COVINO ENVIRONMENTAL ASSOCIATES INC
300 Wildwood Avenue • Woburn, Massachusetts 01801
Tel 781.933.2555 • Fax 781.932.9402 • email: mail@covinoinc.com

ASBESTOS SOIL MANAGEMENT PLAN
For the
EXCAVATION OF SOIL AND HAZARDOUS MATERIALS
SEPARATION OF COMBINED SEWER OVERFLOW
W.R.GRACE & CO.-CONN
62 WHITTEMORE AVENUE
CAMBRIDGE, MASSACHUSETTS

3-0000277

Prepared for

ENVIRONMENTAL MANAGEMENT PROFESSIONALS
94 SAWYER LANE
MARSHFIELD, MASSACHUSETTS 02050

Prepared by:

SCOTT D. HERZOG, CIH
COVINO ENVIRONMENTAL ASSOCIATES, INC.
CERTIFIED INDUSTRIAL HYGIENIST

Certificates #1685, 2104

Signature

Timothy A. Toomey LSP, CGP

License # 2891

Signature

Covino Project Number 10.01508

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Attachment 1 Work Area Project Drawings

SECTION 1 - INTRODUCTION

1.1 Introduction

The purpose of this site-specific Asbestos Soil Management Plan is to describe the procedures and protocols necessary for protecting site workers and the general public from hazards associated with fugitive dust and the excavation, handling, storage, transportation and disposal of soils potentially containing asbestos fibers and other hazardous materials which may be encountered during separation of an existing combined storm water/sanitary sewer manhole behind Building 23 of the W.R. Grace & Co.-CONN (W.R. Grace) facility, located at 62 Whittemore Avenue, Cambridge, Massachusetts. See Attachment 1: *Work Area Project Drawing*. The construction activity on the W.R. Grace property is being performed as a part of the City of Cambridge DPW CAM 400 Sewer Separation/Alewife Floatables Control Project, a larger upgrade of the entire sewer system that serves the Alewife area, to reduce the potential for sewer backup during periods of heavy, rain and discharge of combined sewer overflows (CSO) to the Alewife Brook. The General Contractor for the project is P. Gioioso & Sons, Inc. (PGS). Environmental Management Professionals, Inc. (EMP) is the environmental consultant for the project.

1.11 Definitions

Adequately Wet – Sufficiently mixed or penetrated with water to completely prevent the release of particulate material into the ambient air.

Asbestos fiber-contaminated soil - Soil that has been shown by certified laboratory analysis to contain at least 1% asbestos fibers using the "Protocol for Screening Sediment and Soil Samples for Asbestos". This includes all soil within thirty-five (35) feet of a sampling location where asbestos fibers are identified.

Soil-Disturbing Activity – Excavation, grading, tilling or any other activity that may cause the release of fugitive dust.

Activity & Use Limitation (AUL) – The purpose of an AUL is to narrow the scope of exposure assumptions used to characterize risk to human health from a release pursuant to 310 CMR 40.0900 by specifying activities and uses that will be prohibited and allowed at the disposal site in the future.

1.2 General Project Information

This Soil Management Plan has been prepared in accordance with Section 02082 of the CAM 400 Project Specifications, the Obligations and Conditions stipulated in the existing Activity and Use Limitation (AUL) Opinion under RTN 3-0277 including the associated Public Involvement Plan (PIP) dated July 2006, the City of Cambridge Asbestos Protection Ordinance Chapter 8.61, and the applicable state and federal regulations.

The work area associated with this document is located within, and limited, to an existing 15-foot wide easement held by the City of Cambridge on land that is owned by WR Grace & Co..-CONN. Although all soil intrusive work will take place within the easement, other activities that are not subject to the above mentioned ordinance and environmental restrictions including: staging, storage of construction related materials as well as site access, will require the utilization of the land abutting the easement which is owned and controlled by W.R. Grace.

The site activities covered under this plan include site mobilization, the construction of a tented and vented enclosure, removal and replacement of existing asphalt, excavation of soil to accommodate a new drain manhole, the replacement of an existing combined sewer manhole, installation of new sewer and drain line segments, installation of a new sewer invert, soil characterization sampling and testing, reuse and/or disposal of soil, backfilling and compaction.

The designated areas of the project have been identified as W.R. Grace & Co. - Conn Sites #1 and #2 as shown on Figures 1 and 2. At W.R. Grace & Co. - Conn Site # 1, the work includes the

CIPP (invert) lining of the existing 18 inch x 26 inch drain pipe for a distance of approximately 150 linear feet. The CIPP work does not require any excavation; however, there is also a common manhole removal, which includes excavation to install a new drain manhole and 40 linear feet of 24-inch PVC drain pipe and a 12-inch drain connection to existing Grace lines. Due to the sequencing of the work, which includes daily excavation and backfill of completed portions of the utility installation, it is anticipated that no more than ten to fifteen feet of trench will be open at any given time.

