City of Lawrence

Office of the Purchasing Agent

City Hall, Room 301

200 Common Street

Lawrence, Massachusetts 01840

DANIEL RIVERA
MAYOR

RITA V. BROUSSEAU
CHIEF PROCUREMENT
OFFICER

TEL: (978) 620-3240
FAX: (978) 722-9120
www.cityoflawrence.com

BID ADDENDUM #1

To: All Bidders

From: Rita V. Brousseau, Chief Procurement Officer

Date: November 29, 2017

Re: Brownfields Cleanup & Assessment Services at Tombarello Site RFQ

This Addendum modifies and forms a part of the Bid Set documents dated November 29, 2017.

This Addendum consists of the following: one (1) typed page & three (3) documents.

Where any items called for in the bid documents are supplemented here, the supplemental requirements shall be considered as added thereto. Where any original item is amended, voided, or superseded here, the other provisions of such items not specifically amended, voided, or superseded shall remain in effect.

The following reports are hereby incorporated to the original bid documents:

- FY 2017 Cleanup Application
- FY 2017 Site-Specific Assessment Proposal
- Nobis Targeted Brownfields Assessment Report

NOTE TO ALL BIDDERS: YOU MUST ACKNOWLEDGE RECEIPT OF ALL ADDENA ON YOUR BID SUBMISSION FORM WHERE INDICATED.

CITY OF LAWRENCE
OFFICE OF THE MAYOR

City Hall • 200 Common Street • Lawrence, MA 01840
Tel: (978) 620-3010 • www.cityoflawrence.com

DANIEL RIVERA
MAYOR & CEO

December 1, 2016

Frank Gardner
US EPA Region 1
5 Post Office Square
Suite 100, Mail code: OSRR7-2
Boston, MA 02109-3912

Subject: Cover Letter, Brownfield Cleanup Grant Proposal, Lawrence, MA

Dear Mr. Gardner:

I am pleased to submit this application for a Brownfield Cleanup grant that will further Lawrence's commitment to public health, environmental and economic revitalization. The City of Lawrence has utilized previous grants as important tools in our successful redevelopment efforts such as the national award winning Manchester Street Park, the Spicket River Greenway, and the recently completed Union Crossing affordable housing development. We look forward to this funding to support the cleanup of the 14-acre Tombarello property that when redeveloped will offer economic, health and environmental benefits to the city.

A. Applicant Identification:
   City of Lawrence
   Lawrence City Hall
   200 Common St.
   Lawrence MA 01840

B. Funding Requested:
   i. Grant type: Cleanup
   ii. Federal Funds Requested: $200,000; Yes, we are requesting a cost-share waiver. Please see the page titled, "Hardship Waiver Request" included in this application package.
   iii. Contamination: Hazardous Substances

C. Location: City of Lawrence, Essex County, MA

D. Property Information: Tombarello Site Lot #1, 207 Marston St., Lawrence, MA 01841

E. Contacts:

i) Project Director:
Name: Abel Vargas, Business and Economic Development Director
Telephone: 978-620-3015
Fax: 978-722-9430
E-mail: avargas@cityoflawrence.com
Mailing Address: City of Lawrence Community Development Department, 225 Essex Street, Third Floor, Lawrence, MA 01840

ii) Chief Executive/Highest Ranking Elected Official:
Name: The Honorable Mayor Daniel Rivera
Telephone: 978-620-3010
Fax: 978-722-9200
E-mail: MayorRivera@cityoflawrence.com
Mailing Address: Office of the Mayor, City Hall, 200 Common St., Third Floor, Lawrence, MA 01840

F. Population:

i) Population of Lawrence, MA according to the U.S. Census 2010: 76,377
ii) Lawrence is a municipal form of government.
iii) No Lawrence is not located within a county experiencing "persistent poverty."

G. Other Factors Checklist: Attached Appendix 3

H. Letter from the State or Tribal Environmental Authority: Attached

Thank you for your consideration of our proposal.

Sincerely,

Daniel Rivera
Mayor & CEO

OTHER FACTORS CHECKLIST
(Appendix 3)

Appendix 3
Cleanup Other Factors Checklist

Name of Applicant: Lawrence, MA

Please identify (with an *x*) which, if any of the below items apply to your community or your project as described in your proposal. To be considered for an Other Factor, you must include the page number where each applicable factor is discussed in your proposal. EPA will verify these disclosures prior to selection and may consider this information during the selection process. If this information is not clearly discussed in your narrative proposal or in any other attachments, it will not be considered during the selection process.

Other Factor	Page #
None of the Other Factors are applicable.	
Community population is 10,000 or less.	
Applicant is, or will assist, a federally recognized Indian tribe or United States territory.	
Target brownfield sites are impacted by mine-scarred land.	
Applicant demonstrates firm leveraging commitments for facilitating brownfield project completion by identifying amounts and contributors of funding in the proposal and have included documentation.	X pg. 9, 10
Recent (2008 or later) significant economic disruption has occurred within community, resulting in a significant percentage loss of community jobs and tax base. Threshold Criteria Hardship Waiver.	X Pg. 1, 4, 5
Applicant is one of the 24 recipients, or a core partner/implementation strategy party, of a "manufacturing community" designation provided by the Economic Development Administration (EDA) under the Investing in Manufacturing Communities Partnership (IMCP). To be considered, **applicants must clearly demonstrate in the proposal the nexus between their IMCP designation and the Brownfield activities. Additionally, applicants must attach documentation** which demonstrate either designation as one of the 24 recipients, or relevant pages from a recipient's IMCP proposal which lists/describes the core partners and implementation strategy parties.	
Applicant is a recipient or a core partner of HUD-DOT-EPA Partnership for Sustainable Communities (PSC) grant funding or technical assistance that is directly tied to the proposed Brownfields project, and can demonstrate that funding from a PSC grant/technical assistance has or will benefit the project area. Examples of PSC grant or technical assistance include a HUD Regional Planning or Challenge grant, DOT Transportation Investment Generating Economic Recovery (TIGER), or EPA Smart Growth Implementation or Building Blocks Assistance, etc. To be considered, **applicant must attach documentation.**	
Applicant is a recipient of an EPA Brownfields Area-Wide Planning grant.	X pg. 14, 15

LETTER FROM THE STATE ENVIRONMENTAL AUTHORITY

Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

Department of Environmental Protection

One Winter Street Boston, MA 02108 • 617-292-5500

Charles D. Baker
Governor

Karyn E. Polito
Lieutenant Governor

Matthew A. Beaton
Secretary

Martin Suuberg
Commissioner

November 28, 2016

U.S. EPA New England
Attn: Frank Gardner
5 Post Office Square, Suite 100
Mail Code: OSRR07-3
Boston, MA 02109-3912

RE: **STATE LETTER OF ACKNOWLEDGMENT**
City of Lawrence, Application for EPA Cleanup Grant Fund, Lot #1, Former Tombarello & Sons, Inc.

Dear Mr. Gardner:

I am writing to support the proposal submitted by the City of Lawrence (City) under the Fiscal Year 2017 U.S. Environmental Protection Agency (EPA) Brownfield Cleanup Grant Program. The City is seeking funding to conduct cleanup of Lot #1, Former Tombarello & Sons, a Site that has documented releases of hazardous material and is listed with the Massachusetts Department of Environmental Protection (MassDEP) under Release Tracking Number (RTN) 3-0018126. Contamination at the Site consists of volatile organic compounds, semi-volatile organic compounds, metals and PCBs. This mix of contaminants in both soil and groundwater complicates the cleanup thus potentially increasing costs and delaying cleanup. Once this site can be cleaned up under the Massachusetts Contingency Plan (MCP), the City envisions the redevelopment of the property into neighborhood amenities, including a bank, convenience store, and a restaurant.

On January 23, 2015 Governor Baker signed his first Executive Order, creating the Community Compact Cabinet, in order to elevate the Administration's partnerships with cities and towns across the Commonwealth. Lieutenant Governor Polito chairs the cabinet, which concentrates financial, technical, and other resources at the state level to a select group of projects, including Brownfields. The City's compact was signed on September 23, 2015, ensuring any funding provided by EPA will be supported by a focused commitment of state resources.

We greatly appreciate EPA's continued support of Brownfield efforts here in Massachusetts.

Sincerely,

Rodney M Elliott

Rodney Elliott
Brownfields Coordinator, Bureau of Waste Site Cleanup

ec: Abel Vargas, Business and Economic Development Director, City of Lawrence
Joanne Fagan, Brownfields Coordinator, MassDEP Northeast Regional Office
Angela Gallagher, Assistant Brownfields Coordinator, MassDEP Southeast Regional Office

NARRATIVE PROPOSAL ATTACHMENTS

- Documentation of Committed Firm Leveraged Resources

- Letters of Commitment from Community Organizations

DOCUMENTATION OF COMMITTED FIRM LEVERAGED RESOURCES

- Merrimack Valley Planning Commission
- MA Department of Environmental Protection
- MA Development
- City DPW Chapter 90 Funds
- City OPD HUD CDBG (2019)
-

mvpc.org

Merrimack Valley
Planning Commission
plan • develop • promote

December 14th, 2016

The Honorable Daniel Rivera
City of Lawrence
200 Common St.
Lawrence, MA 01840

Subject: Commitment Letter for Brownfield Cleanup Grant -- Tombarello Site Lot #1

Dear Mayor Rivera:

The Merrimack Valley Planning Commission (MVPC) is pleased to support the City of Lawrence's application for a US EPA FY 2017 Brownfields Cleanup Grant and is ready to commit up to $100,000 from the Merrimack Valley Brownfield Revolving Loan Fund (RLF) as gap financing toward Lot 1 clean up. In addition, MVPC will assist the City of Lawrence with traffic data collection, technical reviews and other measures to support the development and implementation of roadway and transit improvements to improve access to the site.

MVPC began as the Central Merrimack Valley Regional Planning District in 1959. We have a distinguished record of accomplishment over the past ten years administering the Brownfields Cleanup Revolving Loan Fund for municipalities, nonprofit organizations, and private businesses across the Merrimack Valley region. The City of Lawrence utilized RLF funds to redevelop the GenCorp brownfield site into a new parking lot and, in partnership with Groundwork Lawrence, to develop the abutting Oxford Mill site into a new park with connection to the Spicket River Greenway. These measures helped support the redevelopment of Lawrence's Gateway District. Our assessment program also provided the City and Groundwork with assessment funds for city-owned vacant lots that were later converted into three community gardens.

The cleanup and redevelopment of the former Tombarello Site is an important step in the revitalization of the Marston St. commercial corridor. In support of this project, MVPC, working on behalf of the Merrimack Valley MPO, has been working with the City of Lawrence and the Massachusetts Department of Transportation to implement a project that would signalize and make other improvements to the nearby Marston Street/Ferry Street/Commonwealth Drive intersection.

160 Main Street, Haverhill, MA 01830 phone - 978 374 0519 • fax - 978 372 4890

We are excited by the planned redevelopment of the Tombarello site and the energy, investment and renewal that this project can bring to our great City. Please contact me for any assistance via phone: 978-374-0519 or email:jcosgrove@mvpc.org.

Sincerely,

Joseph Cosgrove
Environmental Program Manager

MassDEP

Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

Department of Environmental Protection

One Winter Street Boston, MA 02108 • 617-292-5500

Charles D. Baker
Governor

Karyn E. Polito
Lieutenant Governor

Matthew A. Beaton
Secretary

Martin Suuberg
Commissioner

December 15,2016

Mayor Daniel Rivera
City of Lawrence
200 Common St.
Lawrence, MA 01840

Subject: Commitment Letter for Brownfield Cleanup Grant
Tombarello Site Lot #1

Dear Mayor Rivera,

The Massachusetts Department of Environmental Protection (MassDEP) is pleased to support the City of Lawrence's application to the US EPA's FY 2017 Brownfields Cleanup Grant. MassDEP has been awarded a 2016 EPA 104k Assessment Grant and is willing to commit up to $20,000 toward pre-design assessment to facilitate Lot 1 clean up.

As the State's main environmental agency, MassDEP is committed to working in partnership with the City of Lawrence in brownfield cleanup and revitalization. The 2016 assessment grant that we received from EPA is focusing on Lawrence and Tombarello is one project within the targeted community. MassDEP believes that leveraging assessment funding for this project will be integral to getting the site ultimately cleaned up.

We are excited by the redevelopment of the Tombarello site and the human health, environmental and economic benefits that will be realized by its cleanup. Please contact me for any assistance via phone: 717-348-4017 or email: garry.waldeck@state.ma.us.

Sincerely,

Garry Waldeck
Mass DEP
Cc:Rodney Elliot

MASSDEVELOPMENT

99 High Street
Boston, Massachusetts
02110

Tel: 617-330-2000
800-445-8030

Fax: 617-330-2001

www.massdevelopment.com

December 14, 2016

Mr. Daniel Rivera
Mayor
City of Lawrence
200 Common Street
Lawrence, MA 01840

RE: 207 Marston Street (former Tombarello Junkyard), Lawrence, Massachusetts

Dear Mayor Rivera:

I am writing this letter to support the City of Lawrence's efforts to obtain $350,000 in FY17 Brownfields Site Specific, Hazardous Materials Assessment grant funding from the U.S. Environmental Protection Agency. As an Agency that frequently partners with you on advancing economic development projects on Brownfield sites, I am confident that you will use these funds to effectively advance the work needed to conduct additional environmental assessment and ultimately redevelop the long-blighted and fallow site at 207 Marston Street, Lawrence into an economic generator for the City.

As you are aware, MassDevelopment invested funds for site assessment and redevelopment concepts for this property beginning in 2003, when it was privately owned. We have continually maintained a high interest in redeveloping this key parcel and were enthusiastic to join the multi-agency working group that you convened in 2015 to initiate taking the property by tax title, outlining the steps required to advance comprehensive site assessment, and start building a framework to redevelopment the site. In our role as the Commonwealth of Massachusetts' economic development agency and administrator of its Brownfield Redevelopment Fund (BRF), we are committed to leveraging our combined resources to assist the City with turning this 13 acre eyesore into a transformative development for the area. Our Real Estate Services Division is currently preparing a scope of work on behalf of the City that will provide technical assistance in determining highest and best uses, market valuation and evaluate transportation improvements that will eventually be required; we anticipate that this work will commence in early January 2017.

MassDevelopment

99 High Street
Boston, Massachusetts
02110

Tel: 617-330-2000
800-445-8030

Fax: 617-330-2001

www.massdevelopment.com

Critical to the parcel's successful renewal is additional site assessment funding. MassDevelopment has deployed over $78 million in funds since the BRF was created in 1998 but recapitalization remains flat while demand for site assessment funds continues to grow, requiring Agency to look to partners like the City and other regional agencies to provide additional capital for project work. Together, we can ensure that scarce dollars have a multiplier effect and act as the early money that seeds future development. Our ability to jointly contribute funds and technical expertise will ensure that the City has the capacity to lay the groundwork for future development opportunities on the 207 Marston Street site.

We fully support your efforts to secure these assessment funds so that our Brownfield partnership can to advance this project for the residents of Lawrence.

Sincerely,

Elem Varitimos
Vice President
Community Development

12-14-16

Mayor Daniel Rivera
City of Lawrence
200 Common St.
Lawrence, MA 01840

Subject: Commitment Letter for Brownfield Cleanup Grant
Tombarello Site Lot #1

Dear Mayor Rivera,

The Department of Public Works (DPW) is pleased to support the City's FY2017 Brownfield Cleanup application to the EPA and commits $100,000 of Chapter 90 funds toward roadwork and sidewalk improvements.

The Marston St. corridor needs infrastructure improvements and is a priority for the City's Complete Streets projects. A chief complaint of neighborhood residents and businesses, in addition to the blighted brownfield site, is the heavily congested and unsafe road and walking conditions along Marston St. By coordinating our roadwork and sidewalk improvements with the cleanup and redevelopment of the Tombarello Site, we will be able to efficiently create a safer, more walkable neighborhood for residents.

We look forward to working with you on this important project and believe our work will contribute to its overall success.

Sincerely,

Lance Hamel

Lance Hamel
Acting Director of Public Works

CITY OF LAWRENCE
Office of Planning & Development

DANIEL RIVERA
Mayor & CEO

THERESA PARK
Planning Director

ABEL VARGAS
Business & Economic
Development Director

225 Essex Street
Third Floor
Lawrence, MA 01840
978-620-3510

PASCUAL "PAT" RUIZ
Inspectional Services
Director

PETER BLANCHETTE
Building Commissioner

200 Common Street
Room 210
Lawrence, MA 01840

www.cityoflawrence.com

12 Dec. 2016

Mayor Daniel Rivera
City of Lawrence
200 Common St.
Lawrence, MA 01840

Subject: Commitment Letter for Brownfield Cleanup Grant
Tombarello Site Lot #1

Mayor Rivera,

The Office of Planning and Development (OPD) fully supports the City's application to EPA for FY2017 Cleanup funding for Tombarello Site Lot #1. Toward this effort, we commit $50,000 of HUD CDBG funds in FY2019 to be used toward infrastructure improvements and utility connections.

As you know, the OPD team is committed to the economic and community revitalization of our City and the Marston St. commercial corridor is one of our primary focus areas. The cleanup and redevelopment of the Tombarello Site will further efforts already underway in the area, including traffic studies previously done in this area.

OPD staff is poised to assist with this exciting project and anticipate that the redevelopment of this site will be a lynchpin in the successful revitalization of our city.

Sincerely,

Theresa Park, Director
Office of Planning and Development

LETTERS OF COMMITMENT FROM COMMUNITY ORGANIZATIONS

- Groundwork Lawrence
- Neighborhood Associations
  - District A
  - Prospect Hill

December 13, 2016

Mayor Daniel Rivera
City of Lawrence
200 Common Street
Lawrence MA 01840

RE: EPA Brownfield Clean-up Grant for the Tombarello site

Dear Mayor Rivera,

Groundwork Lawrence (GWL) strongly supports the City's application to the EPA for the FY2017 Brownfield Cleanup funding so that this long-time contaminated eyesore can begin to contribute positively to the economic and community revitalization of our City.

As you know, GWL has a long history of partnering with the City of Lawrence on brownfield revitalization work which has resulted in over $21 million invested in place-based projects. As we work together to complete the current EPA brownfield area-wide planning project for the Manchester Lawrence railroad corridor, we look forward to our next brownfield partnership with the City revolving around the Tombarello site and the Merrimack Street corridor improvement project.

As a partner with the City, GWL will assist with outreach and community engagement, help organize public meetings and contribute to assessment, planning and implementation phases of the project. Through our Environmental Technical Training Program, offered in partnership with the Merrimack Valley Workforce Investment Board, we will work with the City to connect graduates of the EPA funded program with contractors working at this site.

GWL is enthusiastic about partnering with the City in the cleanup and redevelopment of the Tombarello property. Please contact me directly at hmcmann@groundworklawrence.org or 978-974-0770 x7009 if you have any questions or if I can be of further assistance.

Sincerely,

Heather McMann
Executive Director

District **A** Neighborhood Association
Lawrence, Massachusetts

7 December 2016

Mayor Rivera,

On behalf of the District A Neighborhood Association, I want to let you know how pleased we are that the City is applying for EPA FY 2017 Brownfield Cleanup funds to cleanup and redevelop the Tombarello Site. Our Neighborhood Association will support this effort by inviting the Neighborhood Planner and other City officials to our monthly meetings, keeping our membership aware of the project and promoting the public meetings.

District A Neighborhood Association is made up of diverse community members of the City of Lawrence dedicated to improve and promote the image of our city and neighborhood. We connect with residents both in English and Spanish at our monthly meetings, where all are welcome.

The Tombarello Site needs to be addressed immediately. For too long, the neighborhood has had to deal with this hazard. We are supportive of the project to clean up the site because it will make Lawrence better.

Our association fully supports this application. We want this site cleaned up and redeveloped so that we no longer have a public health threat and eyesore in our neighborhood. If you have any questions, please contact me at (978) 303-7243.

Sincerely,

Maria De La Cruz

Maria De La Cruz, President
District A Neighborhood Association
MariaDLC@yahoo.com

The Prospect Hill and Back Bay Neighborhood Association Inc.

It was, it is, and it will be a great place to live

December 14, 2016

Mayor Rivera,

The Prospect Hill/Back Bay Neighborhood Association wholeheartedly supports the City's efforts to cleanup and redevelop the Tombarello Site and we support its FY2017 EPA Brownfield Cleanup application. Our membership wants to support this effort and pledges to make our monthly meetings open to the Neighborhood Planner and other officials and to encourage attendance at the public meetings to be held about the project. We also will keep our members updated on project progress.

The Prospect Hill/Back Bay Neighborhood Association is made up of a wide variety of neighbors that believe our neighborhood is and will always be a great place to live. We connect with residents by hosting events that allow us to share foods, cultures, concerns and ways to keep making Lawrence better.

The Tombarello Site has been a major concern for too long. Cleaning and improving the site will have a beneficial impact for our neighborhood and its children. For these simple reasons, we support the project.

Our members have long wanted this vacant, abandoned eyesore redeveloped so that it becomes a positive asset in our neighborhood. We are happy that the City is outreaching to us about this project and strongly hope that this application is funded. If you have any questions, please contact me at 978-688-3446.

Sincerely,

David Struffolino, President
Prospect Hill/Back Bay Neighborhood Association

DOCUMENTATION OF ALL APPLICABLE THRESHOLD CRITERIA

- Threshold Criteria Form
- Justification of Cost Share Waiver
- Draft Analysis of Brownfields Cleanup Alternatives (ABCA)
- Documentation of Community Notification
  - Copy of ad
  - Public meeting notes with comments and responses
  - Sign-in sheets

1. **Applicant Eligibility**
The City of Lawrence is a General Purpose Unit of Local Government and is therefore an eligible applicant for this grant. It was charted as a City in 1853 and the present municipal charter was adopted on October 17, 1983.

2. **Site Ownership**
The City of Lawrence acquired the property from American Recycling of Massachusetts, Inc. on 5/9/2016 through property tax foreclosure. The town of Lawrence has sole ownership as indicated by the fee simple title through recorded deed.

3. **Basic Site Information**
(a) Name: Tombarello Site Lot #1
(b) Address: 207 Marston St., Lawrence, MA 01841
(c) Current Owner: City of Lawrence
(d) City is current owner.

