

Red Line/Blue Line Connector Project

Boston,
Massachusetts

Massachusetts Department of Transportation
Boston, Massachusetts



March 2010



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Hazardous Materials Inspection

1.1 Introduction

TRC Environmental Corporation (TRC) prepared this Hazardous Materials Inspection Report for the Massachusetts Department of Transportation (MassDOT) and STV Incorporated (STV) in accordance with the signed contract, dated June 15, 2009. The hazardous materials inspection was conducted in existing MBTA infrastructure within the Red Line/Blue Line Expansion Project Corridor. The Project Corridor is an MBTA Right-of-Way located along Cambridge Street, situated between Charles/MGH Station and Bowdoin Station and between Bowdoin Station and Government Center Station. A Site Location Map, depicting the approximate boundaries of the Project Corridor, is provided in Attachment 1.

The inspection was conducted in accessible areas where modification or demolition activities to existing MBTA infrastructure and/or structures have been proposed. STV and MBTA personnel accompanied TRC and directed the focus of the inspection to structures where proposed demolition and/or construction activities may occur.

This Hazardous Materials Inspection Report documents the findings of the hazardous materials inspection performed by TRC on August 19 and 20, 2009.

1.1.1 Statement of Purpose

This Hazardous Materials Inspection Report serves to provide information concerning the current location, condition, and type of hazardous materials or suspect hazardous materials located within the Project Corridor which may be disturbed by proposed demolition and/or construction activities. The report findings document existing conditions in the Project Corridor, recommend additional assessment and/or material management, and support the preparation of contractor bid packages.

1.1.2 Scope of Services

The hazardous materials inspection consisted of a visual, qualitative inspection of hazardous materials, items suspected to contain hazardous materials, hazardous wastes, and biological hazards existing in accessible areas within the Project Corridor.

TRC conducted the hazardous materials inspection for lead/lead-based paint (LBP), mercury-containing electrical equipment, asbestos-containing materials (ACM), equipment containing polychlorinated biphenyls (PCBs), petroleum, and hazardous waste as well as mold, fungi, rodent/bird droppings, and guano.

The findings of the hazardous materials inspection are summarized in Section 1.3 of this report. Recommendations are provided in Section 1.4.

1.1.3 Limitations

Findings presented within this report are representative only of existing conditions within the subsurface structures along the Project Corridor as of the date and time of the inspection. This inspection did not include quantitative hazardous materials assessment. No testing, sampling, or laboratory analysis of suspect hazardous materials was conducted. No destructive means were utilized to gain access to hidden or inaccessible areas such as pipe chases, wall voids, or ceiling cavities. As such, lists of suspect hazardous materials identified in the Project Corridor and presented in this report are not comprehensive. Precaution should be used in relation to unidentified materials until a proper quantitative assessment has identified these materials.

1.2 Description of Project Corridor

The Red Line-Blue Line Project Corridor is an MBTA Right-of-Way located beneath Cambridge Street in downtown Boston, Massachusetts, and is situated between Charles/MGH Station and Bowdoin Station and between Bowdoin Station and Government Center Station.

The Project Corridor is approximately 0.6 miles in length and consists of various areas including railway stations, tunnels, mechanical rooms, and electrical closets totaling approximately 383,000 square feet of space. A *Site Location Map*, identifying the general vicinity of the Project Corridor, is provided in Attachment 1. Attachment 2 provides photographic documentation of existing site conditions.

1.3 Observations and Findings

TRC's MA-licensed Asbestos Inspectors, John McRobbie and Henry Laliberte, conducted the hazardous materials inspection of the Project Corridor on August 19 and 20, 2009. While accompanied by STV and MBTA personnel, the inspectors performed visual, qualitative inspection for hazardous materials, suspect hazardous materials, hazardous wastes, and biological hazards existing in accessible areas within the Project Corridor. This section provides summaries of observations made during the inspection performed by TRC on August 19 and 20, 2009. Site photographs are provided in Attachment 2.