At W.R. Grace & Co. - Conn Site # 2, there is an existing combined sewer/drain vault and sewer/drain separation will be performed by making modifications inside the existing vault. As part of this task the concrete bottom of the vault will be saw-cut to create a 2.5' long by 2' wide trench. This will be hand excavated to approximately 20-inches deep to allow for installation of a short section of new piping. The trench will be filled with concrete after pipe installation. Access to the vault will be through the existing top slab and following the flow modifications, a new cast-in-place wall and top slab with new manhole covers will be constructed. For Site 2, a tented, vented enclosure maintained under a pressure differential will be installed within or over the vault (the dimensions of which are 15.5' x 7') for the period the trench is being dug and until it is filled with concrete.

All hand tools utilized within the enclosure shall remain in the enclosure for the duration of intrusive work. At the end of each work day, hand tools shall be brush cleaned to remove visible dirt and debris. Brushed soils shall be directed onto the soil stockpile(s).

Unless some unknown condition is encountered during construction PGS estimates that the work in Sites 1 & 2 covered under this plan will be completed in 5-7 days.

As previously stated, the work area associated with activities covered by this plan is located behind Building 23 at 62 Whittemore Avenue, Cambridge, Massachusetts. The W.R. Grace property is bound by Whittemore Avenue to the north, to the west by Alewife Parkway (MA

Route 3A), to the south by Russell Field and Harvey Street, and to the east by Magoun Street. The site has been occupied by W.R. Grace for many years.

1.3 Hazardous Materials Health & Safety Plan

A Hazardous Materials Health & Safety Plan (HMH&SP) has been prepared for this project. This plan will be available for public review and comment prior to commencement of activities that involve the removal or disturbance of the Protective Cover and /or activities that are likely to disturb the soil below the Protective Cover. All persons entering the site shall be familiar with the Plan and acknowledge that they have had an opportunity to review the Plan. This Plan includes the establishment of work zones, preparation of a decontamination area, training, use of personal protective equipment and respiratory protection and monitoring to be performed to assure the safety of site personnel, visitors to the property and the general public.

1.4 City of Cambridge Asbestos Protection Ordinance Chapter 8.61

Any property found by the Commissioner to contain asbestos-contaminated soil or documented to the Commissioner's satisfaction to have been the site of past on-site handling, disposal, manufacturing or processing of asbestos shall be subject to the provisions of the Ordinance.

City of Cambridge Asbestos Protection Ordinance (CAO) addresses soil intrusive activities that have the potential to release particulate matter into ambient air. The ordinance covers excavation, grading, tilling or any other such activity that may cause the release of fugitive dust. The ordinance is implemented under the direction of the City of Cambridge Commissioner of Health and requires particulate dust mitigation and assurance measures.

1.5 Activity & Use Limitations (AUL)

In accordance with the requirements of 310 CMR 40.1074, an AUL has been developed and placed on the disposal site located at 62 Whittemore Avenue in Cambridge, MA. The AUL was submitted in support of a Class A-3 Response Action Outcome (RAO) under Release Tracking Number 3-0277 to address the Oil and Hazardous Materials (OHM) on the site.

The AUL contains specific "Obligations and Conditions" to prepare plans to notify and protect construction workers, W.R. Grace employees and the general public in the event that intrusive

activities into subsurface soil occurs on the property. The plans will require that any such activity will be carried out in a manner that prevents the liberation of asbestos fibers and/or dust into the ambient air in excess of the applicable standards and prevents any potential odors from creating a nuisance condition.

Although there is no specific information confirming the presence of asbestos fibers in soil within the easement, the utility work behind Building 23 is being conducted in a manner consistent with the requirements of the AUL and CAO. This soil management plan complies with the requirements of the CAO and AUL for dust mitigation, air monitoring, and contingency planning.

Precautions to be implemented during utility installation covered under this plan include but are not limited to the following:

- Construction of a 30ft x 50ft enclosure prior to soil excavation in Site 1 and an appropriately sized enclosure in Site 2;
- Venting of enclosures with HEPA filter controls;
- Dust control and air monitoring within the enclosures;
- Dust control and perimeter air monitoring;
- Contingency plans for work stoppage based on review of air monitoring data;
- Misting/Adequately wetting of site soils;
- Placement of excess soil into lined and covered roll-off containers prior to removal from the structure(s);
- Removal of covered roll-off containers within 48 hours of date of generation; and
- Backfilling trench with site soil and placement of six inches of imported clean fill and asphalt pavement for final cover in Site 1 and backfilling of the trench with concrete in Site 2.

1.6 Release Abatement Measure (RAM) Plan

Prior to the start of work, and in accordance with the requirements of the Massachusetts Contingency Plan (MCP), 310 CMR 40.0000, the City of Cambridge will prepare and submit to the Massachusetts Department of Environmental Protection (MassDEP) a RAM Plan detailing the work to be conducted. The RAM Plan shall incorporate the requirements of and include as appendices this Asbestos Soil Management Plan and the site-specific Hazardous Materials Health and Safety Plan (HMH&SP).