4. **Status and History of Contamination at the Site**
(a) The site is contaminated by hazardous substances.
(b) Currently the property is vacant. From about 1941-December 1998, the site was owned and operated by John C. Tombarello & Sons, Inc. as a scrap metal recycling facility. Prior to 1935, the southern portion was the site of a soap manufacturer. In December 1998, the site was sold to American Recycling, Inc. which continued to operate under the name Tombarello & Sons. It accepted a wide variety of scrap metal including crushed automobiles, storage tanks, machinery, and computer parts. In order to extract precious metals from the computers, an extraction process using cyanide was used. Eventually, the Site was abandoned by American Recycling, the mortgage foreclosed and First Lawrence Financial, LLC became the mortgage holder. A truck driving school operated on the Site for a short time in 2006. In 2016, the City of Lawrence acquired the Site through tax taking since American Recycling of Massachusetts owed $1.4 million in back taxes. The Site contains one former industrial buildings and a former residential building. Contaminants detected in Site soils are associated with historical operations as a burn dump/landfill and scrap metal/salvage yard. Fill material containing metal, brick, ash, slag, glass, and other man-made debris were encountered in nearly every subsurface exploration completed. The depth of fill material varies widely across the Site ranging from 2 to 8 feet below ground surface (bgs), with an average fill thickness of 4 to 6 feet.
(c) Concentrations of PCBs have been detected throughout Lot #1 in both surface (0-1 foot bgs) and subsurface soils (greater than 1 foot bgs). Concen-trations have ranged from non-detect to 22 mg/kg. In general, soils contain less than 10 mg/kg PCBs, with only two separate and discrete areas totaling approximately 10,000 square feet in size containing PCBs above 10 mg/kg. **Extent of Metals Contamination:** Concentrations of several metals (arsenic, barium, chromium, mercury, lead) have been detected at concentrations that exceed their respective Massachusetts Contingency Plan (MCP) Method 1 risk assessment soil standards. The heavy metal most frequently detected over its Method 1 soil standard is lead. Lead concentration has exceeded standards in most samples collected (maximum concentration: 3,700 mg/kg). **Extent of PAH Contamination:** Concentrations of PAHs have been detected throughout Lot #1 above applicable MCP Method 1 S-1 Soil Standards in

soil samples. PAHs were detected above Method 1 standards in all but one of the 12 soil samples collected during a 2016 investigation. **Groundwater Contamination**: Low concentrations of VOCs, SVOCs, and dissolved metals have been detected in groundwater samples collected from on-site monitoring wells. Based on these results, groundwater at Lot #1 has not been adversely impacted.

(d) The Site became contaminated through its use as a scrap metal recycling facility. Metal contamination comes from anthropogenic materials that became commingled with soils during historical Site operations. In 1998 about 20-30 gallons of heat transfer oil were released to soil at the adjacent lot from a scrap heat exchanger that was being delivered to the facility. Subsequent operations SVOCs and EPH contamination can be attributed to smaller localized petroleum releases and/or anthropogenic materials that became commingled with soils during historical Site operations. When surface soils were pushed from the adjacent lot, contamination was spread throughout the area.

5. **Brownfields Site Definition**

(a) The Tombarello Site is not listed or proposed for listing on the National Priorities List.

(b) The Site is not subject to unilateral administrative orders, court orders or administrative orders on consent, or judicial consent decrees issued to or entered into by parties under CERCLA.

(c) The Site is not subject to the jurisdiction, custody, or control of the United States Government.

6. **Environmental Assessment Required for Cleanup Proposals**

Equivalent Phase II Site Assessment Report:

- September 2016, *Targeted Brownfields Site Assessment,* Nobis Engineering, Inc.

Additional Environmental Assessments Conducted:

- October 2012, *Phase II Scope of Work: Former Tombarello Property,* Tighe & Bond
- August 23, 2011, *Removal Actions- AOC Summary Report, Former Tombarello Property*, Tighe and Bond.
- October 2010, *Region I START Site Health and Safety Plan (HASP) for the Tombarello Site, Lawrence, Massachusetts*, Weston Solutions, Inc., START (Superfund Technical Assessment and Response Team).
- October 2010, *Sampling and Analysis Plan for the Tombarello Site, Lawrence, Essex County, Massachusetts*, Weston Solutions, Inc. START.
- November 12, 2007, *Letter to Ms. Valerie Thompson, Massachusetts Department of Environmental Protection, RE: Site Evaluation Summary Report, Tombarello and Sons Site at 207 Marston Street, Lawrence, Massachusetts, SARSS IV Task Assignment, Document Project No. RTN 3-18126*, Shaw Environmental, Inc.
- April, 2007, *Immediate Response Action Completion Report, Former John C. Tombarello & Sons Property, 207 Marston Street, Lawrence, Massachusetts Release*

Tracking Number 3-18126, Weston Solutions, Inc.

- June 8, 2005, *Letter to Ms. Kimberly Tisa of the U.S. Environmental Protection Agency, RE: Supplemental PCB Characterization Results, Former Tombarello & Sons Property*, Weston Solutions, Inc.
- September 2004, *Phase II Comprehensive Site Assessment Report*, Weston Solutions, Inc.
- May 15, 2001, *Immediate Response Action (IRA) Completion Report for the American Recycling of Mass, Inc. Property - 207 Marston Street, Lawrence MA. RTN 3-18126*, Haley & Aldrich, Inc. (H&A)
- April 21, 1999, *Immediate Response Action (IRA) Completion Report,* Higgins Environmental Associates, Inc.
- August1998, *Environmental Site Assessment- John C. Tombarello & Sons, Inc.*, W.Z. Baumgartner and Associates, Inc. (WBZ)
- July 20, 1998, *Response Action Outcome Statement*, New England Disposal Technologies (NEDT Inc.)

7. **Enforcement or Other Actions**
The City of Lawrence is not aware of any outstanding environmental enforcement actions related to the Tombarello Site. The City is not aware, or received or been furnished copies, of any inquiries or orders from any state or federal agencies related to the contamination of, or hazardous substances at, the subject property. There is a United States CERCLA lien dated January 4, 2011, on the property that remained undisturbed by the Final Judgment in the tax lien case between the City of Lawrence and American Recycling of Massachusetts, Inc. However, the statute of limitations freed the City unless there is a windfall. According to EPA Region I there is no lien on the property that EPA plans to pursue.

8. **Sites Requiring a Property-Specific Determination**
Based on our review of the Property-Specific Determination criteria and with consultation from EPA Region I, the Tombarello Site is not subject to this determination.

9. **Site Eligibility and Property Ownership Eligibility**

(a) Property Ownership Eligibility - Hazardous Substance Sites

(1) CERCLA §107 Liability
The City of Lawrence is eligible for one of the liability defenses under CERCLA under the local government exclusion for involuntarily acquiring the property for owed taxes.

(2) Information on Liability and Defenses/Protections

a. Information on the Property Acquisition
   i. The property was acquired through tax foreclosure.
   ii. The property was acquired on 5/9/2016.
   iii. The City of Lawrence has sole ownership of the property as indicated by the fee

simple title through recorded deed.

iv. The property was acquired from American Recycling of Massachusetts, Inc.

v. The City of Lawrence has no affiliation with American Recycling of Massachusetts, Inc. or with any past operators or owners.

b. <u>Timing and/or Contribution Toward Hazardous Substances Disposal</u>
All disposal of hazardous substances occurred prior to the City's acquisition of the Site and the City did not cause or contribute to any release of hazardous substances at the Site. The City has never arranged for the disposal of hazardous substances at the Site or transported hazardous substances to the Site.

c. <u>Pre-Purchase Inquiry</u>

i. The City acquired the property involuntarily through tax taking and therefore this question is not applicable.

ii. The City acquired the property involuntarily through tax taking and therefore this question is not applicable.

iii. The City acquired the property involuntarily through tax taking and therefore this question is not applicable.

d. <u>Post-Acquisition Uses</u>
The property has been vacant since the City acquired it in May 2016.

(e) <u>Continuing Obligations</u>

i. *Continuing Releases:* The City of Lawrence is not aware of any continuing releases from the Site. Groundwater beneath the Site is not used as a source of drinking water and the Targeted Brownfields Assessment Report dated September 2016 did not detect significant groundwater contamination.

ii. *Future Releases:* All contaminants of concern are contained within the Site boundaries and no significant groundwater contamination has been detected to date. The Site is secured by a locked chain link fence.

iii. *Prevent or Limit exposure to any previously release hazardous substances:* The City of Lawrence has secured the perimeter of the Site with a locked chain link fence with warning signs posted and camera surveillance. A City staff person is driving by the Site 3X/week to check on the integrity of the fence and if there are problems, they would be reported to the DPW for remediation.

The City of Lawrence commits to:

i. Complying with all land-use restrictions and institutional controls;

ii. Assisting and cooperating with those performing the cleanup and provide access to the property;

iii. Complying with all information requests and administrative subpoenas that have or may be issued in connection with the property and

iv. Providing all legally required notices.

10. **<u>Cleanup Authority and Oversight Structure</u>**

a. Cleanup Oversight:

The Massachusetts Brownfields Program is a privatized waste site assessment and cleanup program in which direct oversight of site assessments and cleanups are done by Licensed Site Professionals (LSPs) rather than the Department of Environmental Protection or a State agency. LSPs are licensed by the State and develop and execute a scope of work that will satisfy the State requirements to address contaminated property (MA General Law c.21E and the Massachusetts Contingency Plan (MCP). The Tombarello cleanup will be conducted by a contracted LSP using the City of Lawrence's competitive procurement process.

The Massachusetts Department of Environmental Protection (MassDEP) will oversee the cleanup process via the Massachusetts Contingency Plan which provides flexible cleanup standards based on a number of factors including location, type and amount of contaminants, how widespread and deep the contamination is, and the intended future use of the property.

b. Adjacent Property Access:
It is not anticipated that will not need to obtain or secure site access from abutters. However, a template access agreement exists from previous brownfield grants.

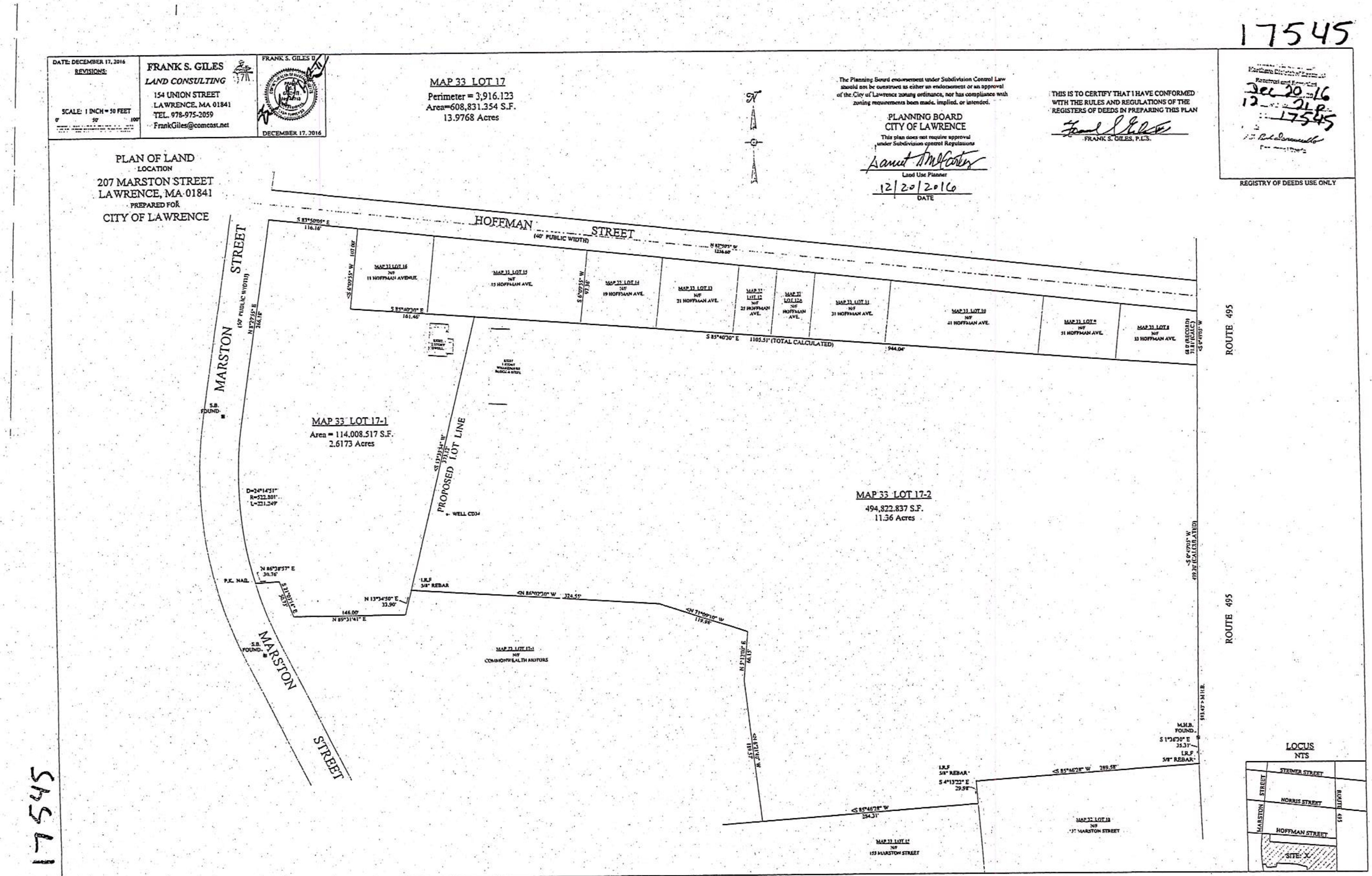
11. **Statutory Cost Share**

a. The City of Lawrence will use in-kind services to meet the 20% cost share. In kind services include volunteer labor, materials, and services from non-federal sources valued at $40,000.

b. The City acknowledges the 20% cost share for this cleanup grant; however, this would place an undue financial hardship on the City. Therefore, the City is petitioning the EPA to waive 100% of the required cost share. Please see the attached document titled, "Hardship Waiver Request."

12. **Community Notification**

The City of Lawrence conducted a public meeting on November 30, 2016 at 6:00 pm to gather comments on the draft Brownfields Cleanup Grant application being submitted to the federal EPA and the draft Analysis of Brownfields Cleanup Alternatives (ABCA) for the cleanup of the Tombarello Site. The meeting was held at Redeemer Lutheran Church, 163 Haverhill St., Lawrence, MA. Approximately 40 people from the public attended. Comments and responses from that meeting centered around safety and traffic concerns as well as redevelopment options. The City's deadline for receiving comments was December 2 but no further comments were submitted. The required documentation, including a copy of the meeting advertisement, the sign-in sheet, and the meeting minutes documenting public questions and responses are included in the Threshold Criteria Attachments. A copy of the draft Analysis of Brownfields Cleanup Alternatives is also included. in the attachments.



17545
DATE: DECEMBER 17, 2016
REVISIONS:
SCALE: 1 INCH = 50 FEET
FRANK S. GILES
LAND CONSULTING
154 UNION STREET
LAWRENCE, MA 01841
TEL. 978-975-2059
FrankGiles@comcast.net
FRANK S. GILES II
DECEMBER 17, 2016
MAP 33 LOT 17
Perimeter = 3,916.123
Area=608,831.354 S.F.
13.9768 Acres
The Planning Board endorsement under Subdivision Control Law should not be construed as either an endorsement or an approval of the City of Lawrence zoning ordinance, nor has compliance with zoning requirements been made, implied, or intended.
PLANNING BOARD
CITY OF LAWRENCE
This plan does not require approval under Subdivision control Regulations
Land Use Planner
12/20/2016
DATE
THIS IS TO CERTIFY THAT I HAVE CONFORMED WITH THE RULES AND REGULATIONS OF THE REGISTERS OF DEEDS IN PREPARING THIS PLAN
FRANK S. GILES, P.L.S.
Dec 20 2016
17545
REGISTRY OF DEEDS USE ONLY
PLAN OF LAND
LOCATION
207 MARSTON STREET
LAWRENCE, MA 01841
PREPARED FOR
CITY OF LAWRENCE
HOFFMAN STREET
(40' PUBLIC WIDTH)
MARSTON STREET
(50' PUBLIC WIDTH)
S 85°40'30" E 1105.51' (TOTAL CALCULATED)
MAP 33 LOT 17-1
Area = 114,008.517 S.F.
2.6173 Acres
PROPOSED LOT LINE
WELL CD34
MAP 33 LOT 17-2
494,822.837 S.F.
11.36 Acres
D=24°14'51"
R=522.801'
L=221.249'
P.K. NAIL
I.R.F. 5/8" REBAR
N 86°02'30" W 324.55'
N 71°09'10" W 119.98'
S.B. FOUND
M.H.B. FOUND
ROUTE 495
ROUTE 495
COMMONWEALTH MOTORS
LOCUS
NTS
STEINER STREET
NORRIS STREET
HOFFMAN STREET
MARSTON STREET
ROUTE 495
SITE
17545

JUSTIFICATION OF COST SHARE WAIVER

The City of Lawrence is requesting a Hardship Waiver for the 20% Brownfields Cleanup Grant match. The City is an Environmental Justice Community and designated a Massachusetts Economically Distressed Area (EDA). EDAs are areas of MA eligible for targeted assistance under the MA Brownfields Act based on economic destress criteria including unemployment, poverty, job loss and commercial vacancy.

In 2010, the City had a $27 million operating deficit prompting the State to appoint a fiscal overseer for Lawrence. The overseer continues to work with Lawrence to make sure decisions made are fiscally sound and to help establish formal fiscal policies and a long-term capital improvement plan.

Lawrence has not experienced any significant revitalization in over three decades and recent industry closings have exacerbated the problem. Statistics compiled by the *In Your State* website using per capita income, median household income and poverty level from the 2009-2013 American Community Survey 5-Year Estimate data indicate that it remains the poorest in MA.

The over 1,000 vacant lots and underutilized spaces in Lawrence coupled with a largely low-income population results in a limited tax base and inadequate funding for environmental remediation. The City is owed $21 million in back taxes on multiple properties, straining an already tight municipal budget. Lawrence does not have the funds to clean up the Tombarello Site Lot #1 and will <u>not</u> be able to proceed if the cost share waiver is not approved.

The following information additionally supports this claim:

1. **Unemployment rate: 6.4%**
   Compared to the Essex County (3.5%), and nearby towns (Methuen: 3.9%, North Andover: 2.9%) Lawrence's unemployment rate is significantly higher.
   (Source: September 2016 data from MA Office of Labor and Workforce Development)

2. **Per Capita Income: $17, 295**
   Compared to Essex County ($36,035) and nearby towns (Methuen: $31,023; North Andover: $49,045) Lawrence's per capita income is significantly lower.
   (Source: 2014 data from 2010-2014 ACS 5-year estimates)

3. **Local natural or other major disasters or emergencies:**
   The heavy snowfall in 2014-2015 cost the City $3 million more than budgeted for that year putting a strain on the municipal budget.

4. **Closure or restructuring of industrial firms and negative effects of changing trade patters, if relevant:**
   The 2008 national recession further weakened an already fragile manufacturing sector in Lawrence. In the past year, the loss of two local businesses (Lawrence Pumps and Polartec) were announced with the cumulative loss of 285 manufacturing jobs. Other recent local factory shutdowns and downsizing include Microsemi Corporation (over 100 jobs lost) and a General Mills yogurt factory (144 jobs lost).

5. **Exhausted effective taxing and borrowing capacity:**
   During the recession, the city had significant deficit borrowing of over $25 M and as a result is under State Fiscal Oversight.

DRAFT ANALYSIS OF BROWNFIELDS CLEANUP ALTERNATIVES (ABCA)

Analysis of Brownfields Cleanup Alternatives-Preliminary Evaluation

Former Tombarello Site, Lawrence, Massachusetts

MassDEP Release Tracking Number (RTN) 3-0018126

I. Introduction & Background

a. Site Location

The focus of this ABCA is Lot #1 of the Former Tombarello Property (herein referred to as the "Site"). It is located at 207 Marston St. Lawrence MA and is approximately 2.6 acres in size. The Site is located in a mixed-use area of Lawrence, Massachusetts, abutted to the east by Interstate 495; to the south by an automobile dealership (formerly a waste recycling facility); to the west by Marston Street, beyond which lies the Parthum Elementary and Middle School; and to the north by residential properties.

a.1. Forecasted Climate Conditions

The preferred remedial alternative for cleanup of the Site includes soil excavation and disposal, and not treatment technologies that could be adversely impacted by increased flooding resulting from sea level rise in the area. The Site is not located within the 100- or 500-year floodplain. As part of the optimal remedial strategy, however, soil cover will be implemented in portions of the Site. Capped areas will be engineered in a manner to allow for proper drainage and stormwater runoff that may result from climate conditions in the Northeast.

b. Previous Site Use(s) and any previous cleanup/remediation

Historical uses of the Site have included a burn dump/landfill and a scrap metal recycling facility. The most recent use of the Site was as a metals recycling facility (John C. Tombarello & Sons and American Recycling of Massachusetts, Inc.), which operated from approximately 1941 until 2001. Since 2001, the Site has been unoccupied and unused, except for a truck driving school, which operated on the Site for a short time in 2006. One former industrial building and a former residential building remain on the Site.

The depth to groundwater at the Site ranges from approximately 6 to 12 feet below ground surface (bgs) and groundwater flow is to the east towards the Merrimack River, which is located approximately 1,500 feet from the Site.

c. Site Assessment Findings

The sections below present the laboratory analytical results from soil samples collected during field investigations conducted between 1998 and 2016, including a Phase II Targeted Brownfields Assessment (TBA) conducted at the Site by EPA in 2016, which included sampling and analysis of soil and groundwater.

Soil: During investigations conducted since 1998, there have been 37 soil samples collected from the Site. Soil samples were analyzed for the presence of polychlorinated biphenyls (PCBs), polycyclic aromatic hydrocarbons (PAHs), and metals.

The PCBs detected during TBA investigations were primarily PCB Aroclors 1248 and 1260 and concentrations vary throughout the Site ranging from below laboratory detection limits to a maximum detection of 22 mg/kg in a soil sample collected from 3 to 4 feet bgs at soil boring CD-34. In general, soils contain less than 10 mg/kg PCBs, with only two separate and discrete areas totaling approximately 10,000 square feet in size containing PCBs above 10 mg/kg.

Concentrations of PAHs have been detected throughout the Site above applicable MCP Method 1 S-1 Soil Standards in soil samples. PAHs were detected above Method 1 standards in all but one of the 12 soil samples collected during the 2016 TBA investigation.

Concentrations of several metals (arsenic, barium, chromium, mercury, and lead) have been detected throughout the Site at concentrations that exceed their respective MCP Method 1 risk assessment standards. The heavy metal most frequently detected over its Method 1 soil standard is lead. The concentration of lead has exceeded standards in most samples collected from the Site, with a maximum concentration of 3,700 mg/kg.

Groundwater: Low concentrations of VOCs, SVOCs, and dissolved metals have been detected in groundwater samples collected from on-site monitoring wells. Based these results, groundwater at the Site has not been adversely impacted by historical Site operations or historical releases.

Project Goal

For the efficient and Safe remediation of 2.6 acres of brownfield. The cleanup and reuse of this site will generate welfare, environmental and public health benefits. The planned reuse of the Site is to attract one or more commercial entities into the space such as a bank and/or pharmacy. These amenities would create jobs for Lawrence residents and provide services easily accessible to Lawrence residents even if they don't have a car (21% of neighborhood residents do not have a car). It is estimated to create 30 temporary construction jobs and 30 permanent jobs and yield over 75K in tax revenue.

