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The Commonwealth of Massachusetts
Executive Office of Public Safety
Fire Safety Commission
Automatic Sprinkler Appeals Board
P.O. Box 1025 ~ State Road
Stow, Massachusetts 01775

MITT ROMNEY
GOVERNOR

KERRY HEALEY
LT. GOVERNOR

ROBERT C. HAAS
SECRETARY

STEPHEN D. COAN
STATE FIRE MARSHAL

THOMAS P. LEONARD
DEPUTY STATE FIRE MARSHAL

Docket # 2006-128
46 Blackstone Street
Cambridge, Massachusetts

AUTOMATIC SPRINKLER APPEALS BOARD
DECISION AND ORDER

A) Statutory and Regulatory Framework

This is an administrative appeal held in accordance with Massachusetts General Laws Chapter 30A;Chapter 148, section 26A½; Chapter 6, section 201 and 530 CMR, relative to a decision of the Cambridge Fire Department, requiring the installation of automatic sprinklers in a building owned and/or operated by Harvard University, (hereinafter referred to as the Appellant). The building, which is the subject of the order, is located at 46 Blackstone Street, Cambridge, MA.

B) Procedural History

By written notice received by the Appellant on March 20, 2006, the City of Cambridge Fire Department issued an Order of Notice to the Appellant informing it of the provisions of M.G.L c. 148, s.26A½. The building subject to the order is located at 46 Blackstone Street, Cambridge, MA. and is owned by Harvard University. The Appellant filed an appeal of said order on May 4, 2006. The Board held a hearing relative to this appeal on June 14, 2006, at the Department of Fire Services, Stow, Massachusetts.

Appearing on behalf of the Appellant was: Douglas Schmidt, Project Manager, Harvard University, Kevin Callery, Project Manager, Hughes Associates, Paul Dunphy, Electrical Inspector and Compliance Coordinator, Harvard University. Appearing on behalf of the Cambridge Fire Department was Captain Sandy Francis.

Present for the Board were: Maurice M. Pilette, Chairperson, Paul Dona, Vice Chair, Chief Thomas Coulombe, Alexander MacLeod, Peter Gibbons, and John J. Mahan. Peter A. Senopoulos, Esquire, was the Attorney for the Board.

C) Issue(s) to be Decided

Whether the Board should affirm, reverse or modify the enforcement action of the Boston Fire Department relative to the subject buildings in accordance with the provisions of M.G.L. c.148, s. 26A½?

D) Evidence Received

1. Application for appeal submitted by Appellant
2. Letter from Deputy Turner, Cambridge Fire Dept. to Doug Schmidt (3/20/2006)
3. Report accompanying application to A.S.A.B. – Blackstone Steam Plant
4. Notice of Hearing to Appellant
5. Notice of Hearing to Cambridge Fire Department
6. Letter from Captain Francis to the Appeals Board

E) Subsidiary Findings of Fact

1) On March 20, 2005, the Cambridge Fire Department issued an Order of Notice to the Appellant requiring the installation of an adequate system of automatic sprinklers for a building located at 46 Blackstone Street, Cambridge, MA in accordance with the provisions of M.G.L. c. 148, s.26A½. The appellant filed an appeal of said Order with this Board on May 4, 2006. Notices were issued to the parties relative to a hearing before this Board which was held on June 14, 2006, at the Department of Fire Services facility located in Stow, MA.

2) The Appellant, Harvard University owns and operates a steam generation power plant located at 46 Blackstone Street, Cambridge, Massachusetts. The power plant consists of four (4) boilers that produce steam distributed to over 200 buildings on the Harvard University campus. The Appellant wants to upgrade the facility, including certain upgrades to the building's fire protection systems. However, the Appellant seeks relief from the requirement that a sprinkler system be installed throughout the entire building in accordance with the provisions of M.G.L. c. 148, § 26A½ because of certain unique characteristics of the building and its use.

3) The Appellant indicated that the methodology and manner of installation of a conventional sprinkler system as directed by the Building Code, is not appropriate for this type of building. Appellant contends that steam generation plant presents unique characteristics and that the fire protection standards for such buildings should be based upon NFPA (National Fire Protection Association) standard 850 entitled " Recommended Practice for Fire Protection for Electric Generating Plants and High Voltage Direct Current Converter Stations". Appellant indicates that said NFPA standard provides a more effective means of addressing the specific type of risks that are encountered in a steam plant such as the one before the Board. The Appellant provided a copy of a report prepared by Hughes Associates, Engineering consultant. The report contains technical details about the steam plant upgrade, including a specific proposal for fire protection improvements using NFPA as the technical basis for said

work. A copy of said report, dated May 4, 2006, is attached hereto and is herein incorporated into this determination by reference.

4) Testimony was presented at the hearing that indicated that the installation of a sprinkler system throughout this building would not only be impractical but could quite possibly create a higher degree of danger. There was testimony that the height of the ceiling which is approximately 70 feet, would render the use of traditional sprinklers impractical. Additionally, testimony was provided that the deployment of traditional sprinklers on or around very hot steam pipes could crack or otherwise damage the pipes causing a more dangerous situation.

5) The representative of the Cambridge Fire Department indicated that the department would support the alternate fire protection method as proposed by the Appellant.

6) The Appellant does not contest a finding that the subject building is over 70 feet in height and that the building is subject to the provisions of M.G.L. c. 148, s. 26A1/2.

F) Ultimate Findings of Fact and Conclusions of Law

1) The provisions of M.G.L. c. 148, s.26A1/2 states, in pertinent part, "every building or structure of more than seventy feet in height above the mean grade and constructed prior to January 1, 1975, shall be protected with an adequate system of automatic sprinklers in accordance with the State Building Code…".

2) The Board finds that the subject building located at 46 Blackstone Street, Cambridge, Massachusetts is subject to the provisions of s. 26A½. Appellant does not contest this finding.

3) However, the Board finds that the subject building presents unique characteristics which support a finding that an adequate sprinkler system installed in accordance with the State Building Code, would not carry out the public safety intent of s. 26A½, as applied to this building.