SECTION 2: SOIL CHARACTERIZATION

2.1 Background

The Contractor's Environmental Professional shall characterize all excavated soil and fill material prior to disposal. The characterization requirements may vary depending on the site selected to receive soil for disposal. At this time it is anticipated that all excess soil generated from work activities covered by this plan will be transported in sealed roll-off containers and disposed of at the Waste Management, Inc. (WMI) Turnkey Landfill located in Rochester, New Hampshire. Because the soil will be excavated from an industrial/urban setting, WMI operating permit requires that the soil be analyzed for urban fill characteristics including total petroleum hydrocarbons, PCB's, volatile organic compounds, semi-volatile organic compounds, 8 RCRA metals, Ph, flashpoint, reactivity and corrosivity. Due to an agreement between PGS, the City and W.R. Grace that the soil will be assumed to contain asbestos fibers, WMI will not require any additional site specific sampling and analysis of the excess soil for its asbestos fiber concentration.

2.2 Soil Management Practices

The Contractor shall implement, maintain, supervise and be responsible for all soil management practices during the course of the work covered under this plan. The Contractor's Environmental Professional shall be present during all field screening, segregating, handling and characterization of excess soil excavated from the easement.

The soil management practices for this site include:

- The construction of a secure enclosure appropriately sized and maintained without impeding construction related activities;
- Misting/wetting down soil as it is removed to prevent release of particulates into the air. An adequate number of misting nozzles shall be used as necessary to ensure continuous wetting of the soil;
- Supervising decontamination procedures;

- Ensuring that soil that cannot be reused on site shall be loaded directly into containers sealed, placarded as ACM and removed for off-site disposal within 48 hours of generation;
- Implementing an air-monitoring program to monitor airborne particulate and fibers in the enclosures and within a 50' perimeter from each enclosure ; and
- Provide an LSP Opinion that a final cover consisting of a six-inch clean fill layer and asphalt has been applied to disturbed areas within the easement in order to maintain a condition of No Significant Risk in accordance with the existing AUL.

SECTION 3: ASBESTOS SOIL MANAGEMENT PLAN

In accordance with CAO and AUL, an Asbestos Soil Management Plan must be prepared and implemented to prevent fugitive dust, which may contain asbestos fibers, from being generated and/or escaping during any soil soil-disturbing activity on the W.R. Grace & Co.-CONN property.

3.1 Enclosure for Soil Excavation

An excavator and critical construction materials will be staged in the exclusion zone on the easement prior to the commencement of work and an enclosure constructed around them.

The airtight enclosure will be constructed in a way that covers the entire perimeter of the excavation. The enclosure will be constructed of heavy-duty plastic sheeting supported by rigid scaffolding or other framing. The enclosure will be designed to be weather-resistant and will use one or more layers of 6-mil flame and smoke resistant sheeting. The dimensions of the enclosure will be 30 feet in width, 20 feet in height and 50 feet in length. The enclosure will be designed to permit entry of personnel and equipment.

Weather forecasts shall be monitored during the construction period. In the event of high wind or storm warnings, the Contactor shall evaluate the need to cease work for the duration of that event(s).

A three-chamber decontamination (DECON) area will be constructed at one end of the enclosure to permit employees to enter/exit the enclosure and to provide tools and supplies. All employees entering the enclosure shall pass through the DECON station as discussed in the HMH&SP. A personnel login board will be maintained at the front of the enclosure. All personnel shall sign in on the log prior to entering the enclosure. The enclosure for Site 2 will have one entry point as heavy equipment will not be required for the excavation within the vault.

An additional DECON area will be constructed at the opposite end of the enclosure for Site 1 to allow for the delivery of construction materials such as precast manholes, drain and sewer pipe as well for the delivery and removal of secured roll-off containers for excess soil disposal. Portable equipment will be brought in through the DECON for use within the enclosure and then decontaminated prior to leaving the enclosure. All roll-off containers used for transportation of surplus soils shall be sealed and exterior surfaces decontaminated prior to their exiting the enclosure. Decontamination procedures are set forth in the HMH&SP.

Worker entrance to the enclosure will be secured using a lockable solid wood or plywood door. The enclosure shall be adequately secured when personnel are not working in the enclosure.

Emergency exits shall be planned in the event that the main entrance becomes blocked by fire or smoke. The emergency exits shall be clearly marked. A utility knife will be stored at each emergency exit in the event evacuation is required.

3.2 Venting of Enclosures

The enclosures will be maintained under a pressure differential and vented using a minimum of two 2,000 cubic feet per minute air filtration devices with HEPA filters. This will provide approximately 8 air changes per hour within the enclosure. The air filtration devices will be cleaned and have new HEPA filters installed and sealed before arrival at the site. The air filtration devices will be sealed to the enclosure and will vent air outside the enclosure. Additional air filtration devices will be installed based on the results of air testing inside the enclosure, as well as visual indicators (smoke and odor).