II. Applicable Regulations and Cleanup Standards

a. Cleanup Oversight Responsibility

Massachusetts has a privatized licensure program where individuals, known as Licensed Site Professionals (LSPs), work separately from the MassDEP to ensure the proper assessment and cleanup of contaminated disposal sites. Under this program, the LSP serves as an extension of the State's environmental regulatory authority and is required to hold paramount the protection of human health, safety, public welfare and the environment. The Massachusetts regulations (Massachusetts Contingency Plan, or MCP) contain several provisions for notifying the chief municipal officer and local health officials of site assessment and cleanup activities including providing written notification in advance of cleanup activities, and written notification of any imminent threats to human health that may exist at a disposal site. The cleanup will be performed by the City of Lawrence, Massachusetts. The City will retain a Qualified Environmental Professional (QEP) with experienced LSPs to design, oversee, and document remediation activities at the site as required by MassDEP. In addition, all documents prepared for this site are submitted to the MassDEP through their on-line reportable release file viewer under RTN 3-0018126.

b. Cleanup Standards

The City of Lawrence currently anticipates that MCP standards for commercial/industrial use will be used as the cleanup standards. However, it is possible that risk-based cleanup standards will be generated for compounds of concern, in accordance with state regulations.

c. Laws and Regulations

Laws and regulations that are applicable to this cleanup include the Federal Small Business Liability Relief and Brownfields Revitalization Act, the Federal Davis-Bacon Act, state environmental law, and town by-laws. Federal, state, and local laws regarding procurement of contractors to conduct the cleanup will be followed. In addition, all appropriate permits (*e.g.*, notify before you dig, soil transport/disposal manifests) will be obtained prior to the work commencing.

III. Evaluation of Cleanup Alternatives

a. Cleanup Up Alternatives Considered

Four cleanup alternatives were considered to address contamination at the site:

<u>Alternative #1</u>: No Action

<u>Alternative #2</u>: Off-Site Disposal of Soils with PCB>1.0 mg/kg and Reduction of Metals/PAHs to Method 1 Risk Assessment Standards. All soils with PCBs greater than 1.0 mg/kg would be excavated and disposed offsite. Additional soils would be removed to ensure that the average concentrations of PAHs and metals in remaining soils are below Method 1 risk assessment standards for Category S-1 soil. The remaining soils would not require capping or institutional controls.

<u>Alternative #3</u>: Off-Site Disposal of Soils with PCB>10 mg/kg; TSCA-Compliant Cap; Institutional Controls. All soils containing greater than 10 mg/kg PCBs would be excavated and transported for off-site disposal. A soil cover consisting of 2 feet of soil overlying a geofabric would be placed over the remaining soils. The purpose of the geofabric would be to provide separation between the contaminated soils and clean cover materials, while serving as a warning layer for future excavation that the limits of the cover have been reached. The soil cover and geofabric would not contain a low permeability layer, and would provide no restriction to the movement of water through the cover into the underlying soils and groundwater. The cover would be finished with either grass or asphalt.

Any remedial strategy which involves in-place containment of contaminated soil would require placement of institutional controls (deed restrictions) on the property to ensure the integrity of the cap/soil cover for the long term and prevent exposure to contaminants left in place. Restrictions would likely include limits on subsurface excavation and any other activity that would compromise the integrity of the cover. The site owner would be obligated to inspect on a periodic basis and maintain the cover surface in perpetuity to ensure there is no damage that could potentially expose site occupants to the contamination contained beneath the cover. An Operations and Maintenance (O&M) Plan will be required to maintain the long-term effectiveness of the cover and institutional controls. The site owner will need to periodically provide certification to MassDEP that institutional and engineering controls are being employed as required by these plans.

O&M costs would be incurred to preserve the integrity of the cap/soil cover for the long-term, make repairs as needed based on normal wear and tear, and potentially replace the cover surface, depending upon the materials used to finish the ground surface.

Alternative #4: TSCA-Compliant Cap with Clean Utility Corridor; Institutional Controls. Limited excavation to prepare a 200' x 4' x 4' clean utility corridor for future use of the property will be performed. Soil excavation would be performed strategically to establish a "clean utility corridor" between Marston Street and a proposed building location. The clean utility corridor would enable connection of a new site improvement to the existing utility lines on Marston Street without having to develop a Soil Management Plan and implement health and safety and engineering controls to protect utility workers.

A soil cover consisting of 2 feet of soil overlying a geofabric would be placed over the rest of the property. Similar to above, the purpose of the geofabric would be to provide separation between the contaminated soils and clean cover materials, while serving as a warning layer for future excavation that the limits of the cover have been reached. The soil cover and geofabric would not contain a low permeability layer, and would provide no restriction to the movement of water through the cover into the underlying soils and groundwater. The cover would be finished with either grass or asphalt.

Any remedial strategy which involves in-place containment of contaminated soil would require placement of institutional controls (deed restrictions in the form of an Activity and Use Limitation, or AUL) on the property to ensure the integrity of the cap/soil cover for the long term and prevent exposure to contaminants left in place. Restrictions would likely include limits on subsurface excavation and any other activity that would compromise the integrity of the cover. The site owner would be obligated to inspect on a periodic basis and maintain the cover surface in perpetuity to ensure there is no damage that could potentially expose site occupants to the contamination contained beneath the cover. An O&M Plan will be required to maintain the long-term effectiveness of the cover and institutional controls. The site owner will need to periodically provide certification to MassDEP that institutional and engineering controls are being employed as required by these plans.

O&M costs would be incurred to preserve the integrity of the cap/soil cover for the long-term, make repairs as needed based on normal wear and tear, and potentially replace the cover surface, depending upon the materials used to finish the ground surface. Future improvements that involve contact with or displacement of contaminated soil below the soil cover will need to be performed under the oversight of an LSP and in accordance with a Soil Management Plan. A mechanism to make improvements to the Site that impact contaminated materials will be incorporated into the AUL.

b. Evaluation of Cleanup Up Alternatives

To satisfy EPA requirements, the effectiveness, implementability, and cost of each alternative must be considered prior to selecting a recommended cleanup alternative.

Effectiveness- Including Climate Change Considerations

- ☐ Alternative #1: No Action is not effective in controlling or preventing the exposure of receptors to contamination at the Site.

- ☐ Alternative #2: Off-Site Disposal of Soils with PCB>1.0 mg/kg and Reduction of Metals/PAHs to Method 1 Risk Assessment Standards (unrestricted use). Excavation with off-site disposal is an effective way to eliminate risk at the Site, since contamination will be removed and the exposure pathways will no longer exist.

- ☐ Alternative #3: Off-Site Disposal of Soils with PCB>10 mg/kg; TSCA-Compliant Cap; Institutional Controls. Excavation of soils with PCBs >10 mg/kg with off-site disposal is an effective way to reduce risk at the Site, since heavy contamination will be removed. Limited exposure pathways will continue to exist, however, capping in those areas will be an effective way to prevent receptors from coming into direct contact with contaminated soils if the cap is maintained. Institutional controls (deed restriction/AUL) would be placed on the property to ensure the effectiveness of the cap over time.

- ☐ Alternative #4: TSCA-Compliant Cap with Clean Utility Corridor; Institutional Controls. Capping is an effective way to prevent receptors from coming into direct contact with contaminated soils if the cap is maintained. The clean utility corridor would enable the connection of utilities to a site improvement without having to manage contaminated soils.

  Alternatives 2, 3, and 4 require a TSCA-Compliant Cap. Capped areas will be engineered in a manner to allow for proper drainage and stormwater runoff that may result from climate conditions in the Northeast.

Implementability

- ☐ Alternative #1: No Action is easy to implement since no actions will be conducted.

- ☐ Alternative #2: TSCA-Compliant Cap with Clean Utility Corridor; Institutional Controls. Excavation with off-site disposal is moderately difficult to implement.

Coordination (e.g., dust suppression and monitoring) during cleanup activities and short-term disturbance to the community (*e.g.*, trucks transporting contaminated soils and backfill) are anticipated. This alternative has the greatest volume of soils to be excavated and will take the longest to implement and have the greatest impact on the community.

- ☐ Alternative #3: Off-Site Disposal of Soils with PCB>10 mg/kg; TSCA-Compliant Cap; Institutional Controls. Excavation with off-site disposal is moderately difficult to implement. Coordination (e.g., dust suppression and monitoring) during cleanup activities and short-term disturbance to the community (e.g., trucks transporting contaminated soils and backfill) are anticipated. This alternative has moderate volume of soils to be excavated and will still have significant impact on the community. Capping is relatively easy to implement, although ongoing monitoring and maintenance of the cap will require periodic coordination and reporting.

- ☐ Alternative #4: TSCA-Compliant Cap with Clean Utility Corridor; Institutional Controls. Capping is relatively easy to implement, although ongoing monitoring and maintenance of the cap will require periodic coordination and reporting. A limited area of excavation with offsite disposal prior to capping makes this alternative slightly more difficult to implement, however, the volume of soil to be excavated is limited.

Cost

- ☐ Alternative #1: No Action - There are no costs associated with this alternative.

- ☐ Alternative #2: TSCA-Compliant Cap with Clean Utility Corridor; Institutional Controls (unrestricted use): $1,600,000.

- ☐ Alternative #3: Off-Site Disposal of Soils with PCB>10 mg/kg; TSCA-Compliant Cap; Institutional Controls: $450,000

- ☐ Alternative #4: TSCA-Compliant Cap with Clean Utility Corridor; Institutional Controls: $275,000

c. Recommended Cleanup Up Alternative

The recommended cleanup plan is Alternative #4 which includes a mix of soil removal and containment measures to mitigate potential human health risks associated with PCB, metals, and PAH contamination in soil and facilitate Site redevelopment. Due to the large volume of contaminated soil present on the Site, excavation and off-site disposal (or treatment) of soil to achieve contaminant levels suitable for unrestricted use is cost prohibitive. Therefore, the only feasible remedial alternative includes placement of a soil cover to prevent direct contact with contaminants in soil. Future construction of buildings that require displacement of contaminated soils will need to be performed under the oversight of a Qualified

Environmental Professional (LSP) and under a Soil Management Plan to prevent exposure to contamination by utility workers and the surrounding community.

The most cost effective and protective cleanup plan that facilitates redevelopment of the Site includes limited excavation and off-site disposal of contaminated soil, then placement of a 2-foot soil cover over contaminated soils that are left in place. Soil excavation would be performed strategically to establish a “clean utility corridor” between Marston Street and a proposed building location. The clean utility corridor would enable connection of the new building to the utility lines on Marston Street without having to develop a Soil Management Plan and implement health and safety and engineering controls to protect utility workers.

Implementation of an Activity and Use Limitation (AUL) will be necessary in order to prevent activities that might compromise the integrity of the cover. Long-term monitoring and maintenance will be required to verify the continued effectiveness of the cover. Any disturbance of soils underlying the cover (for instance, to construct a building foundation) would need to be performed under the oversight of an LSP and in accordance with a Soil Management Plan.

This cleanup plan will be compliant with state and federal regulations, be protective of human health and the environment, and facilitate redevelopment of the Site for a wide range of potential uses by providing a clean soil corridor for the installation of utility lines.

Green and Sustainable Remediation Measures for Selected Alternative:

EPA Best Management Practices (BMPs) will be followed to reduce the negative impacts of excavation, which commonly include soil erosion, high rates of fuel consumption, transport of airborne contaminants, uncontrolled stormwater runoff, offsite disposal of excavated material, and ecosystem disturbance. The Site is currently paved, however, it is anticipated that a buffer zone along the northern property boundary will be implemented that will allow for improved drainage during storm events.

DOCUMENTATION OF COMMUNITY NOTIFICATION

GENERAL HELP WANTED

HANDY PERSON
Full Time
ocking for motivated self starter to perform apartment maintenance for our complex. Some experience required. Must have valid drivers license.
Please apply at the office
Mon.-Fri. 8:30 to 4:30 also Sat. 10 to 2 to fill out an application, 28 Forest Acres Dr., Bradford, MA

JOB WANTED

Ads In This Classification Are WORK WANTED NOT HELP WANTED

MEDICAL

TTENTION CAREGIVERS!
u are a PCA, CNA, Nurse or offer personal re services please go to the business and rvice directory and check out the category Adult Care. Yours services are needed!

MMEDIATE OPENING!
YOU ARE LOOKING FOR A POSITION AS A E GIVER PLEASE CHECK OUT THE **ADULT** **RE** SECTION IN THE BUSINESS AND SERV- DIRECTORY. PEOPLE LOOKING FOR **PCAS, ALTH AIDES, CNAS** HAVE ADS RUNNING AND COULD USE YOUR HELP.

Merchandise

ANTIQUES & COLLECTIBLES

DEPT 56 CHRISTMAS DISPLAY - Dickens Village series. Hand painted porcelain, 18 houses and accessories, with HO train. Asking $75. Leave message, 978-594-1131, Salem MA

BABY ITEMS

ATTENTION!
Beware of anyone replying to your ad offering to send you a check for shipping and you sending them back the difference. Also beware when responding to classified ads that ask you to send shipping cost. Possible scam!

First Run LIKE NEW
BABY ITEMS: Graco classic click & go car seat, like NEW- $50
Graco click and go car seat base - $20
Graco click and go infant stroller - $30
Ingenuity NEW smart bounce auto bounce and music - $35 - Nice Christmas Gifts!
Gail D. 978 475 0881

CEMETERY LOTS

PURITAN LAWN CEMETERY
Prime location overlooking water. Includes 2 burials, grave vaults and openings. Owners relocated. Currently selling for $11k, asking $8k. Call Steve, 239-389-9076

PURITAN LAWN Memorial Park
2 Lots, (opening for 4 burials) for sale. $1000 OFF. Call 941-493-9293

FIREWOOD FOR SALE

Seasoned Firewood
100 percent hardwood cut and split 16" $265 per cord (128 cu. Ft) delivered locally Call **(603)490-8777**

SEASONED FIREWOOD
$290/cord (128 cu.ft) Free Local Delivery Middleton Area Call (978) 774-1352

SEASONED FIREWOOD -
Clean, hand loaded, covered. Salem, NH (603)475-4790: (603) 894-5338

SEASONED HARDWOOD FIREWOOD - $225/cord. $150/half cord. Pickup only - W. Newbury. Call 978-363-6800

SHED-DRY SEASONED KILN DRIED FIREWOOD Partial cords. Delivered and stacked! Visit: **FIREWOODGUY.COM** call 603-437-0940

FREE ITEMS

FREE! Craftsman self propelled full size lawnmower Needs repair (978) 475-6489

SONY 51" TV Sony KP-51HW40 Projection HDTV. Excellent looking and working condition. Will need help to load on truck. 1 piece and is heavy. Call Frank at 978-794-4323.

FUEL

↓ ↓ ↓ ↓ ↓ ↓
ATTENTION FUEL CONSUMERS:
All ads in this classification run in our 10 paper "Classified Connection" that covers the North Shore, Merrimack Valley and Southern New Hampshire.
Ads appearing in this section may or may not

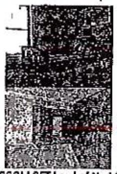
FURNITURE

✪AMAZING!✪New Full or Queen Mattress Set European Pillowtop. In plastic. Compare $899 - Sell $249. Can deliver. 603-305-9763

ESTATE SALE - 2 Bedroom Sets, Dining room 6 chairs, hutch, buffet & table, sofa, chairs, marble top end & coffee tables, oriental rug & runner, sewing machine, bookcase, desk & misc items Call 978-607-9060

ETHAN ALLEN CHERRY FURNITURE. Like new. Dining table 2 leaves + pads $300. Hutch $200. Buffet $200. Coffee table $50. 2 end tables $50. 2 matching queen futons $200. Pickup in Rockport. 845-541-2095

HOUSEHOLD GOODS



BOY'S BEDROOM SET Land of Nod (Crate and Barrel) blue bedroom set includes headboard and footboard, 6 drawer dresser, bookcase, nightstand and 2 storage bins. Excellent condition. $1,100. Call 978.475.5998.

DOUBLE WALL OVEN 27 inch Kenmore, white. Self cleaning. Good condition $500 or best offer. Call (978) 462-9437

MOVING MUST SELL
CLOTHES DRYER electric. $150. Good condition. Call 978-818-9476

WASHER, ELECTRIC DRYER & ELECTRIC STOVE

MISC ITEMS WANTED

CASH FOR TOOLS - Hand or power! Carpenters, machinists, mechanics, plumbers, rolleways. 1-800-745-8665

I BUY BOOKS
Books with colored plates
Leather Bound Books
Antique Books
Modern First Edition
1930s-1960s books with dust jackets
call 978-658-0781

MISC MERCHANDISE

ATTENTION!
Beware of anyone replying to your ad offering to send you a check for shipping and you sending them back the difference.
Also beware when responding to classified ads that ask you to send shipping cost. Possible scam!

HAND TOOLS WANTED
Stanley planes-chisels-adzes-axes-calipers-clamps-machinists-mechanics-useful tools etc. All Trades. Shop lots. 1-888-405-2007.

Helene Curtis Electric Dryer Chair with arms, white, include booklet for instructions $100.00 Call (781) 631-9459 Leave msg & phone#

HOLIDAY FAIR & THRIFT SHOP
Open Friday, Dec. 2nd 4 to 8 pm and Saturday, Dec. 3, 9 am to 2 pm. Many, Many holiday items, gifts, toys, decor, crafts, jewelry. All very reasonably priced. UU Church, 4 Cleaves St, Rockport. ONE STOP SHOPPING FOR ALL YOUR HOLIDAY NEEDS

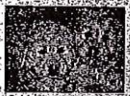
WOMAN'S MOUNTAIN BIKE
In new condition. A great Christmas gift. Cash only $275. Call 978-283-8869

MUSICAL

YAMAHA BABY GRAND PIANO Black satin eb-

PETS & FREE PETS

ATTENTION! ATTENTION!
Beware of anyone replying to your ad offering to send you a check for shipping and you sending them back the difference.
Also beware when responding to classified ads that ask you to send shipping cost. Possible scam!



Cavapoos, Goldendoodle, Whoodle, Chi-chon, Chiweenie, Poovanese, Wheaties, Cockapoo, Morkie, Bich-poo, etc. $750+ (603) 942-9970

GOLDEN RETRIEVER PUPPIES FOR SALE Trained, AKC/OFA, Health Guarantee, Great Pedigree, Vaccinated, Wormed, Socialized. With an **EXTENDED TRAINING** without treats! No Jumping, No Biting, & House trained! 30 Years Experience. We train ANY breed! Heidi 978-504-1582 · www.fisherwood.com

Pekingese male black/white, ready now, shots & worming, to a good home $750 978-297-4776 or 978-895-2822

Legals

TOWN OF GEORGETOWN PUBLIC HEARING NOTICE GEORGETOWN PLANNING

Public Meeting on the Request Determination of Applicability by **Kelly O'Connell** to determine if the proposed construction deck at **127 Haverhill Street** is subject to the Massachusetts Wetlands Protection Act. **DA2016-059.** be examined in the Conservation Commission Office at the above address. Donald D. Cooper, Chairman.
ET - 11/29/16

CITY OF METHUEN
Notice is hereby given that the Methuen City Council and the Methuen Community Development Board will hold a joint public hearing on **Wednesday, December 14, at 6:00 p.m.** in the Great Hall Searles Building, 41 Pleasant St, Methuen, MA, with all parties interested pursuant to the authority conferred by Chapter 40A of the General Laws, to amend the Zoning of the City of Methuen by rezoning the following parcels of land from General Residential (RG) to Central Business District (CBD):
Broadway
Map 612, Block 57, Lot 21
Broadway
Map 612, Block 57, Lot 20
The proposed zoning amendment is available for inspection in Community Development Office, Searles Building, 41 Pleasant Street, Room 217, Methuen, MA.
Sean Fountain, Chairman
Methuen City Council
Joseph A. Leone, Chairman
Methuen Community Development Board
11/29, 12/6/16

CITY OF METHUEN
Notice is hereby given that the Methuen City Council and Community Development Board will hold a public hearing on Wednesday, December 14, 2016 at 6:15 p.m. Searles Building, 41 Pleasant Street, Methuen, MA, with all interested pursuant to the authority conferred by Chapter the General Laws for a proposed amendment to the Methuen Comprehensive Zoning Ordinance

CITY OF LAWRENCE NOTICE OF PUBLIC MEETING
The City of Lawrence, MA will be conducting a Public Meeting on Wednesday, 30 November 2016 at 6pm to gather commentaries and information on the draft Brownfields Clean-up Grant application and draft Analysis of Brownfields Clean-up Alternatives (ABCA) to be submitted to the federal U.S. Environmental Protection Agency for the Tombarello Site at 207 Marston Street, located in the City of Lawrence and owned by the City.
The meeting will be held at the Redeemer Lutheran Church, 163 East Haverhill Street, at the corner of Howard Street in Lawrence. The draft grant application and ABCA will be available for public review and comment at the City of Lawrence Office of Planning & Development, located at 225 Essex Street 3d floor Lawrence, MA from Monday, 28 November 2016 through Friday, 2 December 2016 from 9am to 4pm. Please contact Mr. Abel Vargas 978-620-3015 or AVargas@CityOfLawrence.com to receive an electronic copy or to submit form comments on the draft documents.
ET – 11/29/16

NOTICE OF PRIVATE SALE TO WHOM IT MAY CONCERN
Notice is hereby given by VALLEY TOWING INC., 150 Merrimack Street, Methuen, MA 01844, pursuant To the provisions of Mass General Laws, Chapter 255, Sec. 39A that on December 7, 2016 at 10:00 AM, the following vehicles will be sold at private Sale to satisfy our garage keepers lien thereon for towing And storage charges and expenses of notices and sale:

THE TRIAL COURT
16 SM 010191
ORDER OF NOTICE
TO: Pamela Quimby- Montanino as Trustee of the Gwendolyn M. Howard Trust and to all persons entitled to the benefit of the Servicemembers Civil Relief Act, 50 U.S.C. §§ 3901 et seq.: The Bank of New York Mellon FKA The Bank of New York as Trustee for the Certificateholders of the CWABS Inc., Asset-Backed Certificates, Series 2005-13 claiming to have an interest in a Mortgage covering real property in Lawrence, Numbered 19 Ridgewood Circle, Given By William J Caudill and Gwendolyn Caudill to Mortgage Electronic Registration Systems, Inc. as Nominee for America's Wholesale Lender, dated September 26, 2005, and recorded in Essex County (Northern District) Registry of Deeds in Book 9788, Page 312, and now held by Plaintiff by assignment, has/have filed with this court a complaint for determination of Defendant's/Defendants' Servicemembers status. If you now are, or recently have been, in the active military service of the United States of America, then you may be entitled to the benefits of the Servicemembers Civil Relief Act. If you object to a foreclosure of the above-mentioned property on that basis, then you or your attorney must file a written appearance and answer in this court at Three Pemberton Square, Boston, MA 02108 on or before December 26, 2016 you will be forever barred from claiming that you are entitled to the benefits of said Act.
Witness, JUDITH C. CUTLER, Chief Justice of this Court on November 9, 2016
Attest: Deborah J. Patterson
Recorder
ET - 11/29/16