1.3.1 Lead

TRC identified various surfaces suspected to be coated in LBP due to the age of the structures. These surfaces generally include plaster-coated walls and ceilings (Photograph Nos. 3 and 4), metal doors and frames, (Photograph No. 7), ceramic tiles (Photograph No. 5), support columns (Photograph No. 11), and metal stairwells and railings (Photograph No. 6). In addition, TRC suspects that the yellow-painted caution strips at each train platform may contain LBP (Photograph No. 3). The conditions of observed surfaces ranged from poor (i.e. flaking) to good condition. Dust was observed throughout the Project Corridor. It is possible that a portion of the dust is from the disintegration of the above mentioned painted surfaces. TRC also observed white, tan, and blue glazed ceramic tiles and wall blocks throughout the Project Corridor. Glazes used on these materials are suspected to contain lead. The glazed ceramic tiles were generally in good condition.

No additional suspect lead-containing materials were observed within the Project Corridor.

1.3.2 Mercury

TRC observed numerous suspect mercury-containing lamps in fluorescent light fixtures throughout various areas of the Project Corridor (Photograph No. 2). The lamps were noted to be in good condition.

Although various other electrical components and equipment were noted during the survey, no mercury thermostats, mercury switches, or other suspect mercury-containing electrical equipment was observed.

No additional suspect mercury-containing materials were observed within the Project Corridor.

1.3.3 Asbestos

During the inspection, TRC identified various types of suspect ACM throughout the Project Corridor. These suspect ACMs are identified in the below summary table.

SUSPECT ACM SUMMARY TABLE			
Material Description	Location	Condition	Picture No.
Bowdoin Street Station			
Plaster Finish Coat	On concrete deck	Friable / Poor-Fair	4
Busing Insulation	Within high voltage conduit	Unknown	10
Fire Door Insulation	Within fire doors	Unknown	No Photo
Door Caulking (Gray)	Around door frame seams	Non-Friable - Good	7
Fiber Board	In wooden panel electric boxes	Non-Friable - Fair-Good	9
Stairway Caulking (Gray)	Stairwell	Non-Friable - Good	8
Ceramic Squares and Associated Mastic/Backing	Throughout	Non-Friable - Good	5
Transite Discs	In electric boxes and on panels	Non-Friable - Good	1
Charles Street Station			
No suspect ACM was observed in areas of proposed construction.			
Bowdoin Yard Tunnel			
Plaster Finish Coat	On concrete deck	Friable / Poor-Fair	4
Busing Insulation	Within high voltage conduit	Unknown	10
Woven Wire Jacket	Along railway track	Friable / Poor-Fair	16
Woven Busing Jacket	In Box # J903 along track	Friable / Poor-Fair	16
Fire Door Insulation	Within fire doors	Unknown	No Photo
Door Caulking (Gray)	Around door frame seams	Non-Friable - Good	7
Fiber Board	In wooden electric boxes	Non-Friable - Fair-Good	9
Stairway Caulking (Gray)	Stairwell entryway	Non-Friable - Good	8
Ceramic Squares and Associated Mastic/Backing	Throughout	Non-Friable - Good	5
Transite Discs	In electric boxes and on panels	Non-Friable - Good	1
Bowdoin Loop to Government Center			
Plaster Finish Coat	On concrete deck	Friable / Poor-Fair	4
Busing Insulation	Within high voltage conduit	Unknown	10
1' x 1' Floor Tiling and Associated Mastic	Communications Room	Non-Friable - Good	14
Wall Panel Glue	Communications Room	Non-Friable - Good	15

1.3.4 Polychlorinated Biphenyls

As discussed in Section 1.3.2, fluorescent light fixtures were observed throughout the Project Corridor. TRC believes that the fluorescent light fixtures predate 1978 and, therefore, the light ballasts could contain PCBs within asphalt-like mixture within the ballasts. Observed fluorescent light fixtures and ballasts appeared in good condition and did not exhibit signs of leakage.

TRC also observed several other suspect PCB-containing materials within the Project Corridor including busing insulation within high voltage conduit (Photograph No. 10), doorway and stairwell caulking (Photograph Nos. 7 and 8), and mastics.