A manometer will be installed at each entrance to the enclosure to insure the pressure differential between the inside of the enclosure and the outside is maintained. The goal will be to maintain a pressure differential of 0.02 inches water gauge at all times when personnel are working in the enclosure. The pressure differential of 0.02 inches was chosen as it is the industry standard for such enclosures.

During non-working hours, the enclosure shall be sealed. Areas of open trench and exposed soils within the closure shall be securely covered..

3.3 Security

The enclosure will be locked and secured at the end of the workday. The site is on the W.R. Grace property and facility security will periodically conduct their rounds to make certain the work site is secure.

3.4 Dust Control

Water will be used inside the enclosure to keep down the release of particulate. A fire hose and fogging nozzle will be located inside the enclosure. Water will be applied as needed to prevent visible dust generation within the enclosure. Water will be further used to ensure soils are adequately wet before being loaded into roll-off containers. The roll-off container liners shall be draped over the sides to each container to minimize the potential for soils to come into contact with the outsides of the container.

Vehicle wheels shall be inspected for visible soil; wheels shall be decontaminated as necessary using high pressure water and/or brushes prior to exiting the enclosure.

If needed, a dedicated water truck will be used to wet down surfaces outside the enclosure for general dust control. The truck will also wet down active roadways outside the enclosure as needed.

Any soil stockpiled within the enclosure at the end of a work day shall be covered with poly sheeting. Any open trench(es) within the enclosure shall be covered at the end of each working day.

If soil is stockpiled directly on unpaved surfaces, soil below the stockpile shall be excavated to a depth of six inches (6") below the pre-existing surface and replaced with clean soil.

All roll-off containers used for transport of surplus soil shall be lined with two, 10-mil liners prior to loading. The liners shall be prefabricated with chemically-bonded or heat-welded seams and shall be sized to fit the cargo area of the container being used. After the asbestos-fiber containing soils are loaded into a lined transport vehicle but prior to the vehicle leaving the enclosure, the liners shall be sealed over the loads using spray glue/duct tape.

3.5 Dust and Asbestos Monitoring

Monitoring will be performed in and around the perimeter of the enclosure and in an area fifty feet outward from the enclosure. Baseline measurements will be collected for PM-10 particulate and asbestos fibers prior to the start of soil intrusive activities.

3.5.1 Dust Monitoring

Dust monitoring will be performed hourly when soil intrusive activities are underway in the enclosure using a TSI Dust-Trak respirable particulate monitor or equivalent. Measurements will also be collected upwind, downwind and crosswind of the enclosure. In the event two consecutive hourly readings for respirable particulate at the perimeter of the enclosure exceed 75 micrograms per cubic meter of air (75 $\mu g/m^3$) a dust suppression program will be implemented as discussed in the HMH&SP. In the event any two hourly readings in a twenty-four hour period for respirable particulate exceed 150 $\mu g/m^3$ (National Ambient Air Quality standard) shall result in a temporary stoppage of work and a review of the dust control practices.