COMMONWEALTH OF MASSACHUSETTS LAND COURT DEPARTMENT OF THE TRIAL COURT
16 SM 006542
ORDER OF NOTICE
TO: Paul Lashua and to all persons entitled to the benefit of the Servicemembers Civil Relief Act, 50 U.S.C. App. § 501 et seq.: Manufacturers and Traders Trust Company successor by merger to Hudson City Savings Bank, FSB claiming to have an interest in a Mortgage covering real property in Andover, numbered 4 Wellington Circle, given by Paul Lashua to Citizens Mortgage Corporation, dated May 22, 2003, and Registered in Essex County (Northern District) Registry District of the Land Court as Document No. 82502 and noted on Certificate of Title No. 14190, and now held by Plaintiff by assignment, has/have filed with this court a complaint for determination of Defendant's/Defendants' Servicemembers status. If you now are, or recently have been, in the active military service of the United States of America, then you may be entitled to the benefits of the Servicemembers Civil Relief Act. If you object to a foreclosure of the above-mentioned property on that basis, then you or your attorney must file a written appearance and answer in this court at Three Pemberton Square, Boston, MA 02108 on or before January 2, 2016 or you will be forever barred from claiming that you are entitled to the benefits of said Act.
Witness, JUDITH C. CUTLER, Chief Justice of this Court on November 18, 2016
Attest: Deborah J. Patterson
Recorder
ET - 11/29/16

CITY OF METHUEN
Notice is hereby given that the Methuen City Council and the Methuen Community Development Board will hold a joint public hearing on **Wednesday, December 14, 2016 at 6:30 p.m.** in the Great Hall of the Searles Building, 41 Pleasant Street, Methuen, MA, with all parties interested pursuant

...with the Essex County (Northern District) Registry of Deeds. TERMS OF SALE: Said premises will be sold and conveyed subject to all liens, encumbrances, unpaid taxes, tax titles, municipal liens and assessments, if any, which take precedence over the said mortgage above described. SUBJECT TO a prior mortgage dated March 10, 2005 and recorded in Book 9412, at Page 196. TEN THOUSAND ($10,000.00) Dollars of the purchase price must be paid in cash, certified check, bank treasurer's or cashier's check at the time and place of the sale by the purchaser. The balance of the purchase price shall be paid in cash, certified check, bank treasurer's or cashier's check within thirty (30) days after the date of sale. Other terms to be announced at the sale. Marinosci Law Group, P.C. 275 West Natick Road, Suite 500 Warwick, RI 02886 Attorney for Santander Bank, N.A. f/k/a Sovereign Bank, N.A. f/k/a Sovereign Bank Present Holder of the Mortgage Telephone: (401) 234-9200 MLG File No. 15-16630
ET - 11/29, 12/6, 12/13/16

NOTICE OF MORTGAGEE'S SALE OF REAL ESTATE
By virtue and in execution of the Power of Sale contained in a certain mortgage given by Sokhoeun Hin to Mortgage Electronic Registration Systems Inc., acting solely as nominee for America's Wholesale Lender, dated November 3, 2006 and recorded with the Essex County (Northern District) Registry of Deeds at Book 10501, Page 310, of which mortgage the undersigned is the present holder by assignment from Mortgage Electronic Registration Systems, Inc. to The Bank of New York Mellon f/k/a The Bank of New York, as Trustee for the Certificateholders of CWABS, Inc., Asset-Backed Certificates, Series 2006-25 dated November 7, 2011 and recorded with said registry on December 5, 2011 at Book 12727 Page 282, for breach of the conditions of said mortgage and for the purpose of foreclosing, the same will be sold at Public Auction at 9:00 a.m. on December 7, 2016, on the mortgaged premises located at 208 FARNHAM STREET, LAWRENCE, Essex County, Massachusetts, all and singular the premises described in said mortgage,
TO WIT:
the land in said Lawrence, Essex County, Massachusetts with the buildings thereon bounded as follows: SOUTHERLY: By Farnham Street, twenty-eight (28) feet; WESTERLY: By land now or formerly of Benoit, one hundred twenty (120) feet; NORTHERLY: By lands now or formerly of Ferris and Langston, respectivvely, twenty-eight (28) feet; and, EASTERLY: By land now or formerly of Brien, one hundred twenty (120) feet. Containing 3,360 square feet of land, more or less. Said premises are conveyed subject to easements and restrictions of record. Said premises are shown as Lot A on a 'Plan of Land located in Lawrence, Mass., owned by Stephen and Clarence Brien, Scale 1"= 20', April 20, 1988' / Scott L. Giles R.L.S., North Andover, Mass.', recorded as Plan Number 11131 at the North Essex Registry of Deeds.
For mortgagor's(s') title see deed recorded with Essex County (Northern District) Registry of Deeds in Book 5695, Page 265.
These premises will be sold and conveyed subject to and with the benefit of all rights, rights of way, restrictions, easements, covenants, liens or claims in the nature of liens, improvements, public assessments, any and all unpaid taxes, tax titles, tax liens, water and sewer liens and any other municipal assessments or liens or existing encumbrances of record which are in force and are applicable, having priority over said mortgage, whether or not reference to such restrictions, easements, improvements, liens or

PUBLIC MEETING ABOUT TOMBARELLO SITE
MEETING MINUTES
November 30, 2016
Redeemer Lutheran Church, 163 Haverhill St., Lawrence, MA
6:00-7:30 pm

Attendance: 40 See attendance list.

Welcome Mayor Daniel Rivera

Mayor Rivera welcomed residents and introduced the project. He recognized City Council and School Committee members in attendance. The Mayor mentioned that the Tombarello Site has been a negative feature in the neighborhood for a long time and the City recently acquired the property through tax taking. Former owners have until May 29 to pay taxes and regain ownership but this is not anticipated. The City wants the property to be an asset rather than a problem and sees its potential to enhance the economic revitalization of the City. He mentioned four critical aims of the Tombarello Site cleanup and redevelopment project:
1) Job Creation; 2) Least negative impact on the neighborhood; 3) Lift the perception of the City and redeveloped in a way that makes residents excited (ie: not a storage facility or another gas station); 4) Provides tax money for the City. He mentioned that it is a rare development opportunity to have a 14 acre site with only 1 owner. The Mayor welcomed community input on redevelopment plans.

Site History Abel Vargas, Business and Economic Development Director

Abel reiterated the development potential of the Tombarello Site: 14 acres of undeveloped land with 500 feet of highway frontage is difficult to find in a densely populated City like Lawrence. He mentioned that the a Targeted Brownfields Assessment was recently performed by Nobis Engineering and that the EPA provided $150,000 in funding for this assessment. He said that before the City took it over, they reviewed the whole history of the Site.
Using a map of the property, he showed residents how the property is two parcels: Lot #1, a 2.4 acre parcel along Marston St. and Lot #2, the back 11.6 acre parcel. The City is now applying for two EPA grants: a cleanup grant for the front 2.4 acre parcel and an assessment grant for the back 11.6 acre parcel.
He introduced project partners who were present: 1) Steve Vetere from Nobis Engineering; 2) Brad Buschur from Groundwork Lawrence, 3) Joe Cosgrove from Merrimack Valley Planning Commission, 4) representative from Mass Development.
Abel said the object of this meeting is to involve the community in the planning and redevelopment of the Site and get their ideas and comments.

Assessment Investigation/Cleanup Alternatives Stephen Vetere, Nobis Engineering

Steve said that Nobis was contracted to carry out the Targeted Brownfields Assessment by EPA using $150,000 in funding and that work was done in June and July of 2016. Performing an assessment was necessary before cleanup in order to know: 1) what contaminants are there?, 2) where are they?, 3) how deep are they?. This information then informs how the Site can be cleaned up and how much money it is likely to cost. Two inch soil core borings were done 50 feet apart and analyzed for contaminants noting any staining or odors. From these core borings, contamination on the Site as a whole is inferred. They also took samples of the soil berms located on south and east boundaries. A map of the site and where current and past analysis was

performed was exhibited and the color of the dots related to contamination level (red being a hot spot).
Contamination found was related to it being a former scrap metal recycling facility.
Contaminants were found at depths of 1-9 feet.
Contaminants found were PCBs, lead, metals, and petroleum hydrocarbons related to leaks from tanks and electronic components. PCBs don't like to move so there is no significant groundwater contamination. PCBs stick to soil particles but doesn't break down easily.

Cleanup alternatives:
1) One extreme: Unrestricted use/unlimited exposure; Uses could include residential homes, daycares. This is not feasible because of size of property and removing that amount of contaminated soil would cost be cost prohibitive (in the hundreds of millions).
2) Other extreme: Take no soil off-site, just put a cover and clean soil over the top. This would mean children could touch the soil because there's a clean cover on top. The site would be productive. Cost: ~ $2 million; This is feasible with enough grant money.
3) In-between option: This is most cost effective and still protective of human health and the environment. Hot spots are removed to a landfill and the rest of the contaminated soil is covered with clean soil. This leaves the site with a protective barrier. This option is a compromise: It leaves some contamination on-site and makes it unfeasible for some uses such as residential property. It would be suitable for light industrial or commercial uses.

Re-Use Planning Abel
How will the project move forward? It's a $3-4M project with a lot of contamination. The approach will be in phases.
We're submitting two EPA applications:
1) Cleanup grant for 2.4 acre parcel along Marston St - $200,000. We also expect to get an additional $100,000 from partners). This parcel is less contaminated than the back parcel. We will make an access road and projecting to site amenities such as a CVS or bank there.
2) Assessment grant for 11.6 acre parcel in back. We want to do additional assessment work to have confidence in what contaminants are present. Additional work will outline the hotspots more clearly and hopefully reduce the cost of eventual cleanup.

<u>Mayor:</u> This will be a continuing conversation. We want to manage resident expectations and not leave anyone in the dark. We are doing the low-hanging fruit first: cleanup of the 2.4 acre parcel along Marston St. This will make it look good and fix an eyesore.

We also know there is a crunch on parking because of the school (residents agreed that teachers have no place to park). A portion of the corner front lot will be fenced and be designated parking for the school and residents. The DEP said that all that has to happen is to either patch areas of the asphalt where soil is showing or resurface the area. We know that traffic is the #1 issue and our hope is to resolve the Marston St./Commonwealth Ave. traffic problems before all the redevelopment happens. A study has already been done.

Residents were told that:
1) Two documents are available: Draft of grant and ABCA and they are in Abel's office for anyone to come up and read them.

2) Abel's contact information was made available to residents and they were encouraged to leave their e-mail address so that these documents could be sent to anyone interested.
3) Public comments are being taken until December 2 for input into the grant but welcome at any time.

Questions & Comments:

Q: Are there big plumes of dirty soil and does the contamination move around a lot?
A: No, there has been no movement off-site. PCBs are bound to the soil. The way contamination could occur is through dust - for example if it was dry and trucks were moving up and down the site it would mobilize contaminated dust. The dust is the main potential exposure. When the recent assessment was done, care was taken to minimize dust - they used hoses to water down the area and monitored the air for contamination. No contamination was produced.

Q: What about safety and traffic? It's already hard for residents on Hoffman Ave. to get out of their street because of traffic, this will make it worse.
A: Nobis responded by saying that they do environmental cleanups all the time and take safety very seriously. They reduce dust and make sure trucks don't track dust. Engineering controls will be implemented to make it safe. One benefit of not removing all contaminants is that it reduces truck traffic.
Traffic issues were addressed by Abel and the Mayor. They are aware that traffic issues already exist on Marston St. and that Commonwealth Dr. is a problem. The blinking light is not adequate. They know they need to address traffic issues but said it's best to do a traffic study once they know how the site will be redeveloped.

Q: If you say the contamination doesn't move, then how did it get on Hoffman Ave. property? (Referring to corrective remediation of properties on Hoffman St. by EPA in 2011)
A: It could have been moved by hand at some time in the past before EPA remediation.

Q: Did the Nobis study include samples over the perimeter or was it just on the Site?
A: All the sampling was done on the Site not in anyone else's property.

Q: I'm a property owner on Hoffman St.- will they be recheck the homeowner's property too?
A; The funds we are asking for is for the property the City owns. For the back lot, we need to assess how extensive the hot spots are.
The Nobis report is online so people can read it.

Q: Now that the study has been done, problem areas identified what is proposed to come into the Site? Concern is traffic and the school.
A: We will not site a UHAUL storage facility there but we're not sure. Commonwealth Motors is interested in expanding. Projects we're seeking need to meet the four criteria mentioned at the beginning of the meeting.

Q: What happens when you have to dig to put in infrastructure like water/sewer connections?

A: Any soil displaced goes to a a landfill. Mostly it will be slab construction so there is no digging of the basement. We will develop engineering controls and a soil management plan.

Q: Is there going to be testing on a continual basis? Will the PCBs break down or penetrate deeper?
A: PCBs are very stable and don't degrade easily; lead is also stable; petroleum products will degrade. There will be long-term monitoring and commitments: The property owner will need to inspect the cover regularly and report back to DEP. Continual soil sampling will not be needed. If the situation involved groundwater contamination, then yes, you'd need to monitor it over time but that's not the case here.

Q: Are there any specific proposals already in front of the City by a developer?
A: We're getting inquiries from entities we don't feel are suitable: a truck driving school or a UHAUL storage facility). One use may be suitable would be expansion of Commonwealth Motors.

Q: This neighborhood needs play space for kids and expansion of recreational opportunities. We don't have enough on this side of the City.
A: That's the essence of this conversation: Do we put in a park that generates no tax revenue or put in something that generates taxes? This parcel is large enough so perhaps there can be mixed uses.
Comment from resident: In our neighborhood, every postage square open space is being used for a house.

Q: What uses would be permitted on the site given the contamination?
A: It's difficult to say right now. We need to do more risk assessment work and then we'd know more about the balance between cap and cover. We need to run it through a risk model. Houses would not be possible. A recreational field may be possible with a clean cap or artificial turf surface. Best guess: Commercial or light industrial use.

Q: What do think would be good for the site?
A: COSTCO was mentioned.
Comment by resident: Traffic would be a problem
Q: As a general estimate, how many parking spaces would a COSTCO require?
A: A lot - the building alone is about 5 acres.
Discussion around this: How big of a resource for the City would a big box store be?
Mayor: The road is not good at all - it doesn't even have a traffic light. Anything that happens need to have traffic improvements considered.
Comments from residents:
- School buses can't make the turn onto Commonwealth; the blinking light is useless.
- It doesn't matter if you have one big box store or several smaller commercial entities, you'd still get the same amount of tax revenue.
- Can you do something to open the parcel to the highway (I-495) instead? Then traffic wouldn't have to come down neighborhood streets.

Q: Will traffic issues be worked out before redevelopment?

A: Yes.

Other Comments:

C: Biggest problem in the past was that the previous administration didn't do anything to help neighbors and when American Recycling took it over, nothing happened. There were big fires on the property and a resident saw an employee pouring something on the ground.

C: Neighbors got no results from DEP from Wilmington or the previous administration.
Response: We just did a survey of the property and will be putting a fence around the property. We're putting a camera there also.

C: The school should have #1 consideration.

C: We're appreciative of this meeting allowing comments and look forward to being a part of the process. Thanks for having this meeting.

Meeting ended.

City of Lawrence
Tombarello Site Meeting
Weds. 30 November 30, 2016

Name	Address	eMail & Phone
1. Josephine Toscano	11 Hoffman Ave	978-6831553
2. [illegible]	11 Hoffman Ave	978-771 4169
3. [illegible]	41 Amherst St	—
4. [illegible] Perez	36 Hoffman Ave	reve perez @ Hotmail.com
5. [illegible] Benedix	29 Saxonia Ave.	978-682-3496
6. RAY BENEDIX	29 SAXONIA AVE	978-682-3496
7. AL BEAULIEU	51 HOFFMAN	978-682-7179
8. DAN RIVERA	1 Thomas Rd.	978 2081744
9. ROBERT O'KONIEWSKI	3 SUMNER AVENUE	BOBOKESQ@GMAIL.COM 978-239-0153
10. Myra Ortiz	45 Norris St	Mortiz@cityoflawrence
11 Orlando Bisso	45 Norris St	Orlando.B.Bisso@gmail.com
12. FRANKLYN Velez	53A [illegible] St	
13. Jennifer Lasonde	38 NORRIS St.	Jennifer lasonde@yahoo.com (978) 476-1719
14. Jose A. Rodriguez	219 E. Haverhill st	978 390 6352
15.		

Tombarello Site Public Meeting 11/30/2016

Name	Address	Telephone Number	E-mail Address
David J Bain IV	138 Ferry St Lawrence		djbainjr@comcast.net
Dib Sarkis	6 Hofman Av		—
Tony Sarkis	10 Hofman Av		—
Leila Sarkis	6 Hofman Av		—
Robin Grealey	31 E Platt St		robinlg31@yahoo.com
Bob Heinze	525 Howard St		
Eleni Varitimos	MassDevelopment		
Gisella Perez	18 So Pleasant St.		giselleslogic@gmail.com
Emmanuel Castaneda	2 Woodland		

City of Lawrence
Tombarello Site Meeting
Weds. 30 November 30, 2016

Name	Address	eMail & Phone
1. Martha Leavitt	3 Sumner Ave	martha-leavitt0205@hotmail.com
2. Nick Daler / Comm. Motors		nicholasdaler@dalercompanies.com
3. Brenda Rozzi	127 Chester St.	BFRozzi@aol.com
4. Dick Russell	34 Cross St	DickRussell0817@Gmail.com
5. M		
6. Johnny Noel	Beyond Soccer	Johnny@BeyondSoccerLawrence.org
7. Eric Lundquist	GWL	e.Lundquist@gmail.com
8.		
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11		
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15.		

City of Lawrence
Tombarello Site Meeting
Weds. 30 November 30, 2016

Name	Address	eMail & Phone
1. Joe Cosgrove	MVPC - Haverhill	Jwcosgrove@mvpc.org
2. Marilyn C. Kopacz	44 Kendrick St.	
3. Jacqueline Chamberlain	44 Kendrick St	CHAMBJF@YAHOO.COM
4. Paul Durant	137 Marston	[illegible]
5. Joe Nordwick	144 Ferry Street	Jnordwick1@aol.com
6. Shamus O'Brien	144 FERRY STREET	~~Sh~~bostonsmo@yahoo.com
7. Eric & Nancy Salach	11 NORRIS ST.	
8. John & Hope Fede	81 Ferry ST.	jfede@gmail.com
9.		
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Tombarello Site Public Meeting 11/30/2016

Name	Address	Telephone Number	E-mail Address
Richard Rodriguez	21 Holman Ave	978-681-0669	RRodriguezesz@gmail.com

1. COMMUNITY NEED

1.a. Target Community and Brownfields

1.a.i. Community and Target Area Descriptions: The City of Lawrence (30 miles north of Boston, MA) was created at the height of the Industrial Revolution as a fully planned city whose dams and canals took advantage of water power provided by the nearby Merrimack River. Massive textile mills flourished, providing jobs to immigrants that flocked to the city. When the majority of textile mills began leaving in the 1940s-50s, it precipitated a disinvestment in the city, leaving behind an impoverished, mostly immigrant, population living in neighborhoods experiencing environmental contamination due to a century of unregulated industrial development. Numerous abandoned mills and contaminated properties are part of city life and more recent industrial operations that included trash incinerators, landfills, automotive and body repair shops and other operations typically found in low income, minority communities have added to the burden. This industrial legacy resulted in the State identifying 273[1] brownfield sites in Lawrence, prompting EPA to designate Lawrence a **Making a Visible Difference** community.

Lawrence is an Environmental Justice (EJ) Community and a MA Economically Distressed Area (EDA). EDAs areas are eligible for targeted assistance under the MA Brownfields Act based on **economic distress** criteria including **unemployment, poverty, job loss and commercial vacancy**. Lawrence has not experienced any significant revitalization in over three decades, and remains the poorest in the Commonwealth and among the highest in crime rates. The global **economic downturn of 2008 hit this area particularly hard** and the **downsizing or closing of several manufacturing plants since then has resulted in the loss of over 500 jobs.**

Lawrence has the largest Latino population in New England (75.7 % Lawrence/10.2% MA[2]). Many residents face language/educational barriers, low wage employment opportunities and difficulty accessing medical and other services. Brownfields are part of neighborhood life, there is limited green space and access to healthy foods and quality recreational areas are limited.

The former Tamborello Property (the Site), is in the densely-populated Prospect Hill neighborhood (census tract 2508). The neighborhood is a mixed-use area with residential, institutional, educational, commercial and light industrial uses. There are 51 distressed properties in the neighborhood standing vacant and in disrepair. Stately single family houses on large lots, once occupied by mill merchants and managers, have now been divided into smaller apartments. Fifty five percent of the houses in the neighborhood were built in 1939 or earlier and 68% are renter-occupied[3]. A **high percentage of female headed households with children under 18 live in the neighborhood**. The **unemployment rate is high with more than 40% of households receiving SNAP benefits.** The Prospect Hill neighborhood is l**ocated in a food desert with limited green space.** Traffic congestion and unsafe walking conditions exist and a previous road safety audit designated it a “high crash” area. Eleven residential properties closely abut the north end of the property along Hoffman Ave. To the west, across Marston St, lies Parthum Elementary/Middle School, Lorenz ball field and a 144-unit condo complex. To the south is an automobile dealership (formerly a waste recycling facility) and 400 feet to the east lies the Merrimack River and I-495.

1.a.ii. Demographic Information and Indicators of Need

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[1] EPA Brownfields 2007 Grant Fact Sheet, Lawrence MA; 2007 Lawrence Brownfield grants/historical facts.png

[2] Data are from the 2010-2014 American Community Survey (ACS) 5 year estimates, DP05 http://factfinder.census.gov

[3] Source: 2010-2014 American Community Survey 5 year estimates, DP04 at http://factfinder.census.gov

Targeted Community	CT 2508	Lawrence	MA	National
Population:	6,525[1]	77,364[1]	6,657,291[1]	314,107,084[1]
Unemployment: (Sept 2016)	N/A	6.4%[2]	3.3%[2]	5.0%[3]
Poverty Rate:	22.4%[4]	28.5%[4]	11.6%[4]	15.6%[4]
Percent Minority:	68.8%[1]	82.3%[1]	25.0%[1]	37.2%[1]
Median Household Income:	$34,111[4]	$34,496[4]	$67,846[4]	$53,482[4]
Language Other than English	63.4%[5]	76.6%[5]	22.2%[5]	20.9%[5]
Female headed household children <18	12.7%[5]	20.0%[5]	6.9%[5]	7.3%[5]
Households with SNAP benefits	43.5%[4]	40.9%[4]	12.4%[4]	13.0%[4]

[1] Source: 2010-2014 American Community Survey 5 year estimates, DP05 at http://factfinder.census.gov
[2] MA Exec Office of Labor & Workforce Development DUA http://lmi2.detma.org/lmi/town_comparison.asp
[3] Bureau of Labor Statistics; http://data.bls.gov/timeseries/LNS14000000
[4] Source: 2010-2014 American Community Survey 5 year estimates, DP03 at http://factfinder.census.gov
[5] Source: 2010-2014 American Community Survey 5 year estimates, DP02 at http://factfinder.census.gov

1.a.iii. Brownfields and their Impacts: The industrial legacy of Lawrence left 273 Brownfields in a densely-populated city that is only 7.4 square miles. The majority of the identified brownfield sites in the city lie north of the Merrimack River, in the canal district and surrounding neighborhoods, and the Tombarello site is located in this area.The poverty rate, income levels and sensitive populations within these areas are drastically higher than the rest of the state. Most residents live near multiple brownfields risking exposure to lead and asbestos from former residential sites and polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), heavy metals, chlorinated solvents, volatile organic compounds (VOCs) and other toxins from former industrial sites, gas stations and auto body shops. Exposure pathways can be either through direct contact or inhalation of vapors via soil or groundwater migration into indoor air. The Marston St. corridor where the Tombarello Site is located has a long history of contamination including a landfill, trash to energy incinerator, compressed natural gas facility and auto-related businesses. Currently a MA DOT yard is located less than a city block from Parthum school where road salt is stored. It contributes truck traffic and diesel fumes to an already highly traveled area. Two auto mechanic shops are located within a 1/2 mile from the Site.