No transformers were identified during the inspection.

No additional suspect PCB-containing equipment or materials were observed within the Project Corridor.

During the inspection, MBTA personnel stated that approximately ten years ago the MBTA undertook a system wide PCB removal effort. During that time most PCB-containing equipment was removed from the MBTA system.

1.3.5 Petroleum Products

TRC observed several 5-gallon closed containers of curve grease (also known as "rail grease") located on a concrete pad within the Project Corridor (Photograph No. 12). The containers were in good condition with no evidence of leaks. According to MBTA personnel, grease is used on both trains and tracks during typical railway maintenance operations. TRC observed grease on the tracks and on underlying stone and ties throughout the Project Corridor (Photograph No. 13); the majority of which was observed within the Bowdoin Yard Tunnel.

No additional evidence of petroleum staining, use, or storage was observed within the Project Corridor.

1.3.6 Other Hazardous Materials

TRC observed various types of out of service electrical equipment throughout the Project Corridor. Some of this electrical equipment may contain hazardous materials (heavy metals, oils, asbestos, etc...). No evidence of staining or leaks was observed around the out of service electrical equipment.

No additional evidence of hazardous materials was observed within the Project Corridor.

1.3.7 Hazardous Wastes

TRC did not observe any hazardous wastes stored within the Project Corridor.

1.3.8 Biological Hazards

1.3.8.1 Mold

No evidence of mold was observed within the Project Corridor.

1.3.8.2 Fungi

No evidence of fungi was observed within the Project Corridor.

1.3.8.3 Rodent/Bird Droppings

No evidence of rodent or bird droppings was observed within the Project Corridor.

1.3.8.4 Guano

No evidence of guano was observed within the Project Corridor.

1.4 Conclusions and Recommendations

The following conclusions and recommendations make the assumption that modification or demolition construction activities could potentially disturb a suspect hazardous material. If modification or demolition construction activities will not impact structures containing a suspect hazardous material; no additional hazardous material assessment is recommended.

Based on the findings of the hazardous materials inspection, TRC draws the following conclusions and offers the following recommendations:

1.4.1 Suspect Lead-Containing Materials

Painted surfaces and glazed ceramic tiles located throughout the Project Corridor are suspected to be lead-containing. Dust was observed throughout the Project Corridor on various structures and equipment. Due to the potential presence and condition of potential LBP and other lead-containing materials within the Project Corridor; lead containing dust may exist. Renovation/construction activities are likely to disturb materials containing lead which could result in elevated lead levels in air, thus posing an inhalation hazard to site workers. Materials identified herein as suspect lead-containing should be considered to contain lead until proven otherwise through sampling and laboratory analysis.

TRC recommends that the following items be addressed prior to future modification or demolition construction activities that could potentially disturb suspect LBP and lead in dust within the Project Corridor:

1. Suspect LBP within the Project Corridor which may be disturbed should be tested by EPA-licensed Lead Inspectors using X-Ray Fluorescence (XRF) Analyzers, or sampled for laboratory analysis. The Inspectors should also conduct random dust wipe tests to confirm or deny the presence of lead in dust within the Project Corridor.
2. Contractors performing work that will disturb LBP or lead in dust at the Site should comply with the requirements of OSHA standard 29 CFR 1926.62, *Lead in Construction Standard*, as well as applicable federal, state, and local requirements pertaining to the disturbance of LBP.
3. Glazed ceramic tiles suspected to be lead-containing and which may be disturbed should be sampled by EPA-licensed Lead Inspectors and analyzed via *Toxicity Characteristic Leaching Procedure (TCLP) Methods SW846-1311/7420* in accordance with federal waste management regulations prior to demolition waste disposal. A green alternative to disposal would be reusing the decorative tiles; thereby avoiding the disposal and sampling requirements.