3.5.2 Asbestos Monitoring

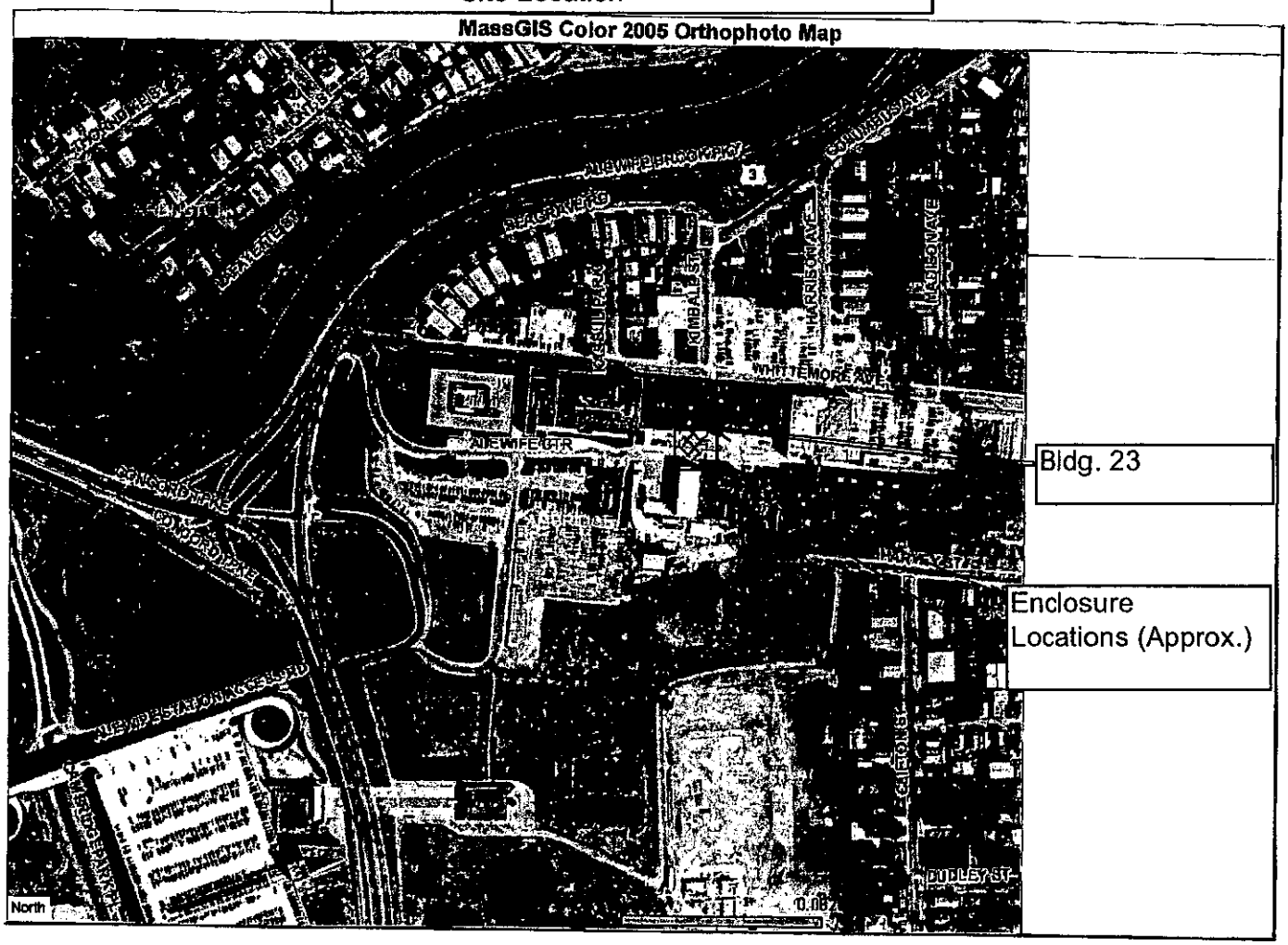
Continuous monitoring will be performed in and around the perimeter of the enclosure on open sides (not on the building side) within 50 feet of the enclosure. The samples will be collected in accordance with NIOSH Method 7400 using 0.8 micron MCE filters. The samples will be collected open-face at breathing zone height for a minimum of two hours.

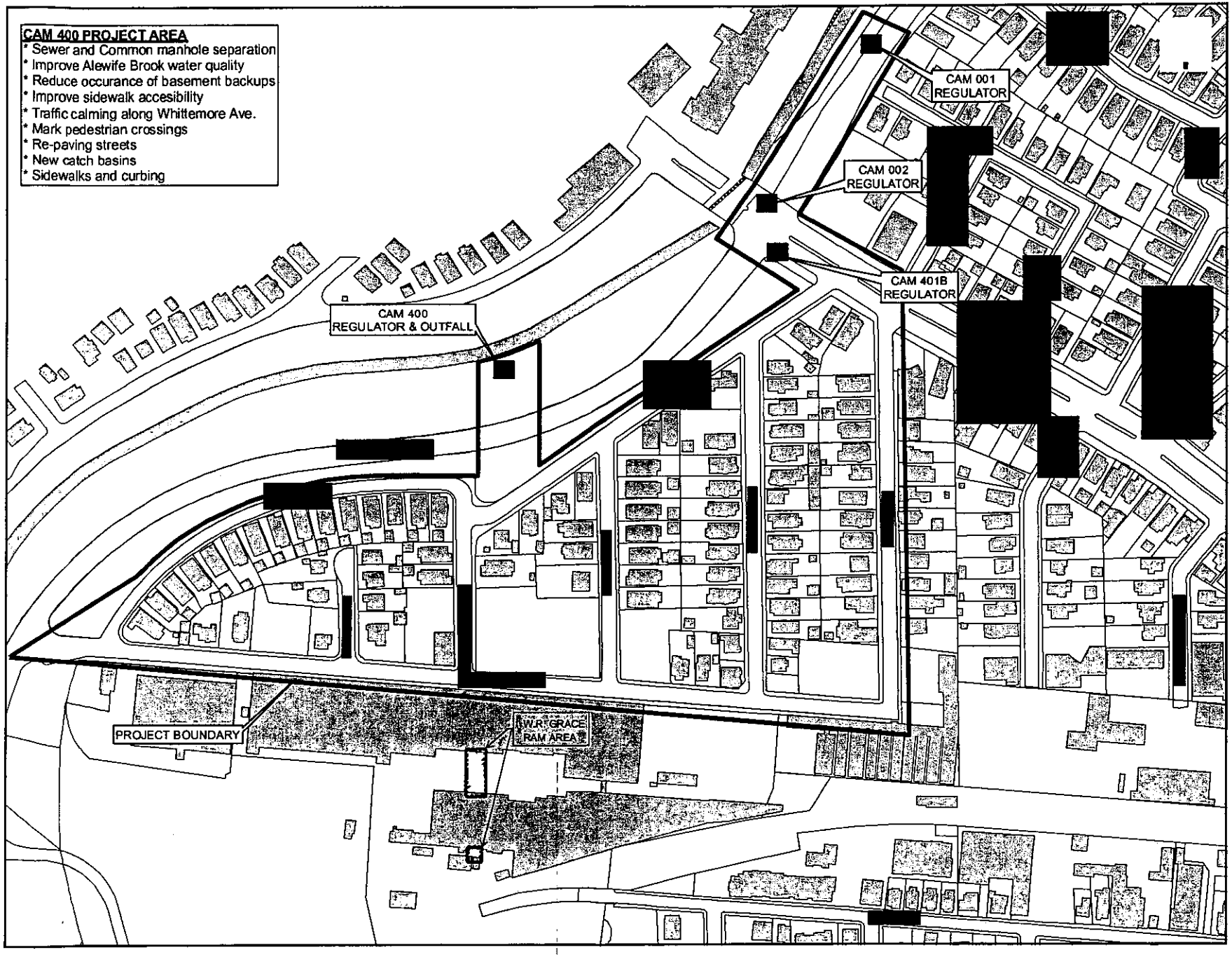
The samples will be analyzed on site by an inspector licensed by DOS in the Commonwealth of Massachusetts. The analyst shall be a successful participant in the Asbestos Analyst Registry (AAR). The samples will be analyzed using phase contrast microscopy using standard counting rules.

