (resin supplier's name, resin production plan) and identification (brand name, number) of the resin.

B. Installer

1. The Installer must be trained and approved and/or licensed by the FML Manufacturer for the installation of FML.

2. The Contractor shall submit to GE or GE's Representative for approval the following written information, relative to the Installer.

a. Copy of Installer's letter of approval or license by the Manufacturer.
b. Resume of the "master seamer" to be assigned to this project, including dates and duration of employment.

3. All personnel performing seaming operations shall be qualified by experience or by successfully passing seaming tests. At least one seamer shall have experience seaming a minimum of 1,000,000 ft2 of FML of the type for this project, using the same type of seaming apparatus in use at the site.

PART 2 - PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

A. Solmax Geosynthetics;
B. GSE Lining Technology, Inc.; or
C. Equal.

2.02 MATERIALS

A. HDPE Lining Material Specifications

1. HDPE FML material shall meet the following minimum specification values listed below and as listed in GRI GM13.

ATTACHMENT C

GENERAL ELECTRIC COMPANY
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TECHNICAL SPECIFICATIONS

Property	Test Method	Specification Limit 60 mill Textured
HDPE FML Resin		
Specific Gravity (min.)	ASTM D1505/D792	.940
Carbon Black Content	ASTM D1603	2.0 – 3.0%
Carbon Black Dispersion	ASTM D5596	1, 2 or 3 category All 10 views
HDPE FML Rolls		
Mechanical		
Thickness (+ 10%)	ASTM D5199	60 mil
Specific Gravity (min.)	ASTM D1505/D792	.940
Tensile Properties		
Tensile Strength at Break (min.)	ASTM D638 Type IV	90 ppi
Tensile Strength at Yield (min.)		126 ppi
Elongation at Break (min.)		100%
Elongation at Yield (min.)		12%
Tear Resistance (min.)	ASTM D1004	42 lbs
Puncture Resistance (min.)	ASTM D4833	90 lbs
Stress Crack Resistance	ASTM D5397	200 Hour

B. Welding Material

1. The resin used in the welding material must be identical to the liner material.

2. All welding materials shall be of a type recommended and supplied by the manufacturer and shall be delivered in the original sealed containers each with an indelible label bearing the brand name, manufacturer's mark number, and complete directions as to proper storage.

C. Labeling FML Rolls

1. Labels on each roll or factory panel shall identify the following:

- The thickness of the material;
- The length and width of the roll or factory panel;
- The Manufacturer;
- Directions to unroll the material;
- Product identification;
- Lot number; and
- Roll or field panel number.

2.03 DELIVERY, HANDLING AND STORAGE

A. The Contractor shall be liable for all damages to the materials incurred prior to and during transportation to the site.

B. Handling, storage and care of the Flexible Membrane Liner prior to and following installation at the site, is the responsibility of the Contractor. The Contractor shall be liable for all damages to the materials incurred prior to final acceptance of the lining system by GE or GE's Representative.

C. The Contractor shall notify GE or GE's Representative of the anticipated delivery time.

2.04 ADDITIONAL SUBMITTALS

A. The Contractor shall submit the following items for approval at least one week prior to installation.

1. Shop drawings shall include:

a. Layout plan;

b. Quality control program manuals covering all phases of manufacturing and installation; and

c. Complete and detailed written instructions for the storage, handling, installation, seaming, inspection plan fail criteria for liner inspections, and QA/QC testing procedures of the liner in compliance with these specifications and the condition of its warranty.

PART 3 - EXECUTION

3.01 FML INSTALLATION

A. Related Earthwork

1. The Contractor shall insure that all related earthwork requirements under this section are complied with:

a. The FML installations shall be performed on a firm, smooth, soil or geotextile-covered surface free from stones or protruding objects.

b. No FML shall be placed onto an area which has become softened by precipitation. Appropriate methods of moisture control are the responsibility of the Contractor.

c. No FML shall be placed on frozen soil material. Such material shall be removed and replaced with new soil fill as specified in the Section MP-02222 - Soil Fill Materials.

d. The FML Installer shall certify in writing that the final surface on which the FML is to be installed is acceptable.

e. All surfaces on which the FML is to be installed shall be acceptable to GE or GE's Representative prior to FML installation.

f. Free edges of FML shall be secured in such a manner as to prevent uplift by wind or the intrusion of water under the liner. Edge protection shall include, sandbags, polyethylene sheeting or other methods as deemed necessary by the Contractor and approved by GE or GE's Representative.

g. The FML shall be anchored within an anchor trench constructed to the dimensions shown in the Technical Drawings. Care shall be taken while backfilling the trenches to prevent damage to the FML.