1.4.2 Suspect Mercury-Containing Materials

Fluorescent lamps or tubes typically contain low levels of mercury. Numerous fluorescent lamps are present in ceiling-mounted fixtures within the Project Corridor. Mercury vapors from broken lamps or tubes are toxic and can be absorbed into the bloodstream through inhalation.

As required by hazardous waste regulations, used fluorescent lamps must be managed in accordance with the State-adopted *Universal Waste Rule* (310 CMR 30.1000). Lamps or tubes removed from the light fixture must be stored properly, labeled, and disposed of within 1 year.

1.4.3 Suspect Asbestos-Containing Materials

Various materials observed throughout the Project Corridor are suspected to be asbestos-containing. Dust was observed throughout the Project Corridor on various structures and equipment. Due to the potential presence and condition of potential ACM-containing materials within the Project Corridor; asbestos containing dust may exist. The presence of asbestos may represent an inhalation hazard to site workers if asbestos fibers become airborne or if renovation/demolition activities are performed. Suspect ACM identified in this report should be considered to contain asbestos until proven otherwise through sampling and laboratory analysis.

TRC recommends that the following items be addressed prior to future modification or demolition construction activities that could potentially disturb ACM and ACM in dust within the Project Corridor:

1. Identified suspect ACM should be quantified and sampled by Massachusetts-licensed Asbestos Inspectors for asbestos content in accordance with Environmental Protection Agency (EPA) NESHAPS and OSHA requirements;
2. ACM positively identified through laboratory analysis, in materials that will be demolished during construction, should be removed prior to or during the construction activity, by a Massachusetts-licensed asbestos abatement contractor in accordance with applicable federal, state, and local regulations; and
3. Prior to the start of renovation/demolition activities that may disturb identified ACM, TRC recommends that a Massachusetts-licensed Asbestos Designer prepare a project specification that would reference applicable regulations and work practices that the asbestos abatement contractor must follow.

1.4.4 Suspect Polychlorinated Biphenyls

Fluorescent light ballasts manufactured before 1978 typically contained PCBs within the tar-like potting material within the ballast box. Numerous fluorescent light ballasts are present in ceiling-mounted fixtures within the Project Corridor. It is unknown if the ballasts are PCB-containing (greater than 500 parts per million PCBs), are PCB-contaminated (> 50 ppm but less than 500 ppm PCBs), or are non-PCB (<50 ppm PCBs). The concentrations of PCBs in the ballasts determine the proper management of the wastes under state hazardous waste regulations (310 CMR 30.105 and 30.131).

PCBs may also be present in busing insulation within high voltage conduit, doorway and stairwell caulking, and mastics. PCB labels were not observed on any of the ballasts or busing insulation.

TRC recommends that the following items be addressed during future modification or demolition construction activities that could potentially disturb suspect PCB-containing materials within the Project Corridor:

1. Manage fluorescent light ballasts in accordance with the Massachusetts hazardous waste management regulations (310 CMR 30.000), based on the PCB concentration.. Prior to disposal, ballasts should be checked for PCB concentration. For all non-PCB ballasts (i.e. less than 50 ppm PCBs), the waste ballasts should be managed as oily wastes (MA01 wastes), and ballasts containing greater than 50 ppm PCBs, must be managed as PCB-contaminated or PCB-containing hazardous wastes (MA02 wastes). Special handling requirements are needed for leaking, PCB-contaminated and PCB-containing ballasts.
2. Manage other suspect PCB-containing materials (busing insulation within high voltage conduit, doorway and stairwell caulking, and mastics) in accordance with Massachusetts hazardous waste management regulations.

1.4.5 Petroleum Products

TRC observed a minor quantity of 5-gallon closed containers of curve grease located on a concrete pad within the Project Corridor. The containers were in good condition with no evidence of leaks.

TRC observed some areas of grease on the tracks and on underlying stone and ties throughout the Project Corridor; the majority of which was observed within the Bowdoin Yard Tunnel. However, there were no large areas of grease beneath the tracks that would indicate a reportable release under the MCP.