The 14 acre Tombarello Site is the largest brownfield in the Prospect Hill neighborhood. It is an abandoned former scrap metal recycling facility near the Merrimack River and sensitive populations such as school aged children, low income families, and a high percentage of women of child bearing age. The site was owned and operated by John C. Tombarello & Sons, Inc. as a scrap metal recycling facility from 1941-1998. The southern end was once a soap manufacturer. In December 1998, the Site was sold to American Recycling, Inc. which accepted scrap metal including crushed automobiles, storage tanks, machinery and computer parts. Precious metals from the computers were extracted using cyanide. American Recycling abandoned the Site and First Lawrence Financial, LLC became the mortgage holder. A truck driving school operated on the Site in 2006. In May 2016, the City acquired the Site through tax taking. Two former industrial buildings, a former residential building and several building foundations are on Site.

Soil piles are scattered throughout and a 10-20-foot-high earthen berm is on the eastern and southern borders from pushing surface soils toward the property boundaries.

Environmental analysis of surface soil, subsurface soil and soil stockpiles at the Site indicate contaminants including PCBs, heavy metals (arsenic, chromium, mercury, lead), semivolatile organic compounds (SVOCs) and PAHs. PCB contamination exceeds 10 mg/kg and would constitute an Imminent Hazard/2-hour reporting condition if not for the fence around the Site.

In 2006, citizen complaints about dusty conditions and public health concerns sparked EPA and MA Department of Environmental Protection (MA DEP) to conduct site visits where scrap metal reclamation activities posed Immediate Hazard conditions. In 2010, EPA and START (Superfund Technical Assessment and Response Team) conducted surface and subsurface soil samples at residential properties on Hoffman Ave. finding high concentrations of contaminants including PCBs, lead, chromium and SVOCs. In 2011, EPA removed contaminated soil and conducted restoration activities from 4 abutting residential properties.

1.b Welfare, Environmental, and Public Health Impacts

1.b.i. Welfare Impacts: *Crime*: Abandoned vacant lots and weedy brownfields encourages crime and zip code 01841 where the Prospect Hill neighborhood is located, is rated 89/100 for violent crime (1: lowest; 100 highest). This mirrors the City (88.7) and is much higher than the State (41.4). Property crime also shows a similar trend with 01841 and Lawrence having a score of 75 compared to only 43.5 State.[4] The Tombarello Site has been vandalized by arsonists who set fire to an abandoned house and brick building resulting in property destruction and neighborhood disruption. *Public Safety:* Arson at the Site places a burden on firefighters and public safety personnel and risks their exposure to contaminants. *Quality of Life:* The Tombarello Site has a long history of problems impacting the peace of mind of residents nearby: they worry about possible health impacts, are disrupted by vandalism, and their property values are negatively affected. *Blight:* Besides the large vacant Tombarello property, the neighborhood has 51 unoccupied distressed properties that add to a feeling of neglect. *Community Disinvestment:* Brownfields have created disincentives for external investments and contributed to unemployment, poverty and loss of tax revenue. *Food Security:* Prospect Hill is a food desert but brownfield sites are not desirable for developers who might locate a grocery store in the area. *Transportation*: Per 2010- 2014 ACS 5-year estimates, 20.8% percent of residents in CT2508 do not have access to a car and rely on walking, biking, and public transportation. Since the neighborhood abuts a busy commercial corridor, walking is unsafe with no dedicated bike lanes.

1.b.ii. Cumulative Environmental Issues: 100% of Lawrence is classified as an EJ community compared to 12.1% average for all MA communities. Within 3 miles of the Site are multiple environmental issues. The adjacent I-495 is heavily traveled with annual average daily traffic count for 2015 = 114,452.[5] Morning/evening rush hour traffic is a source of gas and diesel emissions. The Marston St. corridor has a steady traffic flow increasing mobile source emissions and noise levels. A 2008 MA DPH report "Air Pollution and Pediatric Asthma in the Merrimack Valley" pointed to emission exposure at higher traffic volume areas a likely contributing factor to the high asthma rates among children. A former closed landfill is located southeast of the Site which is now a park. The area around the Site contains auto sales and mechanic businesses and a former waste transfer station abuts the property. Across I-495 and the Merrimack River is a

[4] Sperling's Best Places:http://www.bestplaces.net/crime/zip-code/massachusetts/lawrence/01841.

[5] Mass DOT: http://mhd.ms2soft.com/tcds/tsearch.asp?loc=Mhd&mod= Local ID:5071

wastewater treatment facility and Lawrence Municipal Airport, further impacting pollution and noise levels. A former natural gas storage facility, and two incinerators are within 3 miles.

According to MA DEPs Waste Site/Reportable Release Look Up, Lawrence has 7 Tier 1 sites (most hazardous) and the Tombarello Site is one of these. The Toxics Action Center's April 2010 Report, *Toxics in Massachusetts: A Town-by-Town Profile*[6], indicates Lawrence has 10 large quantity hazardous waste generators (facilities generating more than 1,000 kg of hazardous waste and/or more than 1 kg of acutely hazardous waste/month) as well as 2 capped landfills.

Compared to the State, Lawrence has 4.5 X less green space (16.5% Lawrence/74.8% State).[7] The Merrimack River, is an impaired waterway and despite 150 years of waste discharges into the River, it is still used for sustenance fishing and drinking water for the City of Lawrence.

<u>1.b.iii Cumulative Public Health Impacts:</u> Brownfields, cumulative environmental issues and adverse social determinants negatively impact the health of Lawrence residents with young children, low income residents and elders particularly affected. Chronic conditions such as overweight and obesity were top health concerns identified in a 2016 Community Health Needs Assessment. Residents cited the lack of accessibility and crime as barriers to eating healthy and being physically active. Per MA Community Health Information Profile (MA CHIP), the prevalence of diabetes in Lawrence is higher (12.8%) compared to the State (7.5%) and the difference in diabetes prevalence rates is particularly striking in the 45-64 age group (24.2% Lawrence/9.3% State) and 65+ age group (33.7%Lawrence/ 17.9% State).[8] Studies have pointed to a link between PCB exposure and a higher risk of diabetes (Carpenter 2008). Overweight and obesity statistics among youth are also notable: Overweight: 22.2% Lawrence/17.1% State; Obese: 25.4% Lawrence/16.3% State.[9] Unsafe walking/biking conditions and fear of personal safety around the abandoned brownfield contribute to the lack of exercise.

Young children and elders are particularly sensitive and adversely affected by poor outdoor and indoor air quality. The older housing stock and emissions from high traffic areas puts children at disproportionate risk for lead poisoning and asthma. The MA Department of Public Health's Childhood Lead Poisoning Prevention Program (MA CLPPP) ranks Lawrence #5 out of 20 high risk communities in MA (high risk scores: 14.7 Lawrence/9.4 all high-risk communities/2.8 State).[10] This risk is exacerbated by brownfields, many of which are contaminated with lead and other heavy metals. PCB's have been linked to respiratory problems (ATSDR). Pediatric asthma prevalence in Lawrence among K-8 students is about 1.5 X higher than the State (rate per 100 K-8 students: 18.1 Lawrence vs 12.4 State).[11] SVOCs from brownfield sites such as the Tombarello Site, can leach into indoor air amplifying poor indoor air quality. PCBs and lead in soil near hazardous waste sites can affect children if they play in contaminated soil or put dirty toys, hands or other objects in their mouths. Another health concern, because of the high number of women of child bearing age in the area, is the relationship between PCB's to low birth weight babies.

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[6] Toxics Action Center:http://www.toxicsaction.org/sites/default/files/tac/information/TAC-toxics-in-massachusetts.pdf

[7] MA Environmental Public Health Tracking: Community Profile for Lawrence; http://www.mass.gov/dph/matracking

[8] MA CHIP Diabetes Report: www.mass.gov/eohhs/docs/dph/masschip/diabetes/h-o/diabetescity-townlawrence.rtf

[9] MA CHIP Youth Weight Status Report: http://www.mass.gov/eohhs/researcher/community-health/masschip/youth-weight-status-2010.html

[10] MA CLPPP: www.mass.gov/dph/clppp

[11] MA Department of Public Health, Bureau of Environmental Health: https://matracking.ehs.state.ma.us

1.c. Financial Need

<u>1.c. i. Economic Conditions:</u> The over 1,000 vacant lots/underutilized spaces in Lawrence coupled with a largely low-income population results in a limited tax base and inadequate funding for environmental remediation. The City is owed $21 million in back taxes on multiple properties.[12] Lawrence does not have the funds to clean up the Site. It has a legacy of outflow, not reinvestment, of capital: lost financial capital (manufacturing/ business profits), and lost human capital (individual/ civic/ business sector leadership). The weakened tax base strains an already tight municipal budget to keep up with critical public services. In 2010, it had a $27 million operating deficit prompting the State to appoint a fiscal overseer. The demographic upheaval and church divestment of recent decades took a toll on social safety nets; **the 2008 national recession** further weakened the remaining manufacturing sector, eroding many recent Latino family economic gains. In the past year, the loss of two local businesses (Lawrence Pumps and Polartec) was announced (cumulative loss: 285 manufacturing jobs[13]). Other recent local factory shutdowns/downsizing include Microsemi Corporation (over 100 jobs lost) and a General Mills yogurt factory (144 jobs lost).[14] The heavy snowfall in 2014-2015 resulted in the City spending $3M more than budgeted for road salting, snow plowing and removal. Recent extreme rain events have led to flooding of large sections of neighborhoods straining city funds.

<u>1.c ii. Economic Effects of Brownfields:</u> Declining property values and economic distress caused by the many high-priority brownfields debilitates Lawrence's long-term economic recovery. The significant remediation places a heavy burden on local government. Prospective residents and developers are looking for better neighborhoods and housing opportunities causing out-migration of the very residents best equipped to stimulate growth. The Tombarello Site is located on prime development property near the highway with 500+ feet of visible highway frontage. It has tremendous redevelopment potential. Developers have inquired about the Site but contamination is a barrier to positive reuse. Comparing 14 acres of active-use sites nearby, the Economic Development Director estimated that by sitting idle, the Tombarello Site is lost opportunity for the City of about $260,000/year in tax revenue.

<u>2. PROJECT DESCRIPTION AND FEASIBILITY OF SUCCESS</u>

2. a. Project Description, Timing and Implementation

<u>2.a.i. Project Description and Alignment with Revitalization Plans</u>

<u>Project Description:</u> The cleanup and redevelopment of the 14 acre vacant Tombarello Site will be conducted in two phases which take into account the differing contamination levels between Lot #1 and Lot #2. The smaller Lot #1, located along Marston St, is less contaminated and ready for cleanup and redevelopment. **Lot #2, the focus of this site specific assessment,** is 11.4 acres and located east of Lot #1 and parallel to I 495 and the Merrimack River. Lot #2 has shown heavy contamination and this assessment funding will allow for further risk assessment to delineate a safe and cost effective cleanup and redevelopment approach.

<u>Alignment with Revitalization Plans:</u> Lawrence's Urban Renewal Plan, generated with robust community input, identifies four key areas important to Lawrence's revitalization: 1) Economic Development, 2) Job Creation, 3) Quality of Life and 4) Municipal Fiscal Stability. The proposed redevelopment of the Tombarello Site aligns with each of these goals and has great

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12 Communication with City of Lawrence Economic Development Director

13 Eagle Tribune, Thursday, September 29, 2016; http://www.eagletribune.com/news

14 Eagle Tribune, Friday, September 29, 2014; http://www.eagletribune.com/news potential to be a lynchpin in the economic revitalization of the City. Since it is the largest brownfield in the Prospect Hill neighborhood, its cleanup and redevelopment will have profound benefits to the neighborhood and positively impact and address community needs. During the development of this proposal, the City engaged developers, key stakeholders, residents, and the Lawrence Partnership, a private/public sector collaboration focused on the City's economic development, that includes the leaders of most of the banks in Lawrence. Feedback from these groups has been included in the phasing and marketing strategy developed by the city.

REDEVELOPMENT PLAN: **Phase I:** **Cleanup and Redevelopment of Lot #1.** This 2.6-acre lot along Marston St. will include neighborhood amenities (bank and pharmacy);
Phase II: **Cleanup and Redevelopment of Lot #2.** A large anchor store that sells food is desired for this 11.4-acre lot behind Lot #1. Additional Site development includes a **green buffer zone and walking path**, planned between Hoffman St. homes and the Site's northern boundary. This portion was partially cleaned up by EPA during the removal action in 2011.

Integration with transit: Marston St. is a priority for Lawrence's **Complete Streets** projects and includes a road safety audit and assessment for public transit adequacy to the neighborhood.

Use of existing infrastructure: Utilities and telecommunications service are currently available along Marston St. and can be easily connected to the Site through underground utility corridors.

Integrating Equitable and Sustainable Development and Livability Principles: Lawrence's low income, majority Latino population, high unemployment rate and high incidence of obesity, asthma and other chronic diseases make health equity and sustainability important considerations into Site design. For instance, **providing more transportation options along Marston St.** will decrease household transportation costs, improve air quality, create a safer, more walkable, bikeable neighborhood and promote public health. **Improving economic competitiveness of Prospect Hill** by bringing in services that provide residents with healthy, affordable and cultural options (ie pharmacy, store that sells fruits and vegetables) will contribute to employment opportunities and health. **Enhancing the neighborhood with a green buffer zone and walking path** will help with noise/air pollution, reduce the heat island effect, help mitigate stormwater flow, and provide opportunity for physical activity. **Low Impact Development approaches** and the city's **stormwater ordinance** will help prevent pollution of the Merrimack River. The City will encourage development that integrates **LEED certification and green building design**.

2.a.ii. Timing and Implementation

(a) Contractor Procurement: The Mayor heads all City departments. The City follows MA procurement laws. The Office of Planning and Development (OPD) will manage the grant. The **Manager of Finance and Admin.** ultimately oversees the procurement process. Public procurement announcements are published in local newspapers (English and Spanish) targeting local contractors. The Project Manager and the Finance Manager evaluates bids based on established criteria, awarding the contract to the lowest bidder meeting program requirements. The Qualified Environmental Professional (QEP) will be procured using this process.

(b) Existing Conditions: Existing conditions described below are based on several field investigations conducted between 1998-2016. Prior environmental assessment was undertaken for both Lot #1 and Lot #2. **The existing conditions provided herein focus on Lot #2 only**.

Lot #2 is occupied by three buildings and three concrete slabs that are remnants of past operations as a scrap metal recycling facility. One building is a wood-framed former residence that has suffered structural damage due to a fire, the other two buildings are former industrial use structures that are steel-framed with concrete block and brick construction. The concrete slabs are reported to have been used for baling and shearing during metals recycling operations.

Fill material containing metal, brick, ash, slag, glass, and other man-made debris have been encountered in nearly every subsurface exploration. The depth of fill material varies widely across the Site ranging from 2 to 15 feet below ground surface (bgs), with an average fill thickness of 4 to 6 feet. Contaminants detected in Site soils are likely associated with historical operations as a burn dump/landfill and scrap metal/salvage yard. Native sands were encountered in deeper soil borings performed for monitoring well installations.

A prominent feature on Lot #2 is a soil berm that is present along the southern and eastern property boundaries. This berm is 15 to 20 feet high, and was reportedly created by pushing surface soils from the interior to the perimeter. Additionally, there are several soil and debris piles located on the site. Measurements made during a 2016 assessment indicated the volume of soil present above grade at the site (between berms and soil piles) is approximately 25,000 cubic yards. Soil samples have revealed concentrations of PCBs, PAHs, and heavy metals above risk-based screening thresholds. The following sections summarizes the extent of soil contamination:

PCB Contamination in Soil: PCBs have been detected throughout the Site in both surface (0-1 foot bgs) and subsurface soils (greater than 1 foot bgs). The vast majority of contaminated soil is located within 5 feet of the ground surface. The primary exception to this rule is the berm, where contaminated soils have been identified up to 15 feet below the top of the berm. PCB concentrations have ranged from non-detect to 1,300 mg/kg. In most areas, soils contain less than 50 mg/kg PCBs, but portions of the soil berms and several stockpiles contain PCBs above 50 mg/kg. **Metals Contamination in Soil:** Arsenic, chromium and lead have been detected throughout at concentrations that exceed their respective Massachusetts Contingency Plan (MCP) Method 1 risk assessment soil standards. The heavy metal most frequently is lead with concentrations that have exceeded standards in most of the soil samples collected, with a maximum concentration of 10,000 mg/kg. **PAH Contamination in Soil:** PAHs have been detected throughout above applicable MCP Method 1 S-1 Soil Standards. PAHs were detected above Method 1 standards in most of the soil samples during a 2016 investigation. **Groundwater Contamination:** Low concentrations of VOCs and SVOCs have been detected in groundwater samples collected from on-site monitoring wells. The only contaminant present above risk-based screening values in groundwater is lead.

The assessment strategy for Lot #2 includes extensive characterization of soil and sampling and analysis of building materials to facilitate the demolition and off-site reuse/disposal of debris. Additional soil sampling will be performed to delineate the extent of PCBs, PAHs, and metals. Emphasis will be placed on characterization of the soil berms, as these soils appear to contain the highest levels of contamination and represent a visual barrier between the site and I-495. A hazardous building materials survey will be performed of the three existing buildings to evaluate for the presence of, and provide quantities, of asbestos, lead-based paint, PCBs, and other universal wastes present on and within these structures. This survey will enable the development of abatement and demolition costs for these structures. Oil staining has been observed on the concrete slabs remaining on site. Characterization of the presence of contamination on these concrete slabs is warranted to evaluate whether this material can be recycled or whether it must be managed as a contaminated, or even hazardous, waste. PCB concentrations greater than 50 mg/kg have been detected in soil samples, triggering notification and remediation requirements under the Toxic Substances Control Act (TSCA). Cleanup and redevelopment of the site will be performed under the oversight of EPA's TSCA program. A "risk-based" cleanup plan will need to be developed to gain EPA approval of the cleanup plan. Assessment funding is required to perform risk assessment work and prepare the cleanup plan. The site is also regulated by MassDEP due to the concentrations of PCBs, PAHs, and metals detected in environmental media. The City has an obligation to perform Comprehensive Response Actions in accordance with the Massachusetts Contingency Plan (MCP-Massachusetts environmental regulations) to address the release of contaminants to the environment. Assessment funding will be required to fulfill the obligations of the MCP which include a Phase II Comprehensive Site Assessment, Phase III Remedial Action Plan, Phase IV Remedial Implementation Plan. These planning documents will prepare the site for remediation.

The tasks outlined are necessary for the City to adequately characterize the site in preparation for abatement, demolition, and remediation. The following is the task timeline:
0-6 Months- QAPP approved; **6-18 Months-** Phase II Assessment; **18-24 Months**- Phase III Remedial Action Plan and Phase IV Remedial Implementation Plan; **24-30 Months-** TSCA Risk-based Cleanup and Disposal Plan; **30-36 Months-** Remedial Action Plan.

(c) Obtaining and Securing Access: Adjacent property access is not anticipated, but if needed, the City has an access agreement template from past brownfield projects. The City has been in conversation with abutters who enthusiastically support the project. The City has secured the perimeter of the Site with a locked chain link fence with warning signs posted and a camera. City staff are driving by the Site 3X/week to check on the integrity of the fence and if there are problems, they are reported to the DPW for remediation. This will continue throughout the project.

2.bi. Task Descriptions and Budget: Due to parcel size of the parcel and widespread contamination, both below ground (soil) and above ground (building materials), assessment of this site is costlier than is typical. The City is requesting $350,000 grant funding of which $292,745 is needed for assessment. The following are tasks, activities, person responsible, outputs, and costs.

TASK 1 - COOPERATIVE AGREEMENT OVERSIGHT: Task Focus- Programmatic grant management. Expenses: Staff time: The *Project Manager (PM)* will coordinate efforts between the City, LSP***, grant partners, and EPA Project Officer, and attend EPA National Brownfield Conf. The *Mgr of Finance and Admin.* will provide financial oversight, process invoices, submit monthly billing, procure LSP. The *Economic Development Officer* will prepare quarterly reports and ACRES documentation. **Outputs:** Timely completion of tasks/ expenditures, conference attended, LSP secured, EPA reports and ACRES updated, Closeout of Cooperative Agreement.

***In MA, the Brownfields Program is a privatized waste site assessment and cleanup program. Site assessments are done by Licensed Site Professionals (LSPs) rather than MassDEP. LSPs are State licensed and develop and execute a scope of work that will satisfy State requirements to address contaminated property (MA General Law c.21E and the MA Contingency Plan).

1) *Personnel Costs*: $16,428

PM -100 hours at $41.18/hour incl. tax and fringe = $4,118
Mgr of Finance and Admin -75 hours at $54.61/hour incl. tax and fringe = $4,096
Economic Development Officer- 200 hours at $41.07/hour incl. tax and fringe = $8,214

2) ***Travel Costs:*** $1,000 for PM to attend EPA Conference includes Airfare/lodging/per diem will be paid for out of our current Area Wide Planning Grant.

TASK 2 - COMMUNITY OUTREACH AND ENGAGEMENT: Task Focus- Stakeholder engagement. Expenses: staff time, outreach supplies, contractual. Staff: The *PM* will prepare a Community Relations Plan and related materials, attend public meetings and interface with local businesses, residents, elected officials. The City's *Neighborhood Planner* will attend neighborhood association meetings, engage with school personnel/parents. Contractual: LSP will educate residents/stakeholders about assessment findings. GWL will assist with outreach and organizing public meetings **Outputs:** Community Relations Plan developed, 2 public meetings held, handouts produced, meeting minutes/public comments documented, interaction with City Councilors/ businesses/school community, 12 neighborhood meetings attended.

1) ***Personnel Costs*****: $6,188**
PM -100 hours at $41.18/hour incl. tax and fringe = $4,118
Neighborhood Planner -50 hours at $41.40/hour incl. tax and fringe = $2,070
2) ***Supplies:*** **$645** for placing advertisements in the newspaper and printing outreach materials
3) ***Contractual:*** **$22,000**
LSP - 20 hours at $100/hr = $2,000
GWL- $20,000 GWL rates/hour estimates include: *Project Director* 20 hours $105/hour = $12,540; *Community Engagement Manager*- 50 hours at $50/hour = $2,500; *Deputy Director*- 50 hours at $94/hour = $4,675 *Finance Director*-5.7 hours at $50/hour= $285

TASK 3 - SITE-SPECIFIC ASSESSMENT ACTIVITIES: Task Focus: Quality Assurance Project Plan, QAPP submission, and implementation of site assessment tasks. Expenses: Contractual, *LSP* will finalize QAPP, implement field investigations, prepare project planning documents, interact with regulatory agencies (MassDEP/ EPA). **Outputs:** Finalized QAPP, MCP Phase II Comprehensive Site Assessment, MCP Phase III Remedial Action Plan, MCP Phase IV Remedial Implementation Plan, TSCA Risk-Based Cleanup/Disposal Plan and Remedial Action Plan.