B. FML Deployment

1. FML shall be deployed according to the following procedures:

a. Placement of the FML panels shall be according to the approved location and position plan provided by the Installer. Placement shall follow all instructions on the boxes or wrapping containing the FML materials which describe the proper methods of unrolling panels.

b. The method of placement must ensure that:

- Deployed FML must be visually inspected for uniformity, tears, punctures, blisters or other damage or imperfections. Any such imperfections shall be immediately repaired and reinspected.

- No equipment used shall damage the FML by handling, trafficking, leakage of hydrocarbons, or other means.

- No personnel working on the FML shall smoke, wear damaging shoes, or engage in other activities which could damage the FML.

- The prepared surface underlying the FML must not be allowed to deteriorate after acceptance and must remain acceptable up to the time of FML placement and until completion of the project.

- Adequate temporary loading and/or anchoring (e.g., sand bags), not likely to damage the FML, shall be placed to prevent uplift by wind (in case of high winds, continuous loading is recommended along edges of panels to minimize risk of wind flow under the panels).

- Direct contact with the FML shall be minimized; i.e., the FML in excessively high traffic areas shall be protected by geotextiles, extra FML, or other suitable materials.

c. Any damage to the FML panels or portions of the panels as a result of placement must be replaced or repaired at no cost to GE or GE's Representative. The decision to replace or repair any panel or portions of panels shall be made by GE or GE's Representative.

d. The Installer shall assign an "identification number" to each FML panel placed. The number system used shall be simple, logical and identify the relative location in the field.

C. Seaming

1. The seaming procedures below shall be implemented, where applicable, during installation of the FML. The seaming procedures are as follows:

a. Generally, all seams whether field or factory, shall be oriented parallel to the line of slope, not across slope. At liner penetrations and corners, the number of seams shall be minimized.

b. The area of the FML to be seamed shall be cleaned and prepared according to the procedures specified by the material manufacturer. Any abrading of the FML shall not extend more than one-half inch on either side of the weld. Care shall be taken to eliminate or minimize the number of wrinkles and "fishmouths" resulting from seam orientation.

c. Field seaming is prohibited when either the air or sheet temperature is below 32°F or when the sheet temperature exceeds 122°F or when the air temperature is above 104°F. At air or sheet temperatures between 32°F and 40°F, seaming shall be conducted directly behind a preheating device. In addition, seaming shall not be conducted when FML material is wet from precipitation, dew, fog, etc., or when winds are in excess of 20 miles per hour.

d. Seaming shall not be performed on frozen or excessively wet underlying soil surfaces.

e. Seams shall have an overlap beyond the weld large enough to perform destructive peel tests, but not exceed 5 inches.

f. The Contractor shall perform trial seams on excess FML material. A 1 foot by 3 foot seamed liner sample shall be fabricated with the seam running down the 3 foot length in the center of the sample. Such trial seaming shall be conducted prior to the start of each seaming succession for each seaming crew, change in machine or every 4 hours, after any significant change in weather conditions or FML temperature, or after any change in seaming equipment. From each trial seam, two field test specimens shall be taken. The test specimens shall be 1 inch by 12 inch strips cut perpendicular to the trial seam. These specimens shall be peel tested using a field tensiometer, and recorded as pass (failure of liner material) or fail (failure of seam). Upon initial failure, a second trial seam shall be made; if both test specimens do not pass, then the seaming device and its operator shall not perform any seaming operations until the deficiencies are corrected and two successive passing trial seam test specimens are produced. Completed trial seam samples cannot be used as portions of a second sample and must be discarded.

g. Where fishmouths occur, the material shall be cut, overlapped and an overlap weld shall be applied. Where necessary, patching using the same liner material shall be welded to the FML sheet.

h. Acceptable seaming methods for FML are:

- Extrusion welding using extrudate with identical physical, chemical, and environmental properties; and
- Hot wedge welding using a proven fusion welder and master seamer.

i. Seaming device shall not have any sharp edges which might damage the FML. Where self-propelled seaming devices are used, it shall be necessary to prevent "bulldozing" of the device into the underlying soil.