TRC recommends that the following item be addressed during future modification or demolition construction activities that could potentially disturb grease impacted track, stone, and ties within the Project Corridor:

1. Manage petroleum impacted materials (track, stone, and ties) in accordance with the Massachusetts hazardous waste management regulations if disturbed during modification or demolition construction activities. If during constructing activity petroleum impacted soil is identified beneath the track a reportable condition may exist and will need to be managed in accordance with the MCP.

1.4.6 Other Hazardous Materials

TRC observed various types of out of service electrical equipment throughout the Project Corridor. Some of this electrical equipment may contain hazardous materials (heavy metals, oils, asbestos, etc...). No evidence of staining or leaks was observed around the out of service electrical equipment.

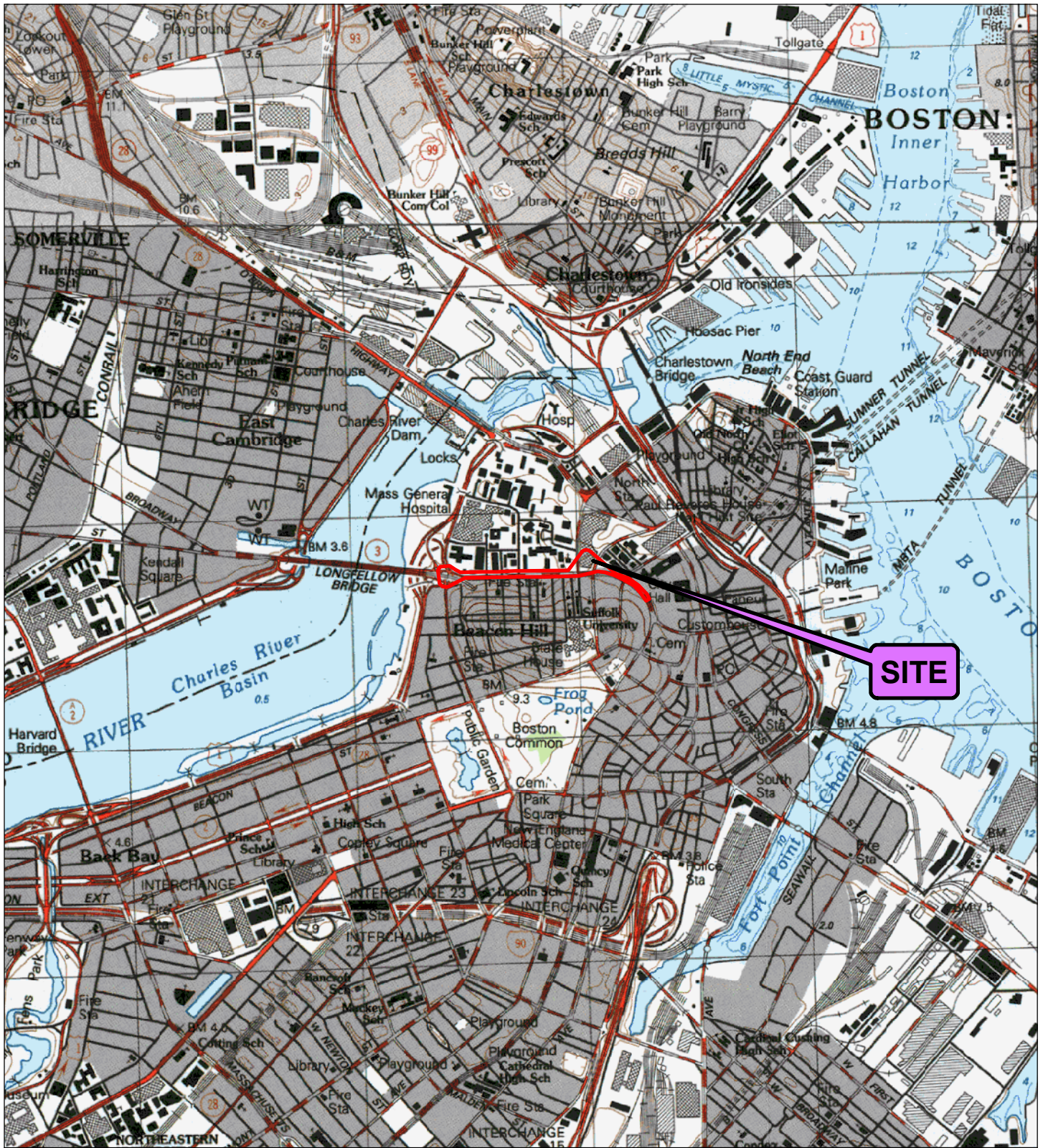
TRC recommends that the following item be addressed prior to future modification or demolition construction activities that could potentially disturb fluorescent light ballasts within the Project Corridor:

1. Dispose of out of service electrical equipment in accordance with appropriate State and Federal regulations.

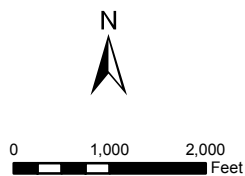
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Attachment 1

Site Location Map



— Approximate Site Boundary



MASSACHUSETTS



Wannalancit Mills
650 Suffolk Street
Lowell, MA 01854
978-970-5600

SITE LOCATION MAP

**RED LINE / BLUE LINE
CONNECTOR PROJECT
BOSTON, MASSACHUSETTS**

Attachment 1

September 2009

Attachment 2

Photograph Log

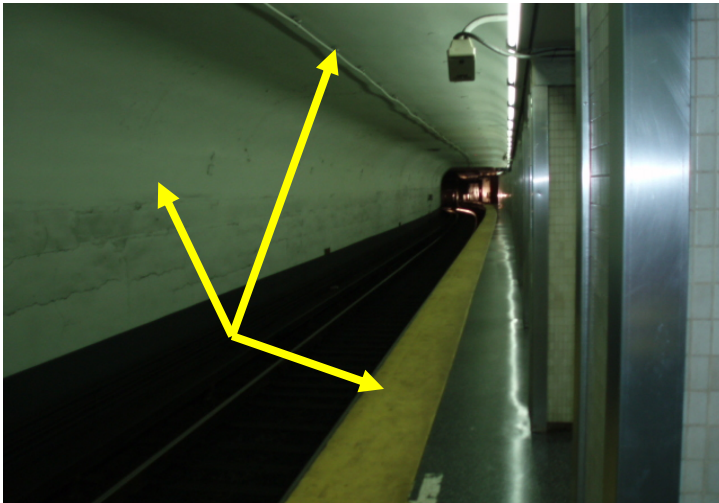
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1. View of suspect asbestos-containing transite discs located in an electrical room within Bowdoin Street Station.



2. View of fluorescent light fixtures observed in various lighted areas throughout the Project Corridor. The fixtures contain suspect PCB-containing ballasts.



3. View of painted wall, ceiling, and yellow caution strip suspected to contain lead-based paint.



4. View of damaged suspect asbestos-containing plaster skim coat. The painted surface of the skim coat is suspected to contain lead-based paint.

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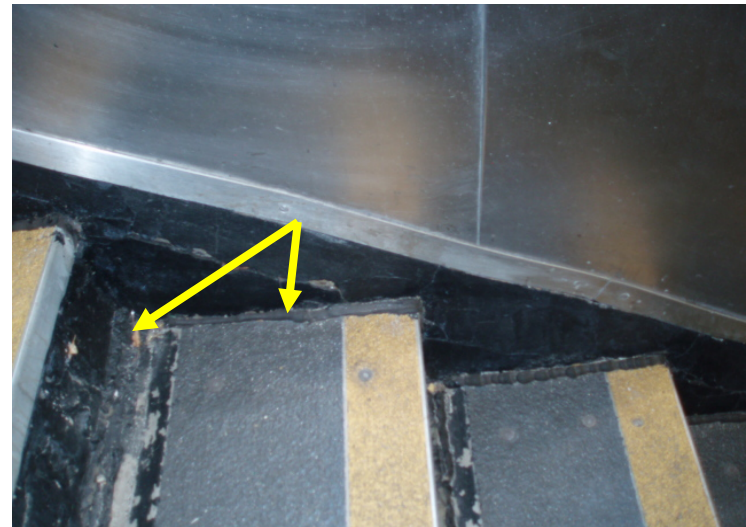
5. View of white ceramic tiles suspected to contain lead. The tiles were observed on support columns and walls in various areas throughout the Project Corridor.