4) The Board has the statutory authority to determine the suitability of alternative materials and methods of sprinkler installation based upon the unique characteristics that may exist for a particular building or structure, on a case by case basis (see generally, M.G.L. c. 6, s. 201).

5) The Board finds that the fire protection plan as proposed at the hearing, provides an adequate level of fire protection in the subject building consistent with the legislative intent of s. 26G1/2.

G) Decision and Order

For the foregoing reasons, the Board, by a unanimous vote, hereby modifies the Order of the Cambridge Fire Department dated March 20, 2006. The Board hereby adopts the technical

details and specifications of the plan and report prepared by Hughes Associates, Engineering Consultant, dated May 4, 2006. Said plan is attached hereto and incorporated into this decision by reference.

Appellant shall submit additional finalized technical details of these plans to the City of Cambridge Fire Department by September 15, 2006.

The installation shall be completed by December 31, 2007.

In addition, future expansion and/or equipment modifications to the power plant shall be subject to similar fire protection considerations.

H) Vote of the Board

Maurice Pilette, (Chairperson)	In favor
Paul Dona (Vice Chair)	In favor
Thomas Coulombe	In favor
Alexander MacLeod	In favor
Peter Gibbons	In favor
John J. Mahan	In favor

G) Right of Appeal

You are hereby advised that you have the right, pursuant to section 14 of chapter 30A of the General Laws, to appeal this decision, in whole or in part, within thirty (30) days from the date of receipt of this order.

SO ORDERED,

Maurice Pilette, P.E. Chairman

Dated: August 21, 2006

A COPY OF THIS DECISION AND ORDER WAS FORWARDED BY CERTIFIED MAIL, RETURN RECEIPT TO: Douglas Schmidt, Harvard University, 46 Blackstone Street, Cambridge, Massachusetts 02139 **and 1st Class Mail, Postage Pre-paid to:** Captain Sandy Francis, Cambridge Fire Department, 491 Broadway, Cambridge, Massachusetts 02138.

Harvard University
Operations Services
Cambridge, Massachusetts

Blackstone Steam Plant

Report Accompanying Application to Automatic Sprinkler Appeals Board

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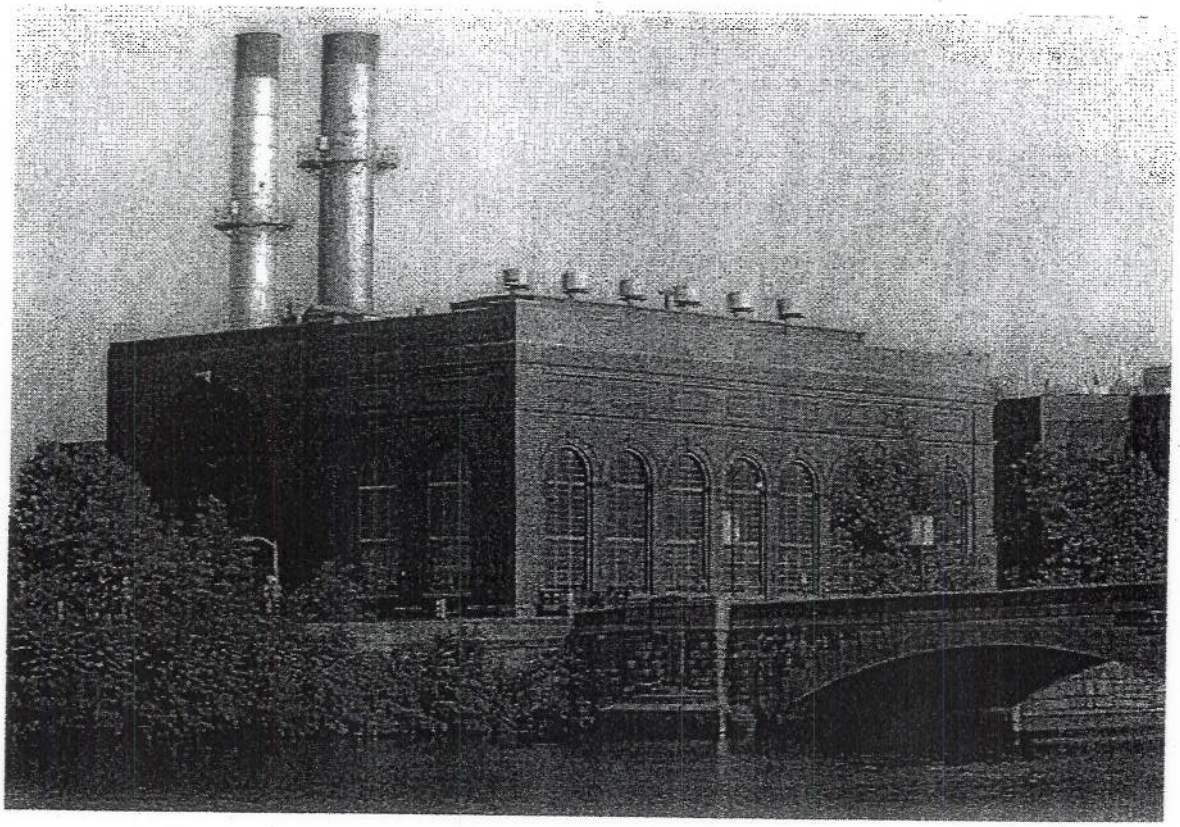

Owner:
Harvard Engineering & Utilities
46 Blackstone Street
Cambridge, MA 02139

Engineering Consultant:
Hughes Associates Inc
2 Mount Royal Avenue, Suite 420
Marlborough, MA 01752

May 4, 2006

HARVARD UNIVERSITY
BLACKSTONE STEAM PLANT
REPORT ACCOMPANYING APPLICATION
TO AUTOMATIC SPRINKLER APPEALS BOARD

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APPENDIX B, CORRESPONDENCE

Cambridge Fire Department Latter dated March 20, 2006
Harvard University Letter dated February 14, 2006

A. BACKGROUND

Located in Cambridge Massachusetts at the intersection of Memorial Drive and Western Avenue, the Blackstone Steam Plant (the "Steam Plant") has produced and supplied high-pressure steam to buildings throughout the Harvard University campus since 1930 under operation by several prior owners. Responding to electric power industry restructuring legislation enacted in 1997 that, among other things, mandated utility divestiture of electric power generation assets NSTAR, the most recent prior owner, initiated an effort to obtain bids for purchase of the Steam Plant. Seeking to attain greater control over the future of this critical thermal energy source Harvard acquired the Steam Plant making the University the independent owner and operator of its own vital steam production facility and opening the opportunity to implement improved levels of supply reliability and operating efficiency.