D. Seam Testing

1. The Contractor shall perform nondestructive seam testing on 100 percent of field seams. The following test method and procedures may be used:

a. Air pressure testing may be used if double track hot wedge welding has been utilized to seam the HDPE FML. Using approved pressure testing equipment, the following procedures will be followed:

- Seal both ends of the air channel separating the double hot wedge welds;
- Insert pressure needle into air channel and pressurize the air channel to 25 psi;
- Monitor pressure gauge for 3 minutes and determine whether pressure is maintained without a loss of more than 2 psi; and
- If the pressure test fails, then localize the leak and mark the area for repair.

Air pressure testing will be conducted under the direct observation of GE or GE's Representative.

b. Vacuum testing will be used on all seams not tested using air pressure testing. Using an approved vacuum box, the following procedures will be followed:

- Apply a soapy water mixture over the seam;
- Place vacuum box over soapy seam and form a tight seal;
- Create a vacuum by reducing the vacuum box pressure to 5 psi for 30 seconds;
- Observe through the vacuum box window any bubbles;
- Where bubbles are observed, mark seam for repair;
- Move vacuum box further down seam overlapping tested seam by 3 inches; and
- Where hot wedge seaming has been performed, the overlap must be cut back to the weld.

All vacuum testing will be conducted under the direct observation of GE or GE's Representative.

2. In addition to nondestructive seam testing, the Contractor will perform destructive testing. The destructive testing procedures are as follows:

a. Test samples will be prepared by the Installer every 500 feet of seam length, a minimum of one test for each seaming machine per day, or more frequently at the discretion of GE or GE's Representative. Sample location and size will be selected by GE or GE's Representative. The sample size (12 x 56 inches) will be large enough to produce three sets of test specimens for the following tests:

- Seam Shear Strength, ASTM D816 as modified in ANSI/NSF Std. 54
- Peel Adhesion, ASTM D413 and D4437 as modified in ANSI/NSF Std. 54
- Adjacent Geomembrane Elongation, ASTM D4437

b. Ten specimens will compose a set. Five of these will be tested for peel and the other five for shear strength. Each specimen will be 1 inch wide and 12 inches long with the field seam at the center of the specimen. The 56 inch sample length will first be cut at the ends to produce two field peel test specimens. The remaining 54 inches will be divided up into thirds and one-third submitted to the Contractor, one-third to the independent testing laboratory, and one-third to GE or GE's Representative for storage and future reference.

c. Test specimens will be considered passing if the minimum values below are met or exceeded for four of the five test specimens tested by the independent laboratory. All acceptable seams will lie between two locations where samples have passed.

d. The cost of destructive testing will be borne by the Contractor.

e. Seams will meet the following minimum criteria:

Field Seam Properties	Specification Limit	Test Method
Shear Strength at Yield (lb/in width)	90% of specification limit of sheet value for adjacent material	ASTM D816 as modified in ANSI/NSF Standard 54
Peel Adhesion	Film tear bond	ASTM D413 as modified in ANSI/NSF Standard 54
Adjacent Geomembrane Elongation	100%	ASTM D4437

3. If a sample fails destructive testing, the Contractor shall ensure that: the seam is reconstructed in each direction between the location of the sample which failed and the location of the next acceptable sample; or the welding path is retraced to an intermediate location at least ten feet in each direction from the location of the sample which failed the test, and a second sample is taken for an additional field test. If this second test sample passes, the seam must be then reconstructed between the location of the second test and the original sampled location. If the second sample fails, the process must be repeated.

   All costs for work performed to achieve passing tests along with costs for retesting will be borne by the Contractor.

3. If double track hot-wedge welding is used, GE or GE's Representative and the Installer must agree on the track weld that will be used in the destructive testing. The weld chosen inside or outside must be consistently tested and pass according to the criteria above.

4. All holes created by cutting out destructive samples will be patched by the Contractor immediately with an oval patch of the same material welded to the membrane using extrusion welding. The patch seams will be tested using a vacuum box and using the procedures described above. Work will not proceed with materials covering the FML until passing results of destructive testing have been achieved.