In the event two consecutive samples within a twenty-four hour period exceed 0.01 f/cc, site activities will temporarily stop and the dust control program reviewed. Work may recommence when containment measures deemed sufficient by the Commissioner to prevent further exceedances have been implemented.

Map Output

Figure 1
Site Location





CAM 400 SEWER SEPARATION/ FLOATABLES CONTROL PROJECT AREA

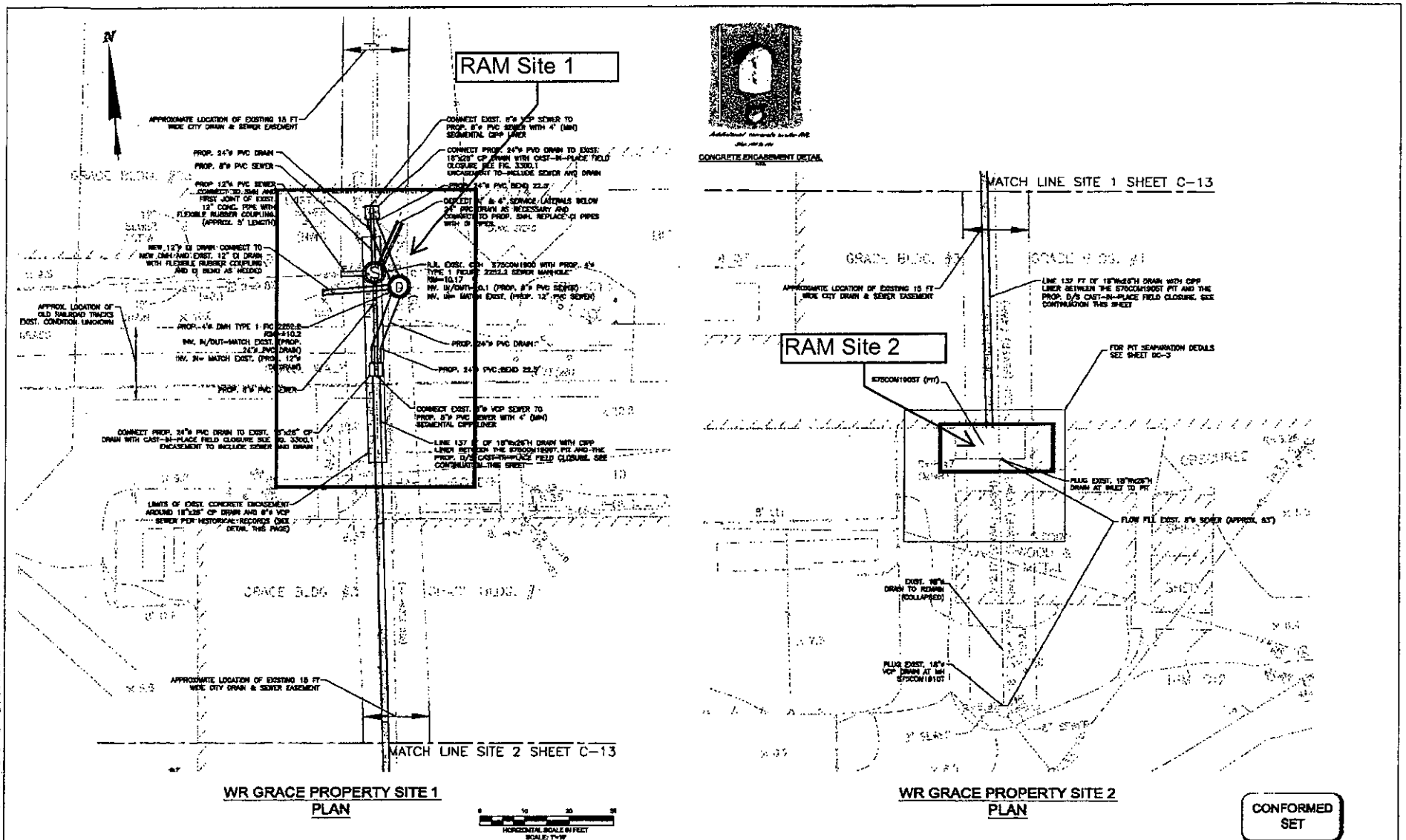
CITY OF CAMBRIDGE, MA

S E A

S E A CONSULTANTS INC

MWH