Owned and operated by Harvard since 2003, the Steam Plant continues to be the primary source of steam that provides thermal energy for heating and research purposes in approximately 200 Harvard buildings on the Cambridge and Allston campuses. Working toward improved reliability and efficiency, Harvard has implemented several upgrade initiatives within the Steam Plant. One among these is a major project that will replace one of four existing boilers with a new more efficient boiler, add a backpressure steam turbine that will enhance fuel utilization efficiency by cogeneration of electric power in parallel with the steam production process, improve environmental performance by upgrading the Steam Plant fuel mix to include distillate oil and increased use of natural gas, replace an undersized standby generator with a new larger generator for improved standby capability, and generally replace existing 1930 vintage electrical equipment with a new distribution substation and control centers. Work is scheduled with the goal that all new equipment will be available for full service at the onset of the heating season in the fall of 2007.

Also as part of the overall upgrade initiative, Harvard has worked with its insurance carrier and the Cambridge Fire Department to assess existing fire protection provisions and to quantify possible upgrade measures. A survey conducted in order to establish administrative jurisdiction for this effort showed the Steam Plant building height to be slightly above the 70'-0" height threshold that, when exceeded, causes a building to be classified as a high-rise building under Massachusetts General Law Chapter 148, Section 26 ½. This classification prompts a requirement for fire protection provisions that consist of automatic sprinkler coverage in accordance with the Massachusetts State Building Code (MSBC).

Despite administrative designation as such, the Steam Plant is not configured, occupied, or used in the same way as a typical high-rise building that MSBC provisions were developed to address. Further review indicated that measures identified in NFPA 850, "Recommended Practice for Fire Protection for Electric Generating Plants and High Voltage Direct Current Converter Stations" (NFPA 850) would provide a more effective means of addressing the specific type of risk areas that are encountered in a steam plant than those required by the MSBC and are more

consistent with measures recommended by Harvard's insurance carrier.

From this, a letter was sent on February 14, 2006 by Harvard to the Cambridge Fire Department respectfully requesting relief from MSBC requirements in favor of compliance with provisions of NFPA 850. In a return letter dated March 20, 2006 the fire department denied Harvard's request for relief and advised of the ability to submit an appeal to the Fire Safety Commission Automatic Sprinkler Appeal Board. Both letters are appended to this report.

This document is part of Harvard's appeal. The remainder of the document builds on background information furnished in this paragraph by providing a more detailed description of the Steam Plant including building height, equipment that is and will be housed within the steam plant, and proposed measures for protection against fire risks.

B. BLACKSTONE STEAM PLANT

General

This section describes the Blackstone steam plant as it exists today and as shown in Figure 1 that is appended to this report. Figures 3 and 4 which are also appended provide section views of the steam plant as it will appear after completion of upgrade work. The steam plant building will not be altered by the upgrade however and, as such, views shown in Figures 3 and 4 reflect the current steam plant building configuration described in this paragraph.

Existing Building Configuration

The Steam Plant is comprised of two sections that are designated as the turbine hall and the boiler room.

Turbine Hall

The turbine hall occupies a footprint area of 8,550 square feet and has been determined to be 70 feet-10 inches in height. Interior space consists of a base level that is approximately 4-feet below grade and a full mezzanine level that is 15-feet above the basement level. An approximate 40-foot high open space extends from the mezzanine level to the interior surface of the turbine hall roof. No dividing walls exist in the spaces below and above the mezzanine level. This unique open configuration resulted from the turbine hall being designed and constructed to accommodate steam engines and, later, steam turbines that produced electric power. All steam turbines were retired from service prior to Harvard's acquisition and all have since been removed by Harvard as part of the upgrade initiative.

Equipment remaining in the turbine hall consists of a diesel generator that is available as a Steam Plant standby power source, a remnant NSTAR electrical substation that will be displaced by the upgrade project, a dry-type step down transformer that

interconnects from the substation, and compressors that supply air to support steam plant operation. The standby generator, substation, and transformer are located on the mezzanine level and the compressors at the base level. A bridge crane that spans the width of the turbine hall and runs along the entire building length is located just below the roof. Piping that delivers steam to the campus distribution system extends through both the turbine hall at both the base and mezzanine levels.

Boiler Room

The boiler room occupies a footprint area of 15,550 square feet and has been determined to be 71 feet-10 inches in height. Like the turbine hall the boiler room interior is a largely undivided open space that was designed and built to house steam boilers and associated support equipment. Interior space consists of a base level that is at grade elevation and an approximate 55-foot high open space extends to the interior surface of the boiler room roof. This space is primarily occupied by four boilers that produce steam for distribution throughout the University campus. Each boiler is capable of being fueled with either natural gas or No. 6 residual oil.

Space around and between the boilers is interceded by a system of structural framework that supports the boilers themselves and auxiliary equipment that is necessary to maintain boiler operation. A series of stairs, ladders, and open platforms also extends around the boilers to provide access for operation and maintenance of the boilers, support equipment, and piping that interconnects them. Support equipment located within the space includes combustion air fans, feed water pumps, a water softening system, and water storage tanks.

A partial basement (3,040 square feet) extends 18-feet below and underlies a portion of the base level. Additional combustion air fans, pumps, and water storage tanks are located within the basement.