6. View of a steel stairwell and railing located at an emergency exit within Bowdoin Street Station. The stairwell is coated in paint suspected to be lead-based.

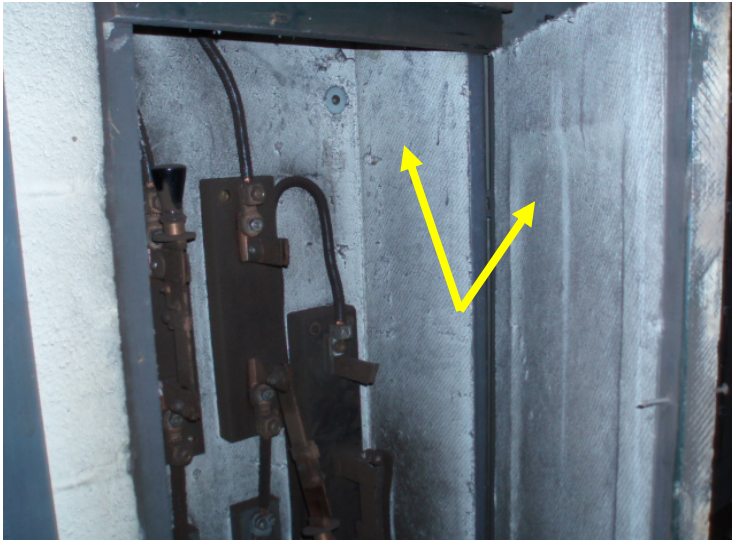


7. View of suspect PCB/asbestos-containing caulking typically found around door frames within the Project Corridor.

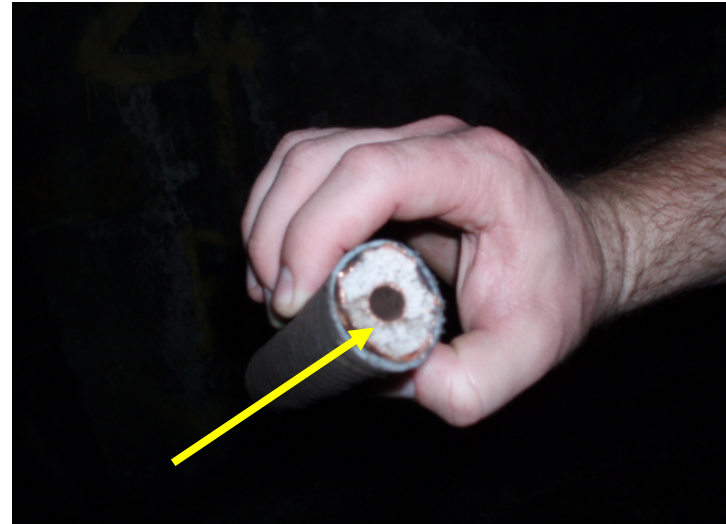


8. View of suspect PCB/asbestos-containing caulking identified on stairwells within the Project Corridor.

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9. View of suspect fiber board located within wood panel electric boxes and other areas within the Project Corridor.



10. View of busing insulation which may contain suspect asbestos wrap and/or PCBs. The material is typically found in high-voltage conduits within the Project Corridor.



11. View of painted support columns suspected to contain lead-based paint.



12. View of 5-gallon containers of curve grease used for typical railway maintenance operations

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13. View of curve grease on train railway.



14. View of suspect asbestos-containing vinyl floor tiles located within a communications room within the Project Corridor.



15. View of wood wall paneling and suspect asbestos-containing wall panel glue located within a communications room.



16. View of suspect asbestos-containing, woven wire insulation found in Bowdoin Yard Tunnel