THE WORKS



WR GRACE PROPERTY SITE 1
PLAN

WR GRACE PROPERTY SITE 2
PLAN

CONFORMED SET

SEA

MWH
BOSTON
MASSACHUSETTS

FIGURE 2
SITE SKETCH

Scale	1"=10' H
Date	JANUARY 13, 2010
Job No.	10100000
Designed by	AMF
Drawn by	AMF
Checked by	DHC
Approved by	MCP

No.	Description	Date
	REVISIONS	

THE WORKS

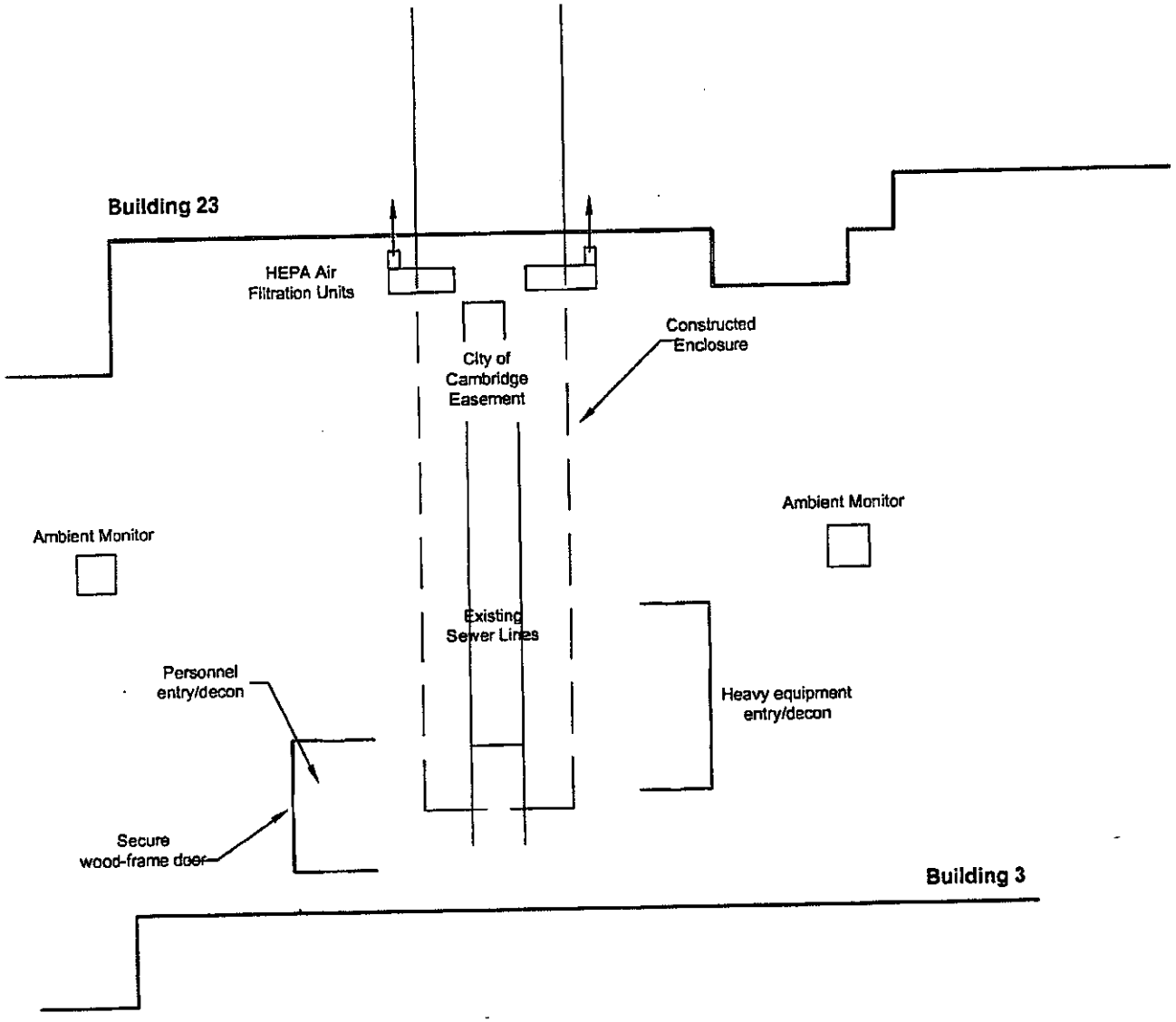
CITY OF CAMBRIDGE, MA

ALEWIFE BROOK FLOATABLES CONTROL (CONTRACT 4) AND CAM 400 SEWER SEPARATION PROJECT (CONTRACT 13)

GRACE PROPERTY
PLAN

Sheet No. C-13

File No.