An enclosed electrical equipment room (1,200 square feet) is located 47-feet above the base level with height extending to the interior surface of the boiler room roof. The room houses switching and protective equipment that is part of the steam plant internal electrical distribution system. A second electrical equipment room (2,180 square feet) that was added by a prior upgrade project is located 32–feet above the base level in another portion of the boiler room. This room houses switching and protective equipment that completes the internal steam plant electrical distribution system.

An enclosed fuel oil pump room (810 square feet) exists at base level. The room houses pumps and heat exchangers that supply fuel oil from as series of below grade fuel oil storage tanks that are located entirely outside of the steam plant footprint.

A room (400 square feet) that provides centralized operation and control of the entire Steam Plant is located at base level. The control room contains a series of electrical and pneumatic control devices that are driven by a combination of digital and analog control systems. Operators that occupy rotating shifts provide 24-hour per day

staffing coverage and maintain all control functions from the control room. Operators also make periodic rounds within the Steam Plant to check local equipment conditions.

A large portion of the boiler room (3,300 square feet) consists of open space. The space, which once housed boilers that have long since been demolished by prior Steam Plant owners, is undivided and extends from base level to the boiler room roof.

Administrative and Support Area

A separate building that houses administrative offices, a steam plant locker room, kitchen facilities, and break areas is attached to the boiler room. This building is equipped with full sprinkler system protection against fire risk.

Occupancy and Staffing

Steam Plant occupancy is classified as F1, Moderate Factory/Industrial, in accordance with the Massachusetts State Building Code. The Steam Plant is staffed 24 hours per day during every day of the year. Day shift staffing consist of up to eight operators depending on work load and three operators during each the evening and early morning shifts. Steam Plant site security includes a controlled access gate and guard post that is also staffed 24 hours per day during every day of the year.

Methods and Measures to Address Fire Risk

Methods and measures that are currently employed to protect Steam Plant personnel and property against fire risk consist of a combination of hand-held fire fighting equipment, manual alarms, automatic notification, training, and written procedures that are to be followed in the event that a fire should occur. Hand held fire extinguishers are located throughout the Steam Plant. The location of all extinguishers, alarm pull boxes, steam plant exit points, evacuation paths, and post-evacuation meeting sites is depicted on diagrams that are also located throughout the steam plant. Master boxes that provide automatic fire emergency notification to the fire department are located on the steam plant property.

A steam plant emergency management plan is maintained that contains procedures to be followed in the event of a fire incident. The plan provides Harvard and external emergency contact information and emphasizes personnel safety over protection of property. An emergency operations plan is also maintained that documents the role of essential Steam Plant personnel in the event of a fire incident.

C. STEAM PLANT UPGRADE

General

Much of the equipment now operated within the Steam Plant dates back to an expansion project that was completed in 1930. This results in operating efficiency and reliability that are inconsistent with the critical campus services that it supports. Recognizing this, Harvard has initiated a steam plant upgrade project with the primary purpose of replacing one of two 1930-vintage boilers with a new boiler. A large amount of balance of plant equipment is of similar vintage and will be replaced as well. The Steam Plant building footprint will remain unchanged as a result of the upgrade and the height of the Steam Plant will not be modified. The following paragraphs describe equipment that will exist in the turbine hall and boiler room after completion of the upgrade project.

This section describes the Blackstone Steam Plant as it will exist after upgrade project completion. Figures 2, 3, and 4 that are appended to this report support the descriptions.

Post-Upgrade Building and Configuration

Turbine Hall

The upgrade project will restore and upgrade electric power generation capability in the turbine hall. A new steam turbine generator located on the mezzanine level in the same location that was occupied by a previous turbine will operate as part of a cogeneration process that will produce electric power as a byproduct of steam production. Related auxiliaries including turbine bearing oil filtering and electro-hydraulic control systems will be located directly below the turbine on the turbine hall base level.

Also on the mezzanine level, the existing standby diesel generator will be removed and replaced with a new unit. The new unit will occupy the same location as the existing unit and improve standby power service reliability.

A new low voltage substation will be constructed on the mezzanine level. The substation will include new low voltage distribution switchgear that will be housed within a steel-framed fire-rated enclosure. Power will be supplied to the switchgear for distribution within the steam plant by two dry type step-up transformers that will be located above the switchgear enclosure. Operating in combination with other new electrical equipment that will be located in the boiler room, the new substation will allow removal of the existing remnant NSTAR substation.

New water treatment equipment consisting of a reverse osmosis system, pre-filters, and a new water softener will b located at the turbine hall base level. The new softener will replace the system that now exists within the boiler room.

Boiler Room

A new boiler will occupy part of the large area that is now vacant on the boiler room base level. The existing boiler that will be replaced by the new unit will be operated throughout most of the construction period. When complete, the new boiler will be fueled with natural gas or No. 2 distillate oil depending on market prices. New structural steel will be erected within this same area of the boiler room to provide support for new feed water heating and storage equipment, combustion air fans, and associated duct work that will be located above the new boiler. A vacant space will be maintained adjacent to the new boiler for installation of a future new boiler. This will replace the second 1930-vintage boiler that will remain after completion of this upgrade project.

The electrical equipment room previously-described at 47-feet above base level will be expanded and all equipment that is now housed within it will be removed and replaced. Replacement equipment will consist of switching and protective equipment, associated control panels, and two dry-type step-down transformers. The transformers will reduce electric power voltage as required for in-plant distribution.

New pumps will be added inside of the fuel oil pump room to convey No. 2 distillate oil from below grade fuel oil storage tanks that are located outside of the Steam Plant to the new boiler.

A new steel-framed electrical room will be constructed directly above the control room and will house switching and protective equipment that provides the steam plant primary interface with the NSTAR electrical distribution system.

New medium voltage electrical switchgear that will facilitate removal of the remnant NSTAR substation will be located within a new enclosure to be erected above the existing control room. The enclosure will be of steel-framed construction

Post-Upgrade Staffing

Steam Plant staffing and work shifts will remain unchanged after completion of upgrade work.

D. PROPOSED FIRE PROTECTION IMPROVEMENTS

Harvard proposes to implement additional measures beyond those now employed at the Steam Plant to protect against fire risk. These measures will focus on specific individual fire risk areas that are particular to steam electric production facilities such as the steam plant. The measures will be configured around the post-upgrade steam plant arrangement, will be installed concurrent with steam plant upgrade work, and will be available for service by December 31, 2007.