5. At the ends of each field seam, two field test specimens will be taken and field tested with a field tensiometer. Both specimens must pass prior to placing the membrane in the anchor trench or continuing with additional seams. Failure of these specimens will require correcting the seaming device and repair of the preceding seam according to the failure testing and procedures described above.

E. Liner Repair

1. All imperfections, flaws, construction damage, destructive and nondestructive seam failures shall be repaired by the Installer of the FML. The appropriate methods of repair are listed below:

- Patching, used to repair holes, tears, undispersed raw materials and contamination by foreign matter;
- Grinding and rewelding, used to repair small sections of extruded seams;
- Spot welding or seaming, used to repair pinholes or other minor, localized flaws;
- Capping, used to repair large lengths of failed seams;
- Topping, used to repair areas of inadequate seams, which have an exposed edge; and
- Removing bad seam and replacing with a strip of new material welded into placed, used with large lengths of fusion seams.

F. Construction Material Placement and Penetrations

1. Wrinkles that develop from normal placement procedures must be controlled such that the underlying FML does not fold over. Small wrinkles, defined as having their height less than or equal to one-half their base width, may be trapped and pushed down by the overlying soil. Any wrinkle which becomes too large and uncontrollable or which folds the FML over must be brought to the attention of GE or GE's Representative. If necessary, the FML shall be uncovered, cut, laid flat, seamed by extrusion welding and non-destructively tested.

3.02 POST-CONSTRUCTION

A. The Installer of the FML materials shall prepare and the Contractor shall submit, to GE or GE's Representative, record drawings illustrating the following information:

- Dimensions of all FML field panels;
- Panel locations referenced to the Technical Drawings;
- All field seams and panels with the appropriate number or code; and
- Location of all patches, repairs and destructive testing samples.

3.03 WARRANTY

A. The Contractor shall obtain and submit to GE or GE's Representative from the Manufacturer a standard warranty provided for the FML. GE or GE's Representative shall review the warranty for completeness prior to accepting its provisions.

- END OF SECTION -

ATTACHMENT C

GENERAL ELECTRIC COMPANY
PITTSFIELD, MASSACHUSETTS

TECHNICAL SPECIFICATIONS

SECTION 10.0 – GEOSYNTHETIC DRAINAGE COMPOSITE

PART 1 – GENERAL

1.01 DESCRIPTION

A. The Contractor shall provide all labor, materials, tools and equipment necessary to furnish and install geosynthetic drainage composite where specified in the Technical Drawings.

1.02 RELATED WORK SPECIFIED ELSEWHERE

A. Section 9.0 – Flexible Membrane Liner.

1.03 REFERENCES

A. American Society of Testing and Materials (ASTM);

1.	D1505-85	Density Gravity Test
2.	D1238-88	Flow Rates of Thermoplastics by Extrusion Plastometer
3.	D1603	Carbon Black Content Test
4.	D374	Thickness
5.	D4716-87	Constant Head Transmissivity
6.	D3776	Weight
7.	D1777	Thickness
8.	D4632	Tensile Properties
9.	D3786	Mullen Burst
10.	D4833	Puncture
11.	D4751	A.O.S.
12.	D4533	Trapezoidal Tear

1.04 SUBMITTALS

A. Operational Submittals

1. Manufacturers data for the geosynthetic drainage composite including physical properties and roll size.

2. Geosynthetic drainage composite material sample.

3. Manufacturer's quality assurance/quality control program.

4. Certified results of all quality control testing.

5. Contractor's proposed transportation, handling and storage techniques.

6. Shop drawings, and proposed installation techniques.

ATTACHMENT C

GENERAL ELECTRIC COMPANY
PITTSFIELD, MASSACHUSETTS

TECHNICAL SPECIFICATIONS

PART 2 - PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

A. National Seal Company;
B. GSE Lining Technology, Inc.; or
C. Equal.

2.02 MATERIALS

A. The geosynthetic drainage composite shall be comprised of a high density polyethylene (HDPE) drainage net composited with two (2), 6 oz/yd2 non-woven geotextiles. The geotextiles shall be heat bonded to both sides of the drainage net.