1)***Contractual:*** **$292,000**
Subcontractors= $102,000 Driller $52,000; Lab $40,000; Waste Management $10,000
LSP- 1900 hours at $100/ hour = $190,000 time estimates: QAPP100hr**;** MCP Phase II Assessment 750hr; MCP Phase III Remedial Action Plan200hr; MCP Phase IV Remedial Implementation Plan 500hr;TSCA Risk-Based Cleanup/Disposal Plan 200hr; Remedial Action Plan 150hr.

TASK 4 - OVERSEE SITE ASSESSMENT: Task Focus: Project monitoring, closeout, redevelopment planning. Expenses: staff time and contractual. Staff: The *PM* will meet with LSP regularly to ensure assessment is progressing according to project plans, work with developers on site redevelopment plans and City Departments to coordinate Complete Street efforts. The *Economic Development Officer* will provide field inspections to ensure safety, site security and efficiency. Contractual: LSP will update PM on operations, coordinate with Mass DEP and EPA, assure all required paperwork and documentation is completed. **Outputs:** Field operations meetings, remediation plans developed and approved by regulatory agencies, closeout reports generated.
1) ***Personnel Costs*****: $4,939**
PM -100 hours at $41.18/hour incl. tax and fringe = $4,118
Economic Development PO -20 hours at $41.07/hour incl. tax and fringe = $821
2) ***Contractual:*** **$15,000 EPA Grant: $15,000 Cost Share: $0**
LSP- 78 hrs at 100/hour = $7,800

2bii Budget Table	**Project Tasks ($)**				
Budget Categories	**1. Grant Oversight**	**2 Community Outreach**	**3. Assessment Activities**	**4. Oversee Assessment**	**Total**
Personnel inc. Fringe	$16,428	$ 6,188	$ 0	$4,939	$27,555
Supplies	$ 0	$ 645	$ 0	0	$ 645
Contractual	$ 0	$22,000	$292,000	$7,800	$321,800
Total Budget	$16,428	$28,833	$292,000	$12,739	$350,000

2.c. Ability to Leverage: The Tombarello Site has already received approximately $150,000 in Targeted Brownfield Assessment funds and $1.2 M in 2010 to clean up Hoffman St. house lots. We anticipate funds generated from the sale and redevelopment of Lot #1 will assist with future cleanup of Lot #2. For this project, the City has already secured the following leveraged fund commitments: (See Attached Documentation of Leveraging.)

Organization	**Source/ Use**	**Value ($)**	**Status**
MA Development	BF Redev Fund; T/A for Mkt and Transit Eval	$50K estimated	secured
City DPW	Chapter 90-Roadwork, sidewalks	$100K	secured
City OPD	HUD CDBG Infrastructure/utility connections	$50K	secured
MA DOT	Marston's Complete Streets	$400K	seeking

COMMUNITY ENGAGEMENT AND PARTNERSHIPS

3.a. Engaging the Community:

3.a.i. Community Involvement Plan: The City of Lawrence and its project partners are committed to thoughtfully engaging all potential stakeholders throughout the remedial planning and cleanup process and will implement an engagement plan that focuses on equity and inclusion.

Prior to submitting this proposal, the City engaged the community through a public meeting at the Redeemer Lutheran Church, located less than 1/2 mile from the Site. The project team presented the findings of the recent assessment work, discussed the analysis of brownfield cleanup alternatives and presented redevelopment options. Prior to the meeting, outreach staff from the City and Groundwork Lawrence (GWL) canvassed neighborhoods adjacent to the site to promote the meeting and answer any questions residents had. The project team attended a the Prospect Hill and the District A Neighborhood Associations to review the project and promote the public meeting. The meeting was attended by nearly 40 residents. Feedback from residents is included in this proposal and will continue to inform during the project implementation.

Engaging the neighborhood in the project requires working at multiple levels to ensure equity and inclusion. These stakeholders strongly support the city taking ownership of the property because they have long wanted previous property owners to implement remedial actions and commence reuse planning. Primary stakeholders will have direct contact with the City's PM to ensure they feel included and allay any concerns about the risks to public health and safety. Contact will be established through direct outreach and will include door knocking, literature distribution, social media and updates at neighborhood association meetings. The city will implement two public meetings at project milestones to ensure transparency, equity, and inclusion. The PM has an established rapport with local businesses and developers interested in the Site. As the project progresses, he will continue this communication and expand this outreach to other potential developers who align with redevelopment strategies.

3.a.ii. Communicating Progress: The PM will be a continual point of contact with the public to address any on-going concerns. All communication will be in Spanish and English using multiple medium. Besides public meetings, the City commits to using social media and a project website to broadcast project updates and provide links to assessment and remedial planning documents. A Facebook page has been created and will be used ongoing to share information.

Safety is a prime consideration since the site is located across from a school and many single mothers with children live in the area. Public meetings will address citizen concerns around health, safety, and community disruption and educate the public about methods implemented to ensure safety. To ensure activities are conducted in a manner protective of the sensitive populations identified, the following strategies will be used: LSP oversight, fence and camera around property, warning signs in multiple languages, and monitoring of fugitive dust emissions.

3.b. Partnerships with Government Agencies

3.b. i. Local/State/Tribal Environmental Authority: The **Massachusetts Department of Environmental Protection (MassDEP)** is the state agency that runs the Brownfield Program. The City has established a strong partnership with MassDEP and has met with officials to develop a strategy ensuring the project meets all applicable standards and is protective of environment and human health. MassDEP will continue to advise and provide technical assistance and is currently working with the City to provide fencing around the Site and a survey of existing conditions. The LSP will coordinate with MassDEP to ensure all requirements are met.

3.b.ii. Other Governmental Partnerships: **EPA** has a long history with the Tombarello Site and will continue to interact with the PM and LSP to ensure that project progress is protective of human and environmental health. Cleanup and redevelopment of this site will have to be performed under the oversight of EPA's TSCA program. Several years ago, the Agency implemented an emergency response action to minimize threats to public health along the north side of the Site. After the City took ownership of the property, EPA implemented a Targeted Brownfield Assessment project to help the City develop a strategy for the project. **EPA's *Making a Visible Difference* team** has a strong presence in Lawrence working collaboratively to address a broad range of local issues. This partnership builds upon the City's already strong relationship with EPA brownfield staff and will be important for this project.

Partnerships with other State and Federal agencies will provide leveraged funds to ensure its success: 1) HUD CDBG funds will be utilized for infrastructure and utility connections; 2) **MA Development** will provide Brown-field Redevelopment Funding to assist with market feasibility and transit planning; 3) MA DOT Complete Streets funding is anticipated and Marston St. is a priority area; and 4) the City's Chapter 90 funds will be used for roadwork and sidewalks.

These partnerships align with the **EPA Region 1 priority of Coordinated Public Funding for Brownfields**. Lawrence has a history of successful brownfields redevelopment, leveraging funding and building strong partnerships with EPA, MassDEP and other Federal, State and local agencies. Examples include the award-winning Manchester Street Park, the Spicket River

Greenway and the Union Crossing affordable housing development. This funding request, will "fill the gap" allow for the necessary assessment work to redevelop this prime site for commercial use, put it back on the tax rolls and remove a long-time eyesore and public health threat.

3.c. Partnerships with Community Organizations

3.c.i. Community Organization Description & Role:

Merrimack Valley Planning Comm: Regional Planning Agency providing brownfield redevelopment financing. Role: Assistance with reuse planning and recruitment of companies.

Groundwork Lawrence (GWL): Community-based organization with expertise in community engagement, transforming brownfields, workforce development. Role: Assist with outreach, community engagement, organize public meetings, contribute to assessment, planning, and implementation of the project. The City has an existing Cooperative Agreement with GWL to conduct these activities. Contact: Heather McMann, Executive Director, 978-974-0770x7009.

Neighborhood Associations (District A and Prospect Hill): Two resident led groups. Role: Provide time and space during monthly meetings for project updates and resident input. Contact: District **A**- Maria De La Cruz 978-303-7243/ Prospect Hill- David Struffolino 978-688-3446

3.c. ii. Letters of Commitment: Please see Attachment

3.d. Partnerships with Workforce Development Programs

Efforts are made to enlist remediation contractors that are local, minority and/or women owned and employ Lawrence residents. Procurement announcements are published in local newspapers (English/ Spanish). The City will work in collaboration with GWL and *Merrimack Valley Workforce Investment Board (WIB)* who is a recipient of a 2015 EPA Job Training Grant. WIB offers an Environmental Technical Training Program in the fields of Brownfield Remediation and Hazardous Materials Handling. The 2017 Spring training will be conducted in Spanish. WIB will track participant's hiring and make graduates aware of local job opportunities.

4. PROJECT BENEFITS

4. a. Welfare, Environmental and Public Health Benefits

WELFARE BENEFITS: 1) ***Increase in quality of life:*** Assessment of Lot #2 is the first step to making this heavily contaminated brownfield repurposed. The eventual cleanup and redevelopment of the entire project will mean residents no longer have to worry about possible exposure to contaminants and their health effects, nor disturbed by arson/vandalism. The green buffer/ walk path will add green space to the neighborhood and decrease noise and pollution.
2) ***Increase in food security*:** A large anchor store that offers food in this food desert will benefit all residents especially sensitive populations (single mothers with children and residents receiving SNAP benefits) by increasing access to nutritional sources locally. 3) ***Supports all modes of transportation:*** Redevelopment will be coordinated with traffic studies on Marston St. to assess congestion and improve traffic flow/safety. Marston St. is a priority area for City's Complete Streets projects integrating safety and accessibility for all users and increasing walkability and bikeability. This will particularly benefit children, elders and the 21% of neighborhood residents that do not own a car. 4) ***Increase employment options:*** The projected redevelopment will include an anchor store that can create many jobs of varying skill levels with career advancement opportunities thus reducing unemployment and increasing family income.

ENVIRONMENTAL BENEFITS: 1) ***Increase in air quality:*** Exposure to SVOCs will be eliminated and the green buffer will help remove airborne particulates and reduce heat island effect.

2) **Increase *in water quality:*** Low Impact Development approaches and application of the stormwater ordinance will capture stormwater and prevent pollution of the Merrimack River.
3) ***Overall reduction in contamination:*** Removal of PCB and heavy metal hotspots will reduce overall contamination and capping/cover will prevent exposure to contaminants left on-site.

PUBLIC HEALTH BENEFITS: 1) ***Reduced exposure to site contaminants:*** Residents and safety personnel will no longer risk exposure by soil or air to PCBs, heavy metals, SVOCs, PAH's and other contaminants. Children's potential exposure to lead and PCBs will be reduced and potentially help with a reduction in diabetes, improved breathing and reduced blood lead levels.
2) ***Improvement in chronic disease outcomes:*** The Complete Streets and the walking path will promote physical activity and help decrease the rate of overweight/obesity and diabetes in neighborhood residents. Improvement in air quality will benefit asthmatics.
3) ***Increase in fresh fruits and vegetable access:*** An anchor store offering fresh fruits and vegetables will provide healthy lifestyle choices and greatly improve nutritional quality by decreasing access barriers- especially important to the nearby single mothers with children.
4) ***Improved mental well-being*** from no longer living near a blighted brownfield site.

4.b. Economic and Community Benefits
The site-specific assessment will result in 11.4 acres of highly contaminated brownfield made ready for cleanup, reuse and redevelopment. The following plans will be developed: MCP Phase II Comprehensive Site Assessment; MCP Phase III Remedial Action Plan; MCP Phase IV Remedial Implementation Plan and TSCA Risk-Based Cleanup and Disposal Plan. The project will economically benefit the City by refining remedial cost estimates and help attract developers. The project will leverage a total of $600K to: Conduct a marketing analysis and plan; Integrate Complete Streets and upgrade sidewalks and roads in the neighborhood thus making it more walkable and safe. An anchor store that sells food is desired for the Site increasing access to food and jobs.

Completion of Phases I and II will turn a 14-acre brownfield into and economically viable community asset, generate an estimated $260,000/ year in tax revenue and add approximately 300 retail /service jobs with the potential for career ladders. Benefits include: needed services added to the neighborhood; reduction in contaminant exposure; improved ability to sell homes along Hoffman Ave; and green space and a walking path introduced to the area.

5. PROGRAMMATIC CAPABILITY AND PAST PERFORMANCE

5.a. Audit Findings: The City of Lawrence has had no adverse audit findings nor has it been designated a high-risk grantee by the EPA related to any Brownfield grants the City has received.

5.b. Programmatic Capability: Organizational structure: The Mayor is in direct charge of all municipal offices. Lawrence's EPA Brownfield Site Specific Assessment grant will be managed by the Office of Planning and Development (OPD). Regular status reports will be provided to the Mayor. OPD has an existing and experienced staff with capacity to ensure timely and successful expenditure of funds and completion of all technical and administrative financial requirements. OPD is experienced with managing multiple Federal and State grants and has financial management systems in place to allocate grant funds to appropriate costs. Key staff identified for this grant are currently involved with a 2015 AWP grant. Their roles and experience include:

Business and Economic Development Director- Abel Vargas: *Role*- **Project Manager (PM)**: Overall responsibility to assure partner and sub-recipient commitments are being met; Coordinate with City Departments and internal team; Interface with local businesses and developers; Manage relationships with key stakeholders and point of contact for the community; keeps the Mayor informed; and Coordinates with the EPA Program Officer. *Experience:* **Successfully administered EPA Area Wide Planning Grant**; developed work relationships with Mass Development, EPA Region I staff; leveraged $750K from the EPA for Brownfield assessment.

Manager of Financial & Administrative Services -Susan Fink: *Role*- **Financial oversight** of grant; oversee bid process. *Experience* -Overseen the administrative and financial requirements of most of recent EPA Brownfield grants. Employed by the Community Development Department since 1995 and manages numerous Federal, State and Foundation grants.

Economic Development Officer II -Francis O'Connor: *Role* -Prepare EPA quarterly **reports and ACRES updates**, document Davis-Bacon Wage Act compliance. *Experience*- 10-year experience with EPA ACRES reporting and with the City of Lawrence.

Neighborhood Planner- Wendy Luzon: *Role*- Responsible for **communicating project and outreach** to neighborhood associations, neighborhood school and other community groups. *Experience* - In her role as Neighborhood Planner builds upon her strong community ties gained by 15 years as a community activist and co-founder of non-profit focused on domestic violence.

The OPD is poised to work with a qualified LSP and a strong team of community partners. The LSP will be acquired through a procurement process conducted by the **Manager of Finance and Admin** following Commonwealth of Mass. Procurement Laws. The City will utilize GWL as the primary outreach and educational partner. The City has a Cooperative Agreement with GWL and can directly contract with them for projects that fit under the terms of the Agreement.

5.c. Measuring Environmental Results: Anticipated Outputs/Outcomes:
Task 1- Cooperative Agreement Oversight: **Progress Measures:** Procurement for LSP; # meetings with LSP; LSP reports to assure workplan goals met; Expenditures and invoices aligned with work completed. **Outputs:** LSP secured; EPA quarterly reports and ACRES updated; Conference attended. **Outcomes:** work completed and funds spent on time; Successful grant closeout
Task 2- Community Outreach & Engagement: **Progress Measures:** # of residents attending public meetings and neighborhood association meetings; Followers on social media; Contacts with stakeholders. **Outputs:** Community Relations Plan/ outreach materials produced; Meeting minutes filed. **Outcomes:**Community engaged and input integrated into redevelopment plan.
Task 3- Site-Specific Assessment Activities: **Progress Measures: Measures of Progress:** Relevant documents produced; Field work follows work and safety plans. **Outputs:** Final QAPP; MCP Phase II Comprehensive Site Assmt; MCP Phase III Remedial Action Plan; MCP Phase IV Remedial Implementation Plan; TSCA Risk-Based Cleanup/Disposal Plan; Remedial Action Plan. **Outcomes:** Comprehensive Assmt. of 11.4 acres of brownfield; Site ready for cleanup.
Task 4- Oversee Site Assessment: **Progress Measures:** # of meetings with LSP; # of meetings with developers; # of meetings with City Depts. to coordinate Complete Streets work; # field inspections. **Outputs:** Field visits; Remediation plans approved; Closeout reports submitted. **Outcomes:** Efficient, safe Site Assmt; Site remediation plans and Redevelopment plans in place.

5.d. Past Performance and Accomplishments / Currently has an EPA Brownfields Grant
5.d.i. 1. Accomplishments: The City has successfully completed and closed out several EPA Brownfield grants and has one currently ongoing. Accomplishments in ACRES, include:

1) **2015 Area Wide Planning grant** (TR96192401) **Current Grant- To date, Outputs:** Two public meetings held; One rail trail walk with 40 stakeholders; **Outcomes**: a) Florence St. lots

(24,000 square feet) along RR corridor planned for housing; b) Covanta Property: parking lot planned and $1.2 M leveraged to fund 100% of rail trail construction design.

2) **2012 Assessment grant** (BF96170001) **Outputs:** 8 Phase I, 1 Phase II ESA **Outcomes:** a) Assessment work of Ferrous Site led to a $2.3M Gateway City Parks grant to transform area into a park; b) 9 Osgood property sold to minority business owner for $500K AND 20 jobs produced; c) Public safety/ training facility planned at 41 & 55 Lowell St; d) Assessment work at 100 Parker St. assisted with air quality determinations relating to remnants of an underground storage tank allowing Habitat for Humanity leveraging $2M for 10 first time home buyer condos; e) Portion of 20-30 Island St. incorporated into Ferrous park and onsite building demo planned.

3) **FY08 - Cleanup grant** (BF 97197301) **Outputs:** One Phase III ESA **Outcomes:** Covanta Site developed into a 5-acre riverfront park with community gardens and walking trails along the Spicket River. Over $1.1M leveraged fund by City partner GWL. Awarded the 2011 Gabe Zimmerman Public Service Award from National Community Development Assoc. for outstanding use of CDBG funds and 2010 Brownfield Renewal Award for Social Impact.

4) **FY 07 Assessment grant** (BF 97185301) **Outputs:** 9 Phase I, 5 Phase II, 2 Phase III **Outcomes:** 5.5 acre former foundry redeveloped into 60 affordable rental units, retail space, and energy efficient facilities with playground, community gardens, financial literacy center, and green space with access to Merrimack river and future Riverwalk.

5) **FY07 Cleanup grant** (BF 97185201) **Outputs:** One Phase III ESA **Outcomes:** Project in conjunction with the Gateway Parking Lot and an adjacent brownfield redevelopment project resulted in a 850 space parking lot and passive recreation park.

5.d.i 2. Compliance with Grant Requirements: Since 1996 the city has received $2.1 M in EPA Brownfields grants. For all open and closed grants the City has complied with grant requirements including workplan, schedule, terms and conditions, quarterly and financial reports and timely ACRES updates. The history of Lawrence's EPA Brownfield's grants include:

History	Term	Type	Amount	Status	Funds Left
FY15 TR96192401	10/1/15 – 9/30/18	A.W. Plan	$200K	Open	$57,735
FY12 BF96170001	10/1/12 - 9/30/15	Assess	$400K	Open	$8.56
FY08 BF97197301	9/1/08- 8/31/11	Clean up	$150K	Closed	$0.00
FY07 BF97185301	10/1/07- 10/1/10	Assess	$400K	Closed	$0.00
FY07 BF97185201	10/1/07- 10/1/10	Clean up	$200K	Closed	$0.00

Open grants progress: **FY15** TR96192401- Ahead of schedule for program goals and financial expenditures. Final Public Meeting to present Draft Area Wide Plan scheduled for 12-7-16.

FY12 BF96170001**-** We were given a one year extension until Sept, 30, 2016 and are in the 90 day close out period which ends on Dec, 30, 2016. All funds except $8.56 expended.

EPA Region 1 RAC 2 Contract No. EP-S1-06-03

September 13, 2016
Nobis Project No. 80108

Via Electronic Submittal

U.S. Environmental Protection Agency
Attention: Mr. Alan Peterson, Task Order Project Officer
5 Post Office Square, Suite 100 (OSRR07-2)
Boston, Massachusetts 02109-3912

Subject: Transmittal of Targeted Brownfields Assessment Report
Former Tombarello Property, Lawrence, Massachusetts
Targeted Brownfields Site Assessment
EPA Task Order No. 0108-SI-BZ-0100

Dear Mr. Peterson:

Enclosed is the Targeted Brownfields Assessment Report for the above referenced site. Through copy of this letter, this report is also being transmitted to the recipients listed below. Should you have any questions or comments, please contact me at (978) 703-6029 or svetere@nobiseng.com.

Sincerely,

NOBIS ENGINEERING, INC.

Stephen Vetere

Stephen Vetere, PE, LSP, LEP
Senior Project Manager

Enclosure

c: Kimberly Tisa, EPA
Joanne Fagan, MassDEP
Abel Vargas, City of Lawrence
File 80108/MA

Nobis Engineering, Inc.
585 Middlesex Street
Lowell, MA 01851
T (978) 683-0891

Targeted Brownfields Assessment Report

Former Tombarello Property
Lawrence, Massachusetts

Targeted Brownfields Site Assessment
EPA Task Order No. 0108-SI-BZ-0100

REMEDIAL ACTION CONTRACT
No. EP-S1-06-03

FOR

US Environmental Protection Agency
Region 1

BY

Nobis Engineering, Inc.

Nobis Project No. 80108

September 2016

U.S. Environmental Protection Agency

Region 1
5 Post Office Square, Suite 100
Boston, Massachusetts 02109-3919

Nobis Engineering, Inc.

Lowell, Massachusetts
Concord, New Hampshire

Phone (800) 394-4182
www.nobiseng.com

Targeted Brownfields Assessment Report

Former Tombarello Property
Lawrence, Massachusetts
Targeted Brownfields Assessment
EPA Task Order No. 0108-SI-BZ-0100

REMEDIAL ACTION CONTRACT
No. EP-S1-06-03

For

US Environmental Protection Agency
Region 1

By

Nobis Engineering, Inc.

Nobis Project No. 80108

September 2016

Stephen Vetere, PE, LSP, LEP
Senior Project Manager

Adam Roy, CHMM
Project Scientist

TABLE OF CONTENTS
TARGETED BROWNFIELDS ASSESSMENT REPORT
FORMER TOMBARELLO PROPERTY
LAWRENCE, MASSACHUSETTS

TABLE OF CONTENTS
TARGETED BROWNFIELDS ASSESSMENT REPORT
FORMER TOMBARELLO PROPERTY
LAWRENCE, MASSACHUSETTS

TABLE OF CONTENTS (cont.)
TARGETED BROWNFIELDS ASSESSMENT REPORT
FORMER TOMBARELLO PROPERTY
LAWRENCE, MASSACHUSETTS

TABLES

NUMBER

FIGURES

NUMBER

APPENDIX

EXECUTIVE SUMMARY

Nobis Engineering, Inc. (Nobis) completed a Targeted Brownfields Assessment (TBA) of the Former Tombarello Site located at 209 Marston Street, Lawrence, Massachusetts, on behalf of the U.S. Environmental Protection Agency (EPA) as a grant of service provided to the City of Lawrence under the EPA's TBA program.