NFPA 850 as a Basis

The basis for installation of automatic fire suppression in the Steam Plant will be those requirements recommended in NFPA 850, 2000 Edition, "Recommended Practice for Fire Protection for Electric Generating Plants and High Voltage Direct Current Converter Stations". Rather than requiring complete automatic fire suppression coverage, NFPA 850 identifies specific fire risk elements associated with energy production facilities such as the Steam Plant and describes and recommends individual protective measures that are appropriate to these respective risk elements. NFPA 850 emphasizes providing automatic fire suppression protection for specific equipment, hazards and support areas such as offices, control rooms, storage rooms, etc. NFPA 850 does not recommend automatic fire suppression at elevated ceilings associated with equipment spaces and below (and within) the open array of grated style platforms and catwalk systems surrounding the power generating and support equipment.

Specific recommendations contained in NFPA 850 relevant to the Steam Plant are as follows:

- Section 5-3.9 recommends the installation of automatic suppression for indoor fuel oil pumping or heating facilities
- Section 5-5.1.1 recommends the installation of automatic suppression for boiler-furnaces with multiple oil-fired burners or using oil for ignition
- Section 5-7.4.1.1 recommends the installation of automatic suppression for all areas beneath the turbine-generator operating floor that are subject to oil flow, oil spray or oil accumulation
- Section 5-7.4.1.2 recommends the installation of automatic suppression for lubricating oil lines above the turbine operating floor
- Section 5-7.4.2 recommends the installation of automatic suppression for turbine generator bearings
- Section 5-9.1.2.1 recommends the installation of autopmaticv fire suppression equipment for emergency generators.

Based on the aforementioned NFPA 850 recommendations, we propose the following automatic fire protection systems for the Steam Plant:

Standpipe Systems

A system of automatic standpipes will be installed throughout the turbine hall and boiler room in accordance with the requirements of NFPA 850. Harvard will work with the Cambridge Fire Department to establish standpipe locations and system

configuration.

Automatic Suppression Systems

Automatic fire suppression will be installed in the following locations and as depicted in Figure 2.

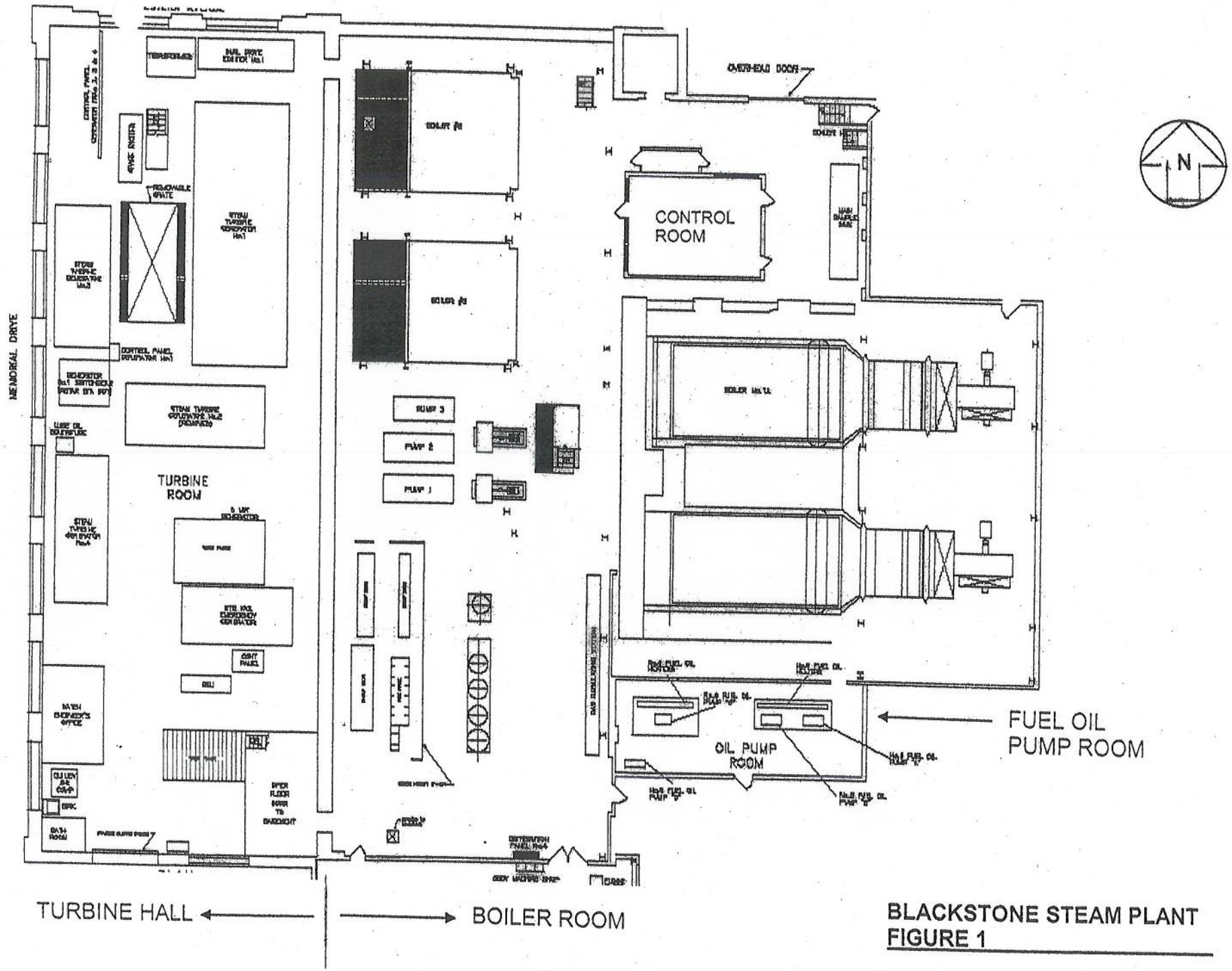
- The pump room that currently houses existing heavy fuel oil pumps and that will house future new light distillate fuel oil pumps.
- Fuel oil burner front area of a future boiler that will be fueled with No. 2 distillate oil.
- Lubrication oil lines, lubrication oil equipment, bearings, and hydraulic oil equipment associated with a future new steam turbine generator.
- The new standby generator.
- The control room.