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Client:
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Marshfield, Massachusetts

Site:
Building 23
WR Grace & Co.
Cambridge, Massachusetts

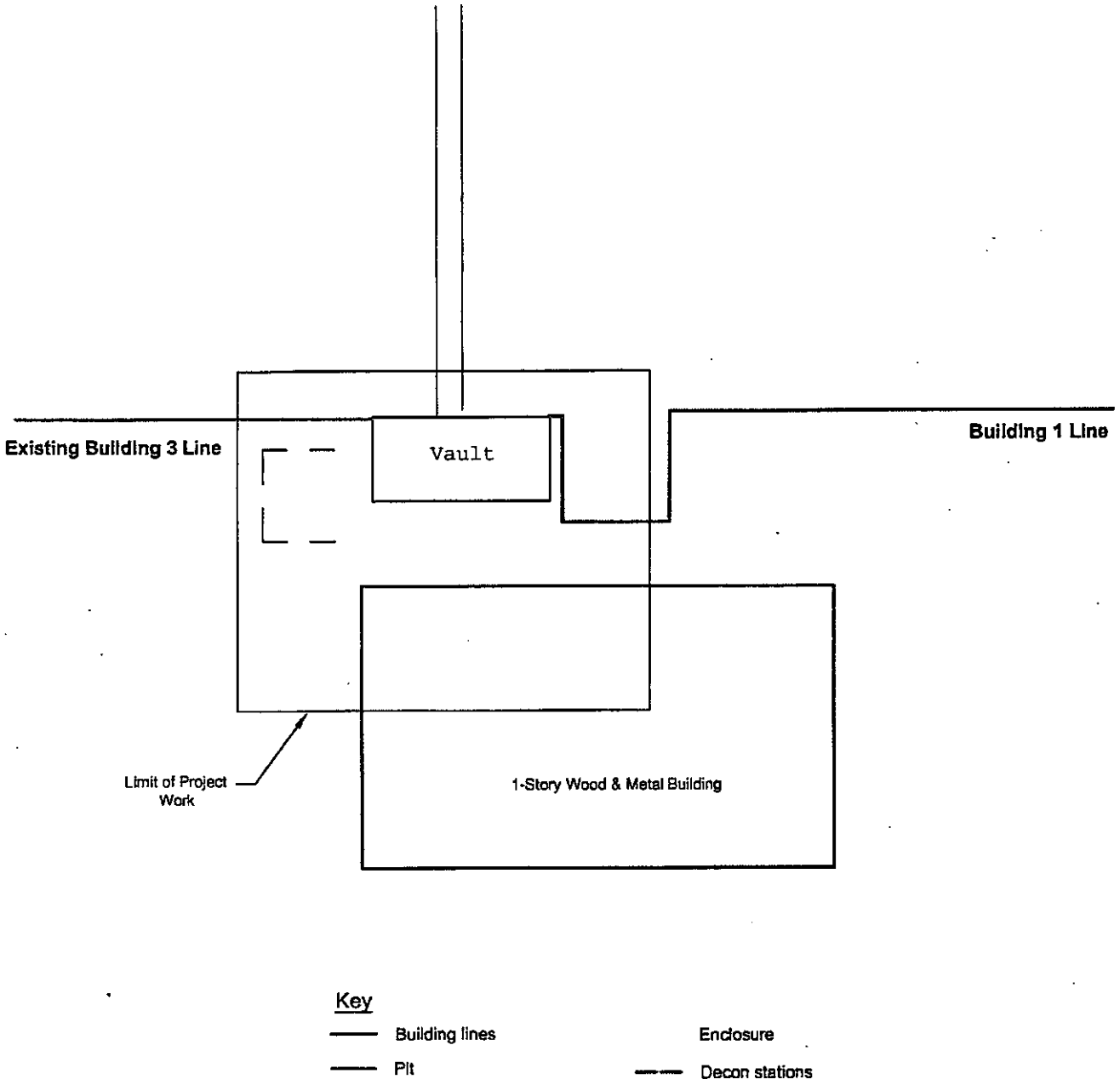
Sewer Separation

January 6, 2010

Sketch 1

NOT TO SCALE

Date: 01.07.11 | Edited by: ALM



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Client:
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94 Sawyer Lane
Marshfield, Massachusetts

Site:
Building 3
WR Grace & Co.
Cambridge, Massachusetts

Sewer Separation

January 6, 2010

Figure 2

NOT TO SCALE

Date: 01.07.11	Edited by: ALM