The Site is located in a mixed-use area of Lawrence, Massachusetts. Historical uses of the Site have included a burn dump/landfill and a scrap metal recycling facility. Since 2001, the Site has been unoccupied and unused, with the exception of a truck-driving school which operated on the Site for a short time in 2006.

The use and storage of chemicals during historical site operations has resulted in the release of polychlorinated biphenyls (PCBs), heavy metals, and petroleum products to soil. Specific details regarding the types and extents of releases have not been documented, however it is likely that oils were released onto the ground surface from equipment in historical storage areas and process areas and soaked into the ground. Soils appear to have been relocated from these areas to the southern and eastern property boundaries, where a 10- to 20-foot high berm is located. The act of moving these soils appears to have spread contamination throughout the Site, resulting in a volume of soil containing PCBs above levels typically considered by EPA to be acceptable for unrestricted use and unlimited exposure.

The TBA consisted of a field investigation and evaluation of environmental data, and culminated in the development of potential remedial alternatives to address contaminated soils that are present on site. Nobis completed the field investigation in June 2016. The assessment included a review of historical environmental information, identification of additional data needs, and implementation of a subsurface investigation. Investigative strategies included the collection of soil cores from 76 drilling locations, construction of nine groundwater wells, excavation of 20 test pits, and collection of 20 shallow soil cores using hand tools. Investigation locations were spread throughout the Site in an effort to collect follow-up information from previously identified contaminated areas and to investigate areas not previously sampled.

In general, contamination that is released to soil often migrates to groundwater or sediment and surface water in adjacent streams or rivers. To date, no significant groundwater contamination has been detected at the Site. Groundwater beneath the Site is not used as a source of drinking water; therefore, the cleanup requirements are less stringent and allow for some contamination to remain without treatment.

Due to the volume of contaminated soil on the Site, cleanup to levels suitable for unrestricted use is not practical, therefore the optimal remediation strategy will involve the excavation and off-site disposal of a limited volume of soil, re-grading of the Site to promote reuse, placing a clean-soil cover over contaminated soils, and placing a deed restriction on the property to place restrictions on digging and any other activity that will allow exposure to contaminated soil or cause damage to the cover. The specific requirements for off-site disposal of contaminated soil, the type of containment barrier placed over contaminated soils, and the contents of a deed restriction will need to be developed in collaboration with state and federal regulators to ensure compliance with applicable environmental regulations. The remediation of soils contaminated with PCBs will be regulated by the EPA's Toxic Substances Control Act (TSCA) program, and soil remediation will need to be conducted under an EPA-approved Risk-Based Cleanup Plan. Additional risk assessment work will likely be required to substantiate the selection of more limited soil removal actions.

Depending upon the appropriate cleanup levels agreed upon by the project stakeholders, the estimated cost of soil remediation at the Site will range from $3,000,000 to over $50,000,000. The wide range of cost is due to the high cost of transportation and disposal of PCB waste, and underscores the sensitivity of these remedial cost estimates to the volume of waste shipped off-site for disposal. The most economically feasible remedial alternative will minimize the amount of soil removed from the Site, and will utilize a soil cover to prevent direct contact with contaminated soil. This remedial strategy will require annual maintenance of the cover by the owner in perpetuity, and reporting to the Massachusetts Department of Environmental Protection (MassDEP) and EPA to verify that the soil cover continues to prevent direct contact exposure to contamination. Additional detail on the remedial alternatives considered during the assessment is provided in Section 5.0. Detailed cost estimates are provided in Appendix A.

The cost estimates developed for this TBA should be considered order-of-magnitude estimates, and are subject to variation due to fluctuations in construction costs, material costs, fuel costs, and landfill tipping fees. Additionally, the soil volumes used to estimate remedial costs are subject to refinement through additional data collection to establish the vertical and horizontal extent of contaminated soil in areas containing few data points. Recommendations for potential future work to help refine these estimates are included in Section 6.0 of this report.

With respect to existing conditions, the presence of PCBs in surficial soils (0 to 1 foot below ground surface) at a concentration greater than 10 mg/kg would constitute an Imminent Hazard and 2-hour reporting condition if not for the presence of the chain link fence at the perimeter of the Site. It is critical that this barrier remain intact and effective to prevent access to the Site until such time that remedial actions are taken to limit potential exposure to PCB-impacted soils.

1.0 INTRODUCTION

This Targeted Brownfields Assessment (TBA) Report was prepared by Nobis Engineering, Inc. (Nobis) for the U.S. Environmental Protection Agency (EPA) under Contract No. EP-S1-06-03, Task Order No. 0108-SI-BZ-0100. This report presents the findings of subsurface investigations conducted at the Former Tombarello Property located at 207 Marston Street in Lawrence, Massachusetts (the Site) during June 2016, and presents an evaluation of historical soil and groundwater sampling data to develop potential remedial alternatives in support of site redevelopment. A Locus Plan depicting the approximate site location is included as Figure 1-1.

1.1 Work Assignment and Report Purpose

This TBA report is based on environmental data collected by Nobis in 2016, as well as data collected during historical investigations conducted by the previous property owners, the Massachusetts Department of Environmental Protection (MassDEP), and by EPA. The overall objective of the TBA is to characterize the nature and extent of contamination in soil and groundwater at the Site, estimate the potential human health risks posed by hazardous substances at the Site, and develop remedial alternatives with order-of-magnitude cost estimates. Specific objectives of this TBA were to:

- Compile and evaluate available Site data; and obtain additional data required to fill data gaps and further characterize current Site conditions;
- Where possible, delineate the extent of contamination in Site soil and groundwater;
- Evaluate risks posed by contamination using published state and federal risk-based regulatory standards;
- Develop and evaluate potential alternatives for clean-up; and
- Estimate order-of-magnitude costs of implementing the cleanup alternatives that would help support decision making concerning future redevelopment of the Site.

1.2 Report Organization

This TBA report is organized as follows:

- Section 1 provides a description of the Site and summarizes historical investigations.
- Section 2 presents details of TBA investigations performed by Nobis in June 2016.
- Section 3 presents laboratory analytical results for samples collected in June 2016.
- Section 4 summarizes the current nature and extent of contamination.
- Section 5 presents the Analysis of Brownfields Cleanup Alternatives (ABCA)
- Section 6 presents conclusions and recommendations.

1.3 Site Background

This section describes the physical characteristics of the Site and surrounding area, as well as the operational history and environmental history of the Site.

1.3.1 Site Location and Description

The Site is referred to as the Former Tombarello Property and is approximately 14 acres in size. The Site is located in a mixed-use area of Lawrence, Massachusetts, abutted to the east by Interstate 495; to the south by an automobile dealership (formerly a waste recycling facility); to the west by Marston Street, beyond which lies the Parthum Elementary and Middle School; and to the north by residential properties (Figure 1-2).

1.3.2 Site History

Historical uses of the Site have included a burn dump/landfill and a scrap metal recycling facility. The southern portion of the Site has historically been used as a soap manufacturing facility and a community landfill. The most recent use of the Site was as a metals recycling facility (John C. Tombarello & Sons and American Recycling of Massachusetts, Inc.), which operated from approximately 1941 until 2001. Since 2001, the Site has been unoccupied and unused, with the exception of a truck driving school, which operated on the Site for a short time in 2006.

Two former industrial buildings and a former residential building remain on the Site. The remains of several building foundations are located throughout the Site, and several soil piles are present at the Site (Figure 1-2). An earthen berm ranging from approximately 10 to 20 feet high is present along the eastern and southern property boundaries. This berm was reportedly formed by pushing shallow soils from the Site toward the property boundaries.

The depth to groundwater at the Site ranges from approximately 6 to 12 feet below ground surface (bgs) and groundwater flow is to the east towards the Merrimack River, which is located approximately 400 feet from the Site.

1.4 Previous Investigations and Remedial Actions

A brief summary of historical site investigations and removal actions is provided in this section. A summary of historical sampling locations is provided on Figure 1-3.

1.4.1 May 1998 – Heat Transfer Oil Release

On May 19, 1998, approximately 20 to 30 gallons of heat transfer oil were released to soils at the Site from a scrap heat exchanger that was being delivered to the Site by Sprague Energy. MassDEP was notified within the required 2-hour window, and response actions were taken. Approximately 300 gallons of heat transfer oil were pumped from the unit and approximately 50 cubic yards of impacted soil was removed from the Site. MassDEP assigned release tracking number (RTN) 3-16817 to this release. The release was closed in July 1998 through submittal of a Class A-1 Response Action Outcome (RAO) Statement, which indicates that remedial actions were taken and cleanup activities achieved background levels.

1.4.2 August 1998 – Environmental Site Assessment

W.Z. Baumgartner and Associates, Inc. (WZB) conducted an environmental site assessment at the Site in 1998 following the closure of the scrap metal recycling facility. The assessment included advancement of nine soil borings; collection of 15 soil samples from depths ranging from 0 to 11 feet bgs; and installation of five groundwater monitoring wells. Analytical results for soil samples indicated concentrations of semi-volatile organic compounds (SVOCs), total petroleum hydrocarbons (TPH-diesel range), polychlorinated biphenyls (PCBs), and metals above Massachusetts Contingency Plan (MCP) Reportable Concentrations (RCs). Analytical results for groundwater samples indicated concentrations of arsenic, chromium, and lead above MCP RCs. This release was reported to MassDEP in 1998, and RTN 3-18126 was assigned to the Site.

1.4.3 March 1999 – Notice of Responsibility

On March 31, 1999, MassDEP issued a Notice of Responsibility (NOR) and Interim Deadline letter to Tombarello Recycling and American Recycling. MassDEP requested these parties to prepare an Imminent Hazard Evaluation to evaluate whether the detection of PCBs in surficial soil samples at the Site represented an Imminent Hazard as defined in the MCP.

1.4.4 April 1999 to June 1999 – Immediate Response Action

In April 1999, Higgins Environmental Associates, Inc. (HEA) prepared an Immediate Response Action (IRA) Plan on behalf of American Recycling outlining assessment activities designed to address potential Imminent Hazards at the Site. The IRA Plan, later revised in June 1999, included the removal of a soil stockpile contaminated with heat transfer oil (RTN 3-18126); collection and laboratory analysis of surface soil samples; installation of three additional monitoring wells; and collection and laboratory analysis of groundwater samples from both newly installed and existing monitoring wells. In addition, a barbed-wire fence was installed around the perimeter of the site to control access.

During the June 1999 investigation, laboratory analysis of 69 shallow surface soil samples (0 to 6-inches bgs) detected concentrations of extractable petroleum hydrocarbons (EPH), lead, volatile organic compounds (VOCs), and PCBs above applicable MCP standards. Groundwater samples collected from the three new monitoring wells and one existing monitoring well were submitted for laboratory analysis of VOCs, volatile petroleum hydrocarbons (VPH), EPH, and metals. Laboratory results for groundwater samples indicated concentrations of VOCs and metals above applicable MCP standards. HEA concluded that the potential Imminent Hazard Condition was mitigated by the installation of the perimeter fence.

1.4.5 June 1999 – New RTN and Additional Investigations

In June 1999, MassDEP assigned RTN 3-18431 to track the release of an oily sludge that was observed on the floor of the former baler/press area by MassDEP during a site inspection. Due to the presence of a floor drain in the room (reportedly connected to the municipal wastewater system), MassDEP issued an NOR to American Recycling for a threat of release. American Recycling performed an IRA to address the conditions identified by MassDEP in the NOR. The IRA consisted of the cleanup of the oily sludge, removal of twelve 55-gallon drums present in the baler/press room (under a hazardous waste manifest), replacement of a seal on one of the cylinders that had been leaking hydraulic oil onto the ground, and abandonment of the floor drain by filling it with concrete to prevent further discharge of oil into the sanitary sewer system. The release was closed in August 1999. However, the closure report was later retracted in May 2001.

1.4.6 April 2000 – Tier Classification

In April 2000, the Site was classified as a Tier II site. In May 2001, the Tier Classification was changed to Tier IC and RTNs 3-18431 and 3-18126 were linked. Reclassification as Tier 1 indicates that the site was determined to pose a more significant human health or environmental risk than initially assumed, and also increases the annual compliance fees due to MassDEP by the site owner.

1.4.7 2001/2002 – Soil and Sediment Sampling Investigations

In September 2001, Haley & Aldrich, Inc. (H&A) collected 35 soil samples at depths ranging between 0 to 15 feet bgs. Soil samples were collected from the vicinity of the former baler press building and from the soil berm located along the southern and eastern site boundaries. Laboratory analytical results reported concentrations of PCBs above the MCP Reportable Concentration for Category S-1 Soil (RCS-1) and the Toxic Substance Control Act (TSCA) cleanup level for “high occupancy” areas throughout the Site. Both of these regulatory benchmarks are 1.0 milligram per kilogram (mg/kg) of total PCBs.

In September 2002, H&A collected nine sediment samples from the Merrimack River for laboratory analysis of PCBs. The concentrations of PCBs detected in two of these samples exceeded the National Ocean and Atmospheric Administration (NOAA) Threshold Effect Levels (TELs) in effect at the time (0.03 ppm). PCBs were not detected in the other seven sediment samples collected during this event.

1.4.8 2003 Phase II Comprehensive Site Assessment (CSA)

From February through September 2003 Weston Solutions, Inc. (Weston) completed an MCP Phase II CSA at the Site. The Phase II CSA included a collection of surface and subsurface soil samples, groundwater samples, and sediment samples from the Merrimack River to further delineate the extent of contamination at the Site. In February 2003, Weston collected 28 soil samples from the Site at depths ranging from 0 to 7 feet bgs. Laboratory analysis of soil samples reported concentrations of EPH, metals, and PCBs above applicable MCP soil standards. Groundwater samples were collected from seven existing monitoring wells and submitted for laboratory analysis of VOCs and metals. Concentrations of the VOC vinyl chloride were detected in downgradient monitoring well MW-7. Three sediment samples were collected from the Merrimack River (two upstream and one downstream relative to the Site). Concentrations of PCBs were detected above NOAA TELs in samples collected from both upstream and downstream sampling locations.

In July 2003, Weston collected an additional 44 composite soil samples for laboratory analysis of PCBs. Weston also collected 33 discrete soil samples from two previously identified “hot spot” locations. Elevated concentrations of PCBs were detected in both composite and discrete soil samples.

In September 2003, Weston collected an additional 44 soil samples for laboratory analysis of PCBs. Elevated concentrations of PCBs were detected in soil samples.

As part of the Phase II CSA, Weston prepared MCP Method 3 Risk Assessment. The risk assessment assumed that under future use, the surface soil would be covered by either buildings or asphalt pavement. However, under current use scenarios, potential unacceptable risks to trespassers, site employees, and construction/utility workers were identified. Risks to construction workers were identified within “hot spots” in the vicinity of soil sampling locations WSB-6, CD-45, WSB-2, and in samples collected from deeper soils in the soil berms located on the east and southeast portions of the property. Unacceptable risk to utility workers were identified within the vicinity of “hot spots” WSB-6 and CD-45.

1.4.9 October 2010 – EPA Investigations

In October 2010, EPA established a 50 foot by 50-foot sampling grid at the Site. EPA collected 161 soil samples from accessible grids throughout the Site and submitted them for laboratory analysis of PCBs, metals, and PAHs.

1.4.10 2011 – Removal Actions

In 2011, EPA developed a removal action plan for the Site that included the removal of "hot spot" soils, and limited quantities of contaminated soil from the Site and residential properties that abut the Site to the north. An on-site soil consolidation area was constructed as a temporary staging area for excavated soils. In order to construct the soil consolidation area, excavation of apparent oil-impacted soils was required. Removal actions were performed by Charter Environmental (Charter) in May 2011. A summary of these removal actions is presented below.

Soil Consolidation Area Construction and Oil-Impacted Soil Excavation

In order to construct the soil consolidation area for the PCB-impacted soils, Charter removed soils within an approximate 35-foot by 15-foot area of the Site where an excavator was formerly stored. This area exhibited visual evidence of oil staining. The oil-impacted soils were excavated and placed on to an existing concrete foundation pad located in the northeast portion of the Site and covered with polyethylene sheeting. Management of this material was to occur during future remedial actions at the site. In addition to removing the oil-impacted soils, Charter also removed a 20-foot by 65-foot by 1-foot thick concrete slab. The concrete material was stockpiled in the central portion of the Site.

PCB-Impacted Soil Excavation

Charter excavated an approximate 600-foot by 50-foot area of PCB-impacted soils to a depth of 1 foot. The excavation was performed along the fence line of the northern property boundary with the abutting residential properties (Figure 1-2). The excavated soils were relocated to an approximate 150-foot by 150-foot area located in the southern portion of the property. Following the completion of excavation activities, Tighe & Bond personnel collected soil samples from the bottom of the excavation area. Fifteen composite soil samples were collected and analyzed for PCBs and the eight Resource Conservation and Recovery Act (RCRA) metals. Each composite soil sample represented an approximate 40-foot by 50-foot area within the excavation. Post-excavation soil sample results reported PCB concentrations ranging from 0.23 mg/kg to 14.8 mg/kg. Following receipt of analytical results, the excavation was lined with filter fabric to demarcate the bottom of the excavation and then backfilled, loamed, and seeded. Charter stabilized the excavated materials in the soil consolidation area using filter fabric, loam, and seed.

1.4.11 2012 Phase II Scope of Work

There have been no further assessment or remedial activities at the Site since the 2011 removal action. In October 2012, on behalf of First Lawrence Financial, LLC, Tighe & Bond prepared a "*Phase II Scope of Work",* dated October 2012 (Tighe & Bond, 2012). The Phase II Scope of Work described a field investigation designed to characterize the nature and extent of contamination so that potential remedial alternatives could be evaluated. Comments were provided by the EPA TSCA coordinator in January 2013 and by MassDEP in November 2012. The Phase II Scope of Work along with EPA and MassDEP comments were used by Nobis to prepare a Field Task Work Plan and Quality Assurance Project Plan Addendum (FTWP-QAPPA) dated June 3, 2016 (Nobis, 2016). This FTWP-QAPPA formed the basis of the TBA that was completed by Nobis in 2016.

2.0 TARGETED BROWNFIELDS ASSESSMENT INVESTIGATION

This section describes the environmental investigations performed by Nobis as part of the TBA. The TBA investigation included the collection of soil, groundwater, and dust samples for field screening and laboratory analysis. Descriptions of investigation methods, observations, and field screening results are presented in the sections that follow.

2.1 Field Investigations and Technical Approach

The June 2016 TBA investigations were performed to provide further delineation of the nature and extent of contamination in soil and groundwater at the Site, building on historical environmental data to address data gaps identified during previous investigations. The 2016 TBA investigation was performed in accordance with the FWTP/QAPPA (Nobis, 2016), however some proposed soil boring and test pit locations were relocated due to access limitations or property boundary limitations. 2016 sampling locations are shown on Figure 2-1.

2.2 Soil Boring Advancement and Soil Sampling

Between June 6 and June 10, 2016, Nobis supervised the advancement of 76 overburden soil borings. All depth measurements for soil borings are referenced as depth below ground surface (bgs). Soil samples were collected using 5-foot long dedicated Macro-Core® sampling sleeves, which were advanced to discrete predetermined depth intervals. Soils were visually characterized by the Nobis field geologists using the Burmister Method classification method.

The soil borings were advanced by Technical Drilling Services of Sterling, Massachusetts using a track-mounted Geoprobe 6620DT drill rig equipped with direct push technology (DPT) tooling. During drilling activities soil samples were logged for Site geology; analyzed for the presence of VOCs using head space screening methods with a MiniRAE 3000 photoionization detector (PID); and collected for laboratory analysis. Soil samples for laboratory analysis were containerized into laboratory-supplied glassware immediately from the sample sleeve. Soil samples were retained on ice, and transported via courier under chain-of-custody to Eurofins/Spectrum Analytical of North Kingstown, Rhode Island. If additional soil matrix was required for the minimum sample volume, additional soil was collected by advancing additional boring(s) within 1 foot of the initial boring to the same sampling interval and homogenized with matrix from the initial boring to form one homogenous aliquot for laboratory analysis. Soil sample results are discussed in Section 3.1.

Soil boring logs and associated monitoring well construction logs are included in Appendix B. Soil borings were backfilled using the soil cuttings. Soil boring locations are shown on Figure 2-1.

2.3 Monitoring Well Installation and Development

During the drilling investigation, nine soil borings were completed as overburden groundwater monitoring wells (MW-8 through MW-16). The monitoring wells were installed in targeted areas of the Site to evaluate potential groundwater contamination identified during previous investigations or fill data gaps where existing wells did not provide sufficient spatial coverage. The monitoring well locations were selected based a review of existing historical information and data collected during previous investigations and field observations.

Monitoring wells were installed to a maximum depth of 13 feet bgs. Monitoring wells were constructed using 2-inch diameter, Schedule 40 polyvinyl chloride (PVC) with 10-foot long 0.010-inch slotted screen. The screened porting of the monitoring wells was backfilled using clean filter sand, then approximately 2 feet of bentonite chips, then brought to grade with a combination of filter sand and soil cuttings. Each monitoring well was completed with a flush-mounted roadbox set in concrete. The approximate locations of monitoring wells are shown on Figure 2-1. A summary of monitoring well construction details is presented on Table 2-1.

The newly installed monitoring wells were developed using surge and purge techniques using a submersible Whale® pump. The Whale® pump and associated tubing were surged up and down the length of the well screen. Once surging was completed, the Whale® pump was used to purge the wells to eliminate remove fine soil materials from the well casing and surrounding filter sand. Each monitoring well was developed until the extracted groundwater was visibly clear or roughly 5 well volumes were removed. Several wells were purged dry, allowed to recharge, and then surged and purged repeatedly. All groundwater purged during well development was containerized in 55-gallon drums.

2.4 Test Pit Excavation and Soil Sampling

Between June 14 and June 16, 2016, Nobis supervised the advancement of 20 test pits at the Site. Several of the proposed test pit locations were modified due to accessibility restrictions. Ten test pits were advanced into the elevated berms located along the southeastern and eastern property boundaries. Ten additional test pits were advanced into soil and debris stockpiles located throughout the Site. The test pits were advanced by Technical Drilling Services of Sterling, Massachusetts using a New Holland 555E backhoe. During test pitting activities, a backhoe spotter was used to assist the excavator operator and apply dust control measures (water misting) to control fugitive dust emissions. All depth measurements for the test pits are referenced to the top the highest sidewall of the excavated test pit. Soils and debris encountered were visually characterized by Nobis field geologists using the Burmister Method classification methods.

During test pit excavations, soil samples were collected for headspace screening using a PID. In accordance with the FTWP-QAPPA, soil samples were collected for laboratory analysis from the pile surface surficial (0 to 1-foot) and then from varying subsurface intervals. The subsurface intervals were selected by the field geologist based on field observations of potential contamination or fill material.