Design Basis for Improvements

Design and engineering documents will be developed and reviewed with the CFD prior to installation of the proposed systems. All systems will be designed in accordance with the following NFPA standards:

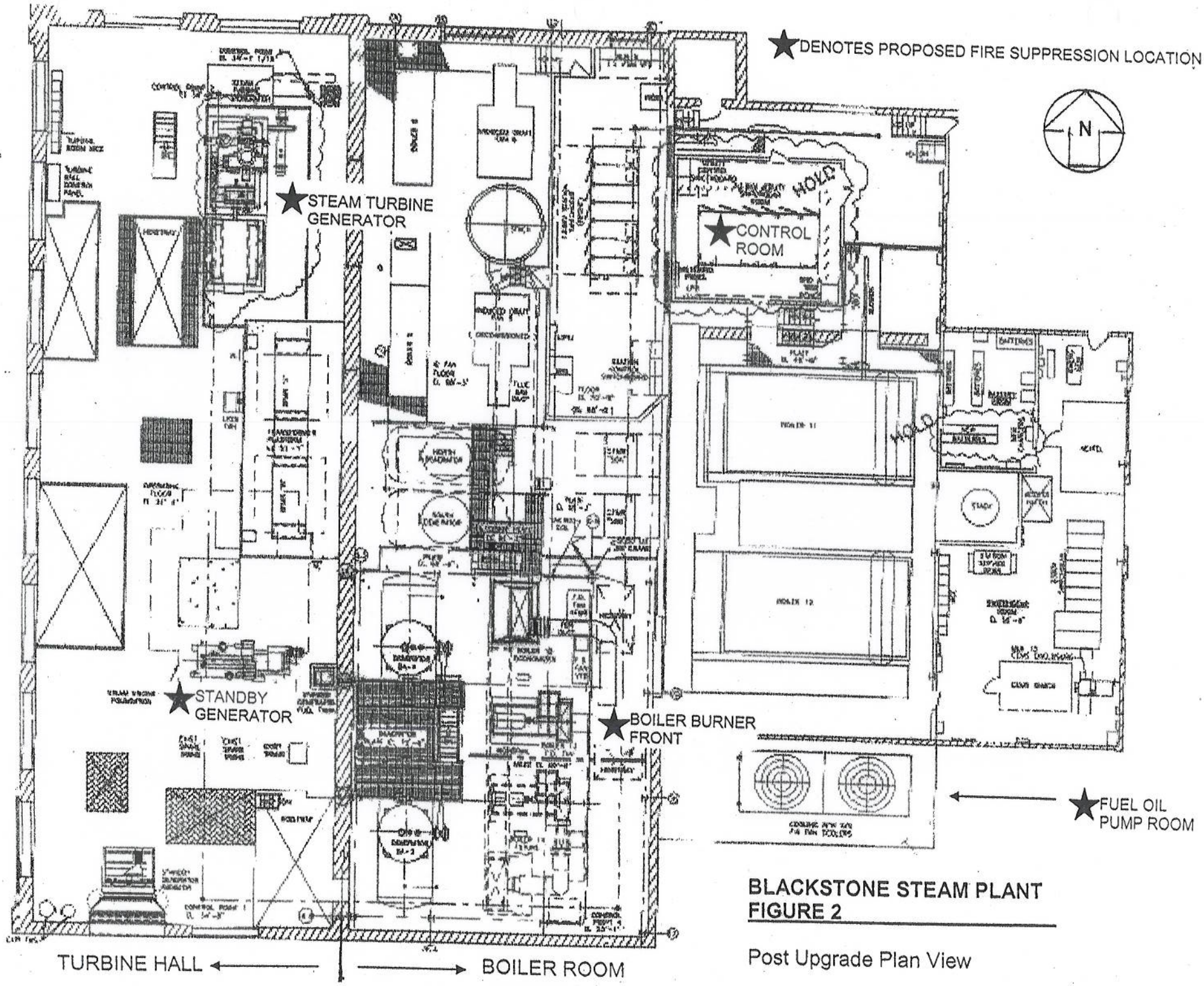
- **NFPA 13, 2002 Edition**, Installation of Sprinkler Systems
- **NFPA 14, 2003 Edition**, Installation of Standpipe and Hose Systems
- **NFPA 15, 2001 Edition**, Water Spray Fixed Systems
- **NFPA 25, 2002 Edition**, Inspection, Testing and Maintenance of Water Based Fire Protection Systems.
- **NFPA 72, 2002 Edition**, National Fire Alarm Code