1. The drainage net to be utilized in the composite shall be a profiled mesh made by extruding two sets of high density strands together to form a diamond shaped, three-dimensional net to provide planar fluid flow. The drainage net shall be made of HDPE containing carbon black, anti-oxidants and heat stabilizers which shall be manufactured from resin provided from one resin supplier.

2. The geotextile shall be a non-woven, needle punched polymeric material.

B. The geosynthetic drainage composite shall meet the following specifications:

1. Drainage Net

Property	Test Method	Test Value
Specific Gravity (g/cm^3)	ASTM D1505	0.94 minimum
Melt Flow Index (g/10 min)	ASTM D1238 - Condition E	0.3 maximum
Percent Carbon Black (%)	ASTM D1603	2.0 minimum
Transmissivity (m^2/sec)	ASTM D4716	2×10^{-3} minimum
Thickness (mil)	ASTM D374 at Strand Intersection	200 - 265 minimum

2. Geotextile

Property	Test Method	Test Value
Fabric Weight (oz/yd^2)	ASTM D-3776	5.7
Thickness (mils)	ASTM D-1777	75
Grab Strength (lbs.)	ASTM D-4632	150
Grab Elongation (%)	ASTM D-4632	50
Mullen Burst (psi)	ASTM D-3786	275
Puncture (lbs.)	ASTM D-4833	80
A.O.S. (U.S. Sieve)	ASTM D-4751	70
Trapezoidal Tear (lbs.)	ASTM D-4533	65
Permittivity (gal/min/ft^2/sec^{-1})	ASTM D-4491	90/1.7
Permeability (cm/sec)	ASTM D-4491	.2

2.03 DELIVERY, STORAGE AND HANDLING

A. The geosynthetic drainage composite shall be packaged and shipped by appropriate means so as to prevent damage. Materials shall be delivered only after the required submittals have been received and reviewed by GE or GE's Representative.

B. The geosynthetic drainage composite shall be furnished in rolls, marked or tagged with the following information:

1. Manufacturer's Name
2. Product Identification
3. Lot/Batch Number
4. Roll Number
5. Roll Dimensions

C. The geosynthetic drainage composite shall be stored in an area approved by GE or GE's Representative which prevents damage to the product or packaging.

D. The geosynthetic drainage composite shall be kept clean and free from dirt, dust, mud and any other debris.

E. Any geosynthetic drainage composite found to be damaged shall be replaced with new material at the Contractor's expense.

2.04 QUALITY ASSURANCE

A. Field delivered material shall meet the specifications values according to the manufacturer's specification sheet. The Contractor shall submit written certification that the delivered material meets the manufacturer's specifications. The Contractor shall submit to GE or GE's Representative certified quality control test results conducted by the manufacturer during the manufacturing of the geosynthetic drainage composite delivered to the project site. The results must identify the sections of field delivered geosynthetic drainage composite they represent.

B. The manufacturer shall have developed and shall adhere to their own quality assurance program in the manufacture of the geosynthetic drainage composite.

C. The installer shall verify in writing prior to installation that the geosynthetic drainage composite has not been damaged due to improper handling or storage.

D. Each of the installer's personnel shall have recorded 500,000 sf of successful material installation.

E. The Contractor shall provide shop drawings for indicating panel layouts and installation sequence.

PART 3 - EXECUTION

3.01 PREPARATION

A. The areas designated for placement of geosynthetic drainage composite shall be free from any deleterious material.

B. If the geosynthetic drainage composite is not clean before installation, it shall be washed by the Contractor until accepted by GE or GE's Representative.

3.02 INSTALLATION

A. Geosynthetic drainage composite shall be installed at locations shown on the Technical Drawings.

B. Adjacent rolls shall be overlapped approximately 2 - 4 inches.

C. In the corners of the side slopes, where overlaps between rolls of nets are staggered, an extra layer of geosynthetic drainage composite shall be installed from the top to the bottom of the slope.

D. The geosynthetic drainage composite shall be unrolled downslope keeping the net in slight tension to minimize wrinkles and folds.

E. Adequate loading shall be placed to prevent uplift by wind.

F. Holes or tears in the geosynthetic drainage composite shall be repaired in accordance with the manufacturer's recommendations, and/or the CQAP.

3.03 QUALITY CONTROL

A. The Contractor shall provide as-built drawings identifying panel layout, locations or imperfections, and repairs and any other appropriate observations.

- END OF SECTION -