APPENDIX A
Figures



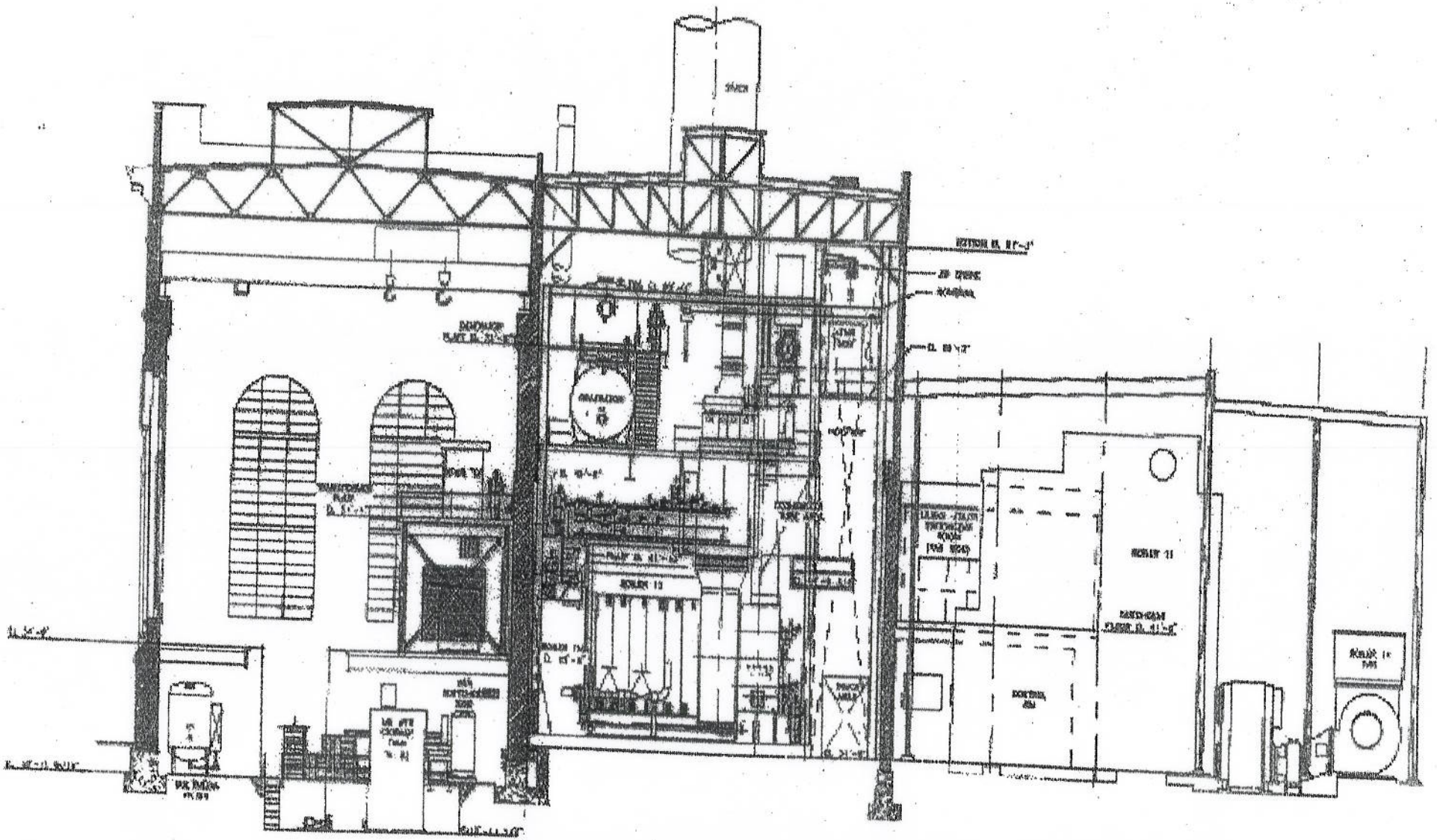
BLACKSTONE STEAM PLANT
FIGURE 1

Existing Plan View



BLACKSTONE STEAM PLANT
FIGURE 2

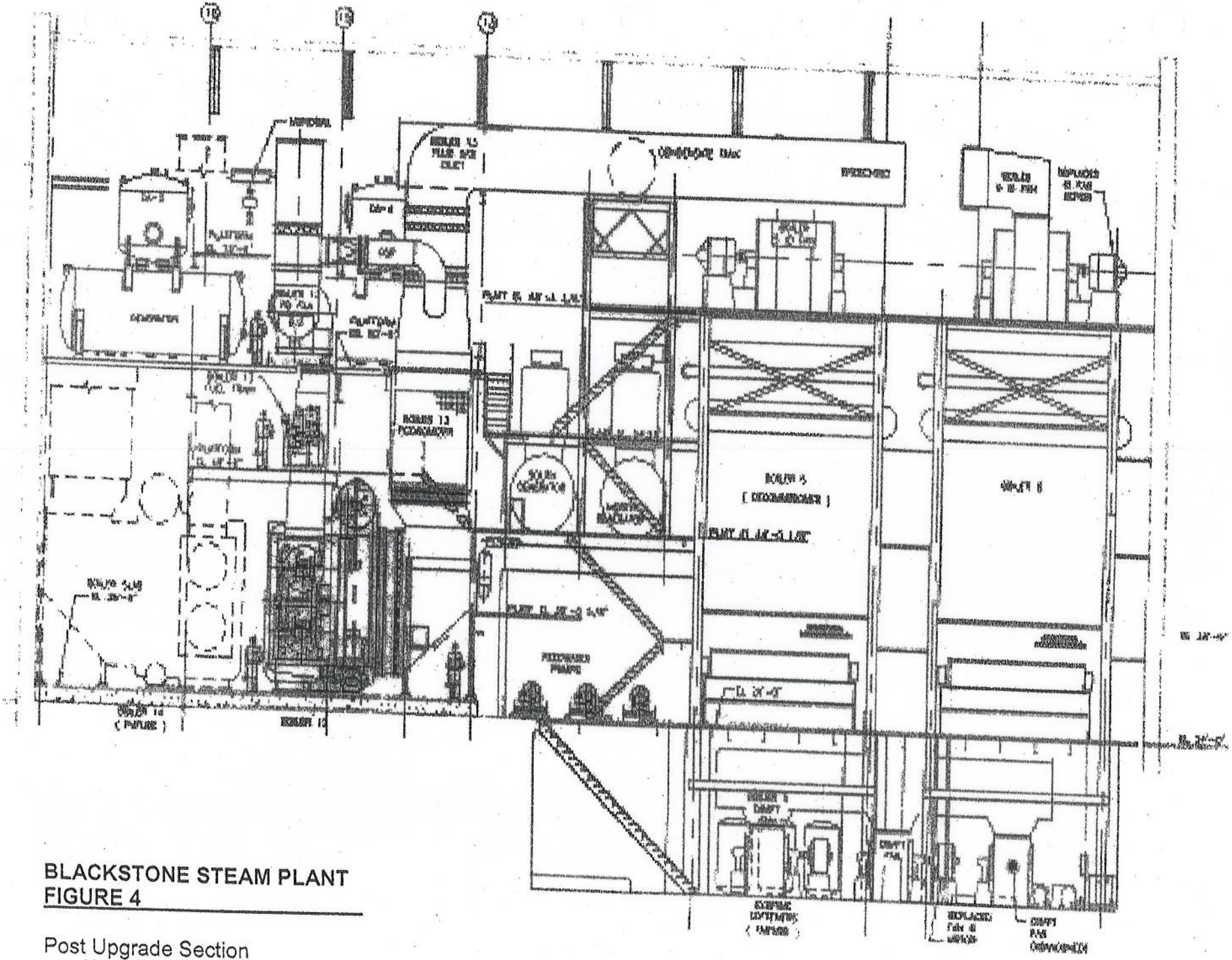
Post Upgrade Plan View



TURBINE HALL ← → BOILER ROOM

BLACKSTONE STEAM PLANT
FIGURE 3

Post Upgrade Section
Looking North through Turbine Hall and Boiler Room



BLACKSTONE STEAM PLANT
FIGURE 4

Post Upgrade Section
Looking West through Boiler Room

APPENDIX B
Correspondence

CITY OF CAMBRIDGE
ISO CLASS 1
FIRE DEPARTMENT

FIRE HEADQUARTERS
491 BROADWAY, CAMBRIDGE, MA. 02138
Ph: (617) 349-4921 Fax: (617) 349- 4912
www.cambridgema.gov

GERALD R. REARDON
CHIEF OF DEPARTMENT

JOHN J. GELINAS
CHIEF OF OPERATIONS

March 20, 2006

Mr. Douglas Schmidt
Project Manager
46 Blackstone Street
Cambridge, MA 02139

Dear Mr. Schmidt:

I am in receipt of your letter requesting relief from installing complete automatic sprinkler protection at the Blackstone plant. I would like to acknowledge your cooperation with meeting the requirements of Massachusetts General Laws Chapter (MGL) 148 Section 26A½.

MGL 148 § 26A½ requires that all fire sprinkler systems be installed in accordance with the provisions of 780 CMR - The Massachusetts State Building Code (MSBC). MSBC Section 901.2 states: "all fire protection systems required by 780 CMR (MSBC) shall be installed, repaired, operated and maintained in accordance with 'this code' and the applicable reference standards listed in Appendix A. The MSBC Appendix A does not recognize the NFPA 850 standard.

Your request to seek relief from the requirements of Chapter 148 26A½ is hereby denied. You may within 45 days of receipt of this letter, seek appeal to the Fire Safety Commission Automatic Sprinkler Appeals Board. A copy of the ASAB application is included with this letter. If you have any questions or would like additional information, please do not hesitate to contact me at (617) 349-4967.

So Ordered,

Deputy Chief Daniel J. Turner
Bureau of Fire Prevention

Chief Gerald R. Reardon
Fire Chief, Cambridge Fire Department

UNIVERSITY OPERATIONS SERVICES
ENGINEERING AND UTILITIES

February 14, 2006

Dan Turner Deputy Chief
Fire Prevention Division
Cambridge Fire Department
491 Broadway
Cambridge, MA 02138
Attn: Mr. Daniel J. Turner, Deputy Chief

RE: Blackstone Steam Plant
MGL Chapter 148, Section 26A ½
Automatic Fire Suppression

Dear Deputy Chief Turner:

As described in the November 9, 2005 letter prepared by Harvard's engineering consultant Hughes Associates that was submitted to you with my letter of January 9, 2006 it has been determined that turbine hall and boiler room buildings that comprise the Blackstone steam plant exceed 70 feet in height. Because of this MGL Chapter 148, Section 26A ½ classifies the steam plant as a high rise building prompting a requirement for automatic sprinkler coverage in accordance with the Massachusetts State Building Code. Despite high rise designation however the steam plant buildings are very much unlike a typical multi-storied high rise and would not be particularly well protected during a fire emergency by an automatic sprinkler system designed to provide blanket coverage of the buildings. This is due to building geometry which consists of large open interior spaces as well as the type and configuration of equipment that is operated for the purpose of thermal energy production within the steam plant.

NFPA 850, "Recommended Practice for Fire Protection for Electric Generating Plants and High Voltage Direct Current Converter Stations", identifies specific fire risk areas associated with energy production facilities such as the Blackstone steam plant and describes individual protective measures that are appropriate to respective risk elements that exist in such facilities. It is proposed that measures as prescribed in NFPA 850 would provide the most effective protection against fire hazards at the Blackstone steam plant and that such measures be installed to fulfill the more general sprinkler protection requirements of Section 26A ½ and the MSBC. Protective measures proposed at Blackstone consist of automatic suppression at the following locations.

1. Within the pump room that houses existing heavy fuel oil pumps and that will house future new light fuel oil pumps.

Douglas C. Schmidt
Project Manager
Engineering and Utilities
46 Blackstone Street
Cambridge, MA 02139

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douglas_schmidt@harvard.edu

2. In boiler fuel oil burner front areas and in areas where a fuel oil fire may exist to control a fire incident involving light fuel oil.
3. At lubrication oil lines, lubrication oil equipment, and hydraulic oil equipment associated with a future new steam turbine generator.
4. At a future new standby diesel-generator set.
5. At fuel oil handling areas.

Also, new electrical systems including new transformers and switchgear will be added as part of a project that will replace old steam production equipment. All transformers will be of the dry-type design and will not contain insulating oil. New switchgear will be housed within two-hour fire-rated enclosures. Based on these design features fire suppression is not proposed at any of the new electrical equipment.

Finally, the water supply to existing hose connections within the steam plant will be reconfigured for increased reliability by supplying water directly from the steam plant city water connection. This is as compared to the current arrangement by which water is supplied to the hose connections from electric driven service water pumps which may not be available during an emergency.

For reasons stated, this letter requests relief from the Massachusetts State Building Code automatic sprinkler requirement in favor of implementing fire suppression measures in accordance with NFPA 850. Please do not hesitate to contact me should there be any questions concerning this request or if additional information is required.

Sincerely,