Soil samples for laboratory analysis were collected in laboratory-supplied glassware directly from the backhoe bucket. The backhoe bucket was decontaminated using a pressure washer at the completion of each test pit. Soil samples were retained on ice, and transported via courier under chain-of-custody to Eurofins/Spectrum Analytical of North Kingstown, Rhode Island and analyzed for PCBs and metals. One soil sample was analyzed for hexavalent chromium. After completion of test pit excavation and soil sample collection, each test pit was backfilled and compacted using the backhoe bucket to match the previous grade and slope. Soil sample results are discussed in Section 3.1. Test pit logs are included in Appendix C.

2.5 Groundwater Sampling

From June 13 to 17, 2016, Nobis collected groundwater samples from eight monitoring wells (seven of the new wells as well as existing MW-1). Groundwater samples were collected using the EPA low-flow groundwater sampling protocols. Two monitoring wells (MW-10 and MW-14) were dry during groundwater sampling events. Of the eight wells sampled, three monitoring wells (MW-08, MW-09, MW-11) were purged dry, and allowed to recharge until sufficient volume for sample collection was available. All samples were collected using peristaltic pumps and dedicated tubing. Groundwater geochemical parameters (i.e., pH, turbidity, temperature, etc.) were continuously monitored using an in-line YSI, Inc. water quality meter sonde and a separate HACH 2100Q turbidity meter. Low flow groundwater sampling field logs are included in Appendix D.

2.6 Catch Basin and Drainage Structure Evaluations

As part of the TBA investigation activities, Nobis evaluated three catch basins at the Site. Nobis observed free-flowing water in the bottom of each catch basin. The terminus of the catch basin and drainage system is unknown at this time.

Nobis evaluated the Furnace Building and the Metal Shop/Garage (Figure 1-2) for the presence of floor drains, sumps, and/or other drainage structures and none were noted. Nobis was unable to inspect the two remaining on-site buildings. Both buildings have sustained significant fire damage and were unsafe to enter.

2.7 Monitoring Well Elevation and Geographic Survey

On June 16, 2016 Nobis surveyed 10 monitoring wells (one existing and the nine installed by Nobis) for elevation data using a laser level. Reference point elevations of the monitoring wells (top of PVC) were surveyed relative to an arbitrary benchmark elevation of 100 feet. This survey information was used to determine groundwater elevations and create a groundwater contour map (Figure 2-2). based on the information gathered during the TBA investigation, groundwater flow appears to be to the east-northeast toward the Merrimack River.

2.8 Dust Monitoring

On June 9 and June 15, 2016, during drilling and test pitting activities, respectively, Nobis collected ambient air samples from the perimeter of the Site to verify the absence of fugitive dusts reaching the Site perimeter. The ambient air samples were submitted to Con-Test Analytical Laboratory located in East Longmeadow, Massachusetts for analysis of dust, lead, and PCBs. The ambient air samples were collected to evaluate the effectiveness of engineering controls implemented during TBA investigation activities to prevent the generation of dusts. The approximate locations of the air monitoring locations are shown on Figure 2-1.

3.0 SUMMARY OF TBA SAMPLING RESULTS

Nobis performed an initial review the soil sampling data generated during the TBA investigation by comparing the concentrations of contaminants of potential concern (COPCs) to the concentrations of COPCs detected during historical investigations. In general, the COPC concentrations detected during 2016 TBA investigations and COPCs detected during historical investigations are similar.

A more detailed review of the data was performed by comparing laboratory analytical results to MCP (310 CMR 40.0000) Method 1 risk assessment standards. Using the MCP Method 1 Risk Characterization methods, soils at the Site would be classified as S-1 due to the presence of nearby residential properties and schools. Several COPCs have been detected in soil at the Site at concentrations greatly exceeding the applicable Method 1 Standards. Furthermore, some concentrations exceed MCP Upper Concentration Limits (UCLs) (310 CMR 40.0996). UCLs in soil and groundwater are concentrations of oil and/or hazardous material which, if exceeded under certain conditions, indicate the potential for significant risk of harm to public welfare and the environment under future conditions. Additionally, concentrations of PCBs have been detected in Site soils that exceed 50 mg/kg. Therefore, remediation of PCBs at the Site is regulated under both the MCP and TSCA.

Laboratory results of soil, groundwater, and air sampling results collected during TBA investigation activities are summarized in this section. Discussions of soil data are primarily focused on COPCs that exceed established UCLs or TSCA cleanup levels.

3.1 Soil Sampling Results

The sections below present the laboratory analytical results from soil samples collected during soil boring, test pit, and hand auger activities performed during TBA investigation activities. Soil samples were collected for specific laboratory analysis and varying depths in accordance with the approved FTWP. Laboratory data reports for soil samples collected during the TBA are included in Appendix E.

3.1.1 Summary of PCB Sampling Results

During TBA investigation activities (soil borings, test pits, and hand augers) Nobis collected 214 soil samples for laboratory analysis of PCBs. The PCBs detected during TBA investigations were primarily PCB Aroclors 1248 and 1260 and concentrations vary throughout the Site ranging from below laboratory detection limits to a maximum detection of 1,300 mg/kg in a soil sample collected from 1 to 3 feet bgs at soil boring SVA-05. The table below presents a summary of TBA PCB sample results detected within select concentration ranges.

Total PCB Concentration Range	No. of Samples
non-detect	33
less than 1 mg/kg	50
1 mg/kg – 10 mg/kg	71
10 mg/kg – 50 mg/kg	41
50 mg/kg – 100 mg/kg	14
100+ mg/kg	5

A summary of TBA and historical PCB sampling results are included as Table 3-1 and 3-2, respectively. The concentrations of PCBs detected during TBA activities were generally similar to historical PCB concentrations.

3.1.2 Summary of Metals Sampling Results

Concentrations of metals were detected above applicable MCP Method 1 soil standards in numerous soil samples collected during TBA investigations. Concentrations of lead were detected above the MCP UCL (6,000 mg/kg) at the following locations: CD-45E (6,400 mg/kg), CD-45S (8,600 mg/kg), SVA-03 (6,700 mg/kg), TP-12 (6,500 mg/kg), and TP-20 (10,000 mg/kg). Concentrations of chromium were detected above the MCP UCL (2,000 mg/kg) at the following locations: SVA-06 (40,000 mg/kg), TP-05 (86,000 mg/kg), and TP-13 (14,000 mg/kg). The only other metal detected above Method 1 soil standards in soil samples collected during the TBA was arsenic. The following is a statistical summary of analytical results for arsenic, chromium, and lead collected during the TBA:

Statistic	Arsenic	Chromium	Lead
#samples	138	138	138
#detects	136	138	138
#exceed Method 1	18	35	110
#exceed UCL	0	3	5
Average Conc. (mg/kg)	14.3	1,111	1,158

A summary of TBA metal sampling results are presented in Table 3-3. A summary of historical metal sampling results is presented in Table 3-4. Concentrations of mercury exceed the MCP UCL (300 mg/kg) at historical soil sample S-04-01 (1,277 mg/kg). The concentrations of metals detected during TBA activities were generally similar to Site-wide historical metals concentrations with the exception of the UCL exceedances detected during TBA investigations.

It is likely that soils containing metals above UCLs will require excavation and off-site disposal during future remedial actions. Therefore, Nobis directed Spectrum to analyze each of the eight samples containing metals above UCLs for either lead or chromium using the toxicity characteristic leaching procedure (TCLP). The concentrations of lead detected in samples collected from CD-45E (95 mg/L) and CD-45S (28 mg/L) using TCLP methods exceed the Resource Conservation and Recovery Act (RCRA) limit of 5 mg/L, indicating that at least some of the soil in these eight locations will be considered hazardous waste upon generation. A summary of TCLP sample results is included in Table 3-5.

3.1.3 Summary of EPH and SVOC Sampling Results

Concentrations of EPH and SVOCs were detected above applicable MCP Method 1 S-1 Soil Standards in soil samples collected during TBA investigations. However, the concentrations detected do not exceed established MCP UCLs. TBA EPH and SVOC sample results are presented in Table 3-6.

3.1.4 Summary of VOC Sampling Results

Low concentrations of VOCs were detected in several soil samples collected during TBA investigation activities. There were no VOCs detected above MCP Method 1 S-1 Soil Standards or MCP UCLs. TBA VOC sample results are presented in Table 3-7.

3.1.5 Summary of Cyanide Sampling Results

Cyanide analysis was limited to soil samples collected from below the former Furnace Building. Laboratory analysis of soil samples did not detect concentrations of cyanide above laboratory reporting limits. Cyanide analytical results are presented on Table 3-3.

3.2 Groundwater Sampling Results

The sections below present the results of laboratory analytical results of groundwater samples collected during TBA investigation activities. Groundwater sampling results were evaluated by comparing them to MCP Method 1 risk assessment standards. The Site is not located in a Current or Potential Drinking Water Source Area, therefore MCP GW-1 standards do not apply to groundwater at the Site. Under future site use scenarios occupied buildings may be present on Site; therefore, GW-2 standards apply to groundwater. Since all groundwater is considered a potential source to surface water, GW-3 standards also apply to the site. Groundwater samples were collected for specific laboratory analysis in accordance with the approved FTWP.

Groundwater sampling data collected during historical investigations and during the June 2016 TBA is summarized on Table 3-8. Laboratory data reports for groundwater samples collected during the TBA are included in Appendix E.

3.2.1 Summary of VOC Sampling Results

There were no VOCs detected at concentrations above applicable Method 1 groundwater standards. Low concentrations of VOCs were detected in groundwater samples collected from MW-8, MW-9, MW-11, and MW-13. Chemicals indicative of gasoline constituents (benzene, ethylbenzene, xylene, naphthalene, MtBE) were detected in the sample collected from MW-8. Trace levels of chlorinated solvents were detected in samples collected from MW-8 and MW-11 (1,1-dichloroethane; 1,4-dioxane; vinyl chloride). The chlorinated solvent tetrachloroethene was detected in the sample collected from MW-9. Monitoring well MW-8 is located in the southeast corner of the Site at the base of the soil berm, MW-9 and MW-11 are located in the central portion of the Site within the footprint of the former Large Shear and Baler Press Areas, respectively.

No VOCs were detected in the groundwater samples collected from MW-15 and MW-16, which are located along the northern property boundary adjacent to the residential properties along Hofmann Avenue.

3.2.2 Summary of EPH/PAH Sampling Results

There were no concentrations of EPH or PAHs detected in groundwater samples at concentrations exceeding applicable Method 1 standards.

3.2.3 Summary of Metals Sampling Results

Concentrations of lead were detected above the MCP Method 1 GW-3 standard (10 µg/L) in groundwater samples collected from MW-8 and MW-11 (69 and 25 µg/L, respectively). However, due to elevated turbidity readings observed during low flow sampling, Nobis analyzed one additional sample from MW-11 for metals analysis after filtering the sample in the field using a 0.5-micron filter. Concentrations of lead detected in the filtered sample (0.36J µg/L) were well below the MCP GW-3 standard. This result is consistent with historical metals analysis when comparing total metals versus dissolved metal concentrations. The low concentrations detected in filtered samples are likely more representative of dissolved concentrations of metals in groundwater beneath the Site.

3.2.4 Summary of PCB Sampling Results

There were no PCBs detected above laboratory reporting limits from any groundwater samples collected during the TBA investigation.

3.2.5 Summary of Cyanide Sampling Results

Cyanide was not detected above laboratory reporting limits.

3.3 Dust Monitoring Sample Results

On June 9 and 15, 2016, Nobis collected air samples from perimeter of the Site while drilling and test pitting activities were being performed. The purpose of the air samples was to evaluate if engineering controls (misting and wetting) were effective in controlling the generation of fugitive dust and eliminating the potential for contaminated soil to be transported to off-site receptors. Laboratory analysis of perimeter air samples did not detect concentrations of dust, lead, or PCBs above laboratory reporting limits for either sampling event. Dust monitoring sampling results are summarized on Table 3-9. Laboratory data reports for dust samples collected during the TBA are included in Appendix F.

3.4 Data Validation

Nobis performed a Tier I Modified data validation in accordance with the *Region I, EPA-NE Environmental Data Review Supplement for Regional Data Review Elements and Superfund Specific Guidance/Procedures* (April 2013), *USEPA National Functional Guidelines for Inorganic Superfund Data Review* (August 2014); and the *USEPA National Functional Guidelines for Superfund Organic Methods Data Review* (August 2014) for the organic and inorganic soil and groundwater samples collected at the Site by Nobis. Data validation summary memoranda are included as Appendix G. The data quality objectives for the project are to use the data to delineate the nature and extent of soil and groundwater contamination at the Site so that potential remedial alternatives can be evaluated and order-of-magnitude cost estimates can be developed. To that end, it has been determined that the data have achieved data quality objectives (DQO) have been met and the data are deemed as usable.

4.0 NATURE AND EXTENT OF CONTAMINATION

Low concentrations of VOCs, SVOCs, and dissolved metals were detected during both TBA and historical groundwater sampling events. Based these results, groundwater at the Site has not been adversely impacted by historical Site operations or historical releases. Therefore, the discussion regarding nature and extent of contamination at the Site is focused on COPCs detected in Site soils. The primary COPCs detected include PCBs, metals, and SVOCs/PAHs.

Based on the presence of soil stockpiles and the large soil berm located along the southern and eastern portions of the property it is likely that Site soils have been extensively reworked and moved to various locations throughout the Site. Fill material containing metal, brick, ash, slag, glass, and other man-made debris were encountered in nearly every soil boring and test pit performed during TBA investigations. The depth of fill material varies widely across the site ranging from 2 to 11 feet bgs. COPCs detected in Site soils are likely associated with historical operations as a burn dump/landfill and scrap metal/salvage yard. Native sands were encountered in deeper soil borings performed for monitoring well installations. The extent of contamination discussions presented in this section are based on observations made during subsurface investigations completed during the TBA as well as review of historical data.

4.1 Extent of PCB Contamination

Concentrations of PCBs have been detected throughout the Site in both surface and subsurface soils. Concentrations have ranged from non-detect to 2,700 mg/kg in soil boring WSB-6 in a sample collected from 0 to 1 foot bgs. In general, elevated concentrations (greater than 10 mg/kg) of PCBs have been detected clustered in the central, eastern, and southeastern portions of the Site. Elevated concentrations of PCBs have also been detected in deeper sampling intervals (up to 4 feet below ground surface) in western portions of the Site near the Furnace Building; in the central portion of the Site near the Baler Press Area and Small Shear (3 feet or more); and in southern and eastern areas near the Soil Consolidation Area.

Elevated concentrations of PCBs were also detected in soil samples collected from test pits (shallow and deeper intervals) and hand auger samples collected from the top of the soil berm that forms the southern and eastern boundaries of the property (Figures 3-1 and 3-2). Elevated concentrations of PCBs were detected in soil samples collected from up to 13 feet deep within the berms, suggesting PCB contamination could be present throughout the berm material.

Elevated concentrations of PCBs have also been detected in various soil stockpiles located on the eastern portion of the property.

The review of soil boring logs and test pit logs indicates that native soil materials were encountered beneath fill materials on average from 4 to 6 feet below ground surface across the Site (although specific fill depths observed in soil borings range from 2 to 10 feet). In the bermed areas, the same observation is made at the base of the berm (native material is encountered 4 to 6 feet below the base of the berm), but including the height of the berm, fill thicknesses are assumed to be up to 15 to 20 feet. Comparison of these geological observations with soil sample analytical results indicates a general pattern of the absence of PCBs in soil samples collected from materials described as native or materials not containing fill materials. This observation was used to assist with the estimation of soil volumes requiring excavation and off-site disposal.

It should be noted that the presence of PCBs in surficial soils at a concentration greater than 10 mg/kg would constitute an Imminent Hazard and 2-hour reporting condition if not for the presence of the chain link fence at the perimeter of the Site. It is critical that this barrier remain intact and effective to prevent access to the Site until such time that remedial actions are taken to limit potential exposure to PCB-impacted soils.

4.2 Extent of Metals Contamination

Concentrations of metals have been detected throughout the Site at concentrations that exceed their respective MCP Method 1 soil standards. However, only limited detections of lead, chromium, and mercury have been detected at concentrations exceeding the MCP UCLs. The elevated concentrations at these locations can likely be attributed to anthropogenic materials that became comingled with soils during historical Site operations.

4.3 Extent of SVOC/PAH Contamination

Concentrations of EPH and SVOCs have been detected throughout the Site above applicable MCP Method 1 S-1 Soil Standards in soil samples collected during TBA investigations. However, the concentrations detected do not exceed established MCP UCLs. The source of SVOCs and EPH at the Site can likely be attributed to smaller localized petroleum releases and/or anthropogenic materials that became comingled with soils during historical Site operations.

4.4 Data Gap Analysis

Based on review of historical site investigation reports and the results of recent TBA investigation activities, Nobis has identified data gaps that should be investigated during future investigation or remedial activities performed at the Site. A summary of these data gaps is presented in the sections that follow.

4.4.1 Concrete Slab PCB Sampling

PCBs may migrate into surrounding materials depending on a number of different environmental and chemical factors. Based on the concentrations of PCBs detected throughout the Site in surface and subsurface soils, Nobis recommends collecting concrete samples for PCB analysis from the slabs remaining on site. Any future redevelopment at the Site will likely require the removal and off-site disposal of the concrete slabs. If laboratory analytical results indicate that the slabs need to be managed as TSCA regulated waste, there may be significant cost implications associated with disposal of these materials. The remedial costs presented in Section 5.0 assume these slabs could be broken up and reused/disposed as uncontaminated construction debris.

4.4.2 Subsurface Drainage Structure Evaluation

The City of Lawrence is currently in the process of evaluating the subsurface drainage structures at the Site. The results of this evaluation should be used to identify outfall/discharge points to collect samples for PCB analysis. Historical sediment sampling in the Merrimack River suggests there is no adverse impact to the River from discharges originating from the Site's drainage system, however additional investigation is warranted to evaluate the fate and transport of contamination potentially leaving the Site through the drainage system or precipitation runoff events.

4.4.3 Additional PCB Delineation in Soil

Based on the projected costs of remedial actions presented Section 5.0, collection of additional soil samples for PCB analysis may be beneficial. Results from additional surface and subsurface soil sampling could be used to further refine the limits of areas requiring remediation and/or management, potentially reducing the volume of soil warranting excavation and off-site disposal. Targeted sampling at the perimeter of proposed excavation areas could help to delineate removal areas more precisely, minimizing over-excavation of soils due to uncertainty because of the spatial distribution of soil samples.

5.0 ANALYSIS OF BROWNFIELD CLEANUP ALTERNATIVES

Based on the evaluation of soil analytical data, and geological observations made during the TBA, Nobis estimates that there is over 1,000,000 tons of contaminated soil present on the Site. Removal and off-site disposal, or even on-site treatment, of this soil to achieve contaminant levels that are suitable for unrestricted use is likely to cost hundreds of millions of dollars. Because of this exceptionally high cost, and the disruption to the community from excavating and transporting such a large volume of contaminated soil, complete excavation and off-site disposal of contaminated soils is not considered a feasible remedial alternative for the Site.

When excavation and off-site disposal of large volumes of contaminated soil is not practical or cost effective, capping of contaminated materials is often a viable remedial option. Capping is a remedial technology whereby contaminated soil would be left on site and covered with a physical barrier. The barrier typically consists of a geomembrane overlain by several feet of clean soil to establish separation between contaminated soils and the finished ground surface. The finished ground surface can be vegetated or paved, or covered by a permanent structure such as a building. The purpose of the barrier would be twofold: to prevent direct contact by humans with contaminated soils and to minimize the infiltration of precipitation through contaminated soils and reduce the potential to leach contamination into groundwater.

Considering the fact that soil contamination does not appear to have leached into groundwater at significant levels in the decades since contamination was originally released to the environment, the second objective of the cap is less critical at this site. Therefore, placement of a permeable cover would be recommended over placement of an impermeable cap. Placement of a permeable soil cover would prevent direct contact with contamination in soils and prevent contaminant migration via erosion or fugitive dust, but would permit rain water to pass through the cover and percolate through soil into the groundwater. This modification to the containment approach would save several hundred thousand dollars while still being protective of human health.

5.1 Excavation and Off-Site Disposal

EPA and MassDEP place strict limits on the concentrations of contaminants that are permitted to remain on-site, and be contained beneath a cap. Under TSCA, PCB-impacted soils beneath a cap in a "high occupancy" area must contain less than 10 mg/kg PCBs. If the capped area is within a "low occupancy" area, TSCA allows soils with up to 100 mg/kg PCBs to remain on site.

TSCA defines a high occupancy area as a site that is occupied by one or more individual for more than 6.7 hours per week. EPA may approve less restrictive requirements if the owner can demonstrate that alternative standards “will not pose an unreasonable risk of injury to health or the environment” (40 CFR 761.61[c][2]).

Under the MCP, site owners are discouraged from leaving soils with contaminants above Upper Concentration Limits (UCLs) in place, although a Permanent Solution can be achieved by leaving soils with UCL exceedances in place beneath an Engineered Barrier (e.g., cap), as long as a condition of No Significant Risk to public welfare and the environment can be demonstrated through a Method 3 risk assessment.

Under any remedial alternative, excavation and off-site disposal of contaminated soil is a significant cost driver; however, this is particularly the case where PCB contamination is present as the price per ton to dispose of soils contaminated with PCBs is typically several hundred dollars. Reducing the amount of soil requiring disposal (in other words, modifying the cleanup goal) will significantly lower the cost of remediation. To demonstrate the impact of disposal volumes on the cost of remediation, Nobis developed alternatives for three PCB cleanup goals, each with or without removal and off-site disposal of soils containing metals above UCLs.

5.2 Physical Containment Barrier

The construction details for the physical barrier overlying contaminated soils should consider the potential future use of the Site. Under TSCA, there is no distinction made between a cap and a permeable soil cover. A TSCA cap/cover with a vegetated surface is required to be comprised of at least 10 inches of compacted soil, whereas a concrete or asphalt cap/cover must have a minimum thickness of 6 inches. The cap must be designed to have sufficient strength to maintain its integrity during use of the surface, and the cap must be implemented alongside a perpetual deed restriction to prevent activities and uses that are incompatible with the objectives of the cap and might result in exposure to contaminants in the underlying soils. It is incumbent upon the owner of the site to maintain the integrity of the cap and establish a long-term maintenance and monitoring program to demonstrate the continued effectiveness of the cap.

The MassDEP requirements for a physical barrier are not as specific as TSCA. Typically, an Engineered Barrier (i.e. cap) is only required if soils exceeding UCLs are present on site and there is no feasible alternative to treat or remove them, or if limited leachability of contaminants to groundwater can be demonstrated. If UCLs are not exceeded, and the threat of groundwater contamination from leaching is not significant, but contamination is left on site, then a soil cap without a low permeability layer may be considered.

The barrier systems proposed by Nobis meet the minimum requirements of TSCA and the MCP. As discussed above, a cap with low permeability is more robust and therefore costlier than a permeable soil cover system. Given the fact that significant leaching of contaminants into groundwater has not occurred over the years since the release of contamination to soil, a permeable soil cover system may be sufficient to protect human health and the environment. To demonstrate the cost impact of placing a soil cover instead of a low permeability cap, Nobis developed alternatives for each scenario (cap vs. cover) using each of the cleanup goals discussed in Section 5.1.

5.3 Institutional Controls

Any remedial strategy which involves in-place containment of contaminated soil would require placement of institutional controls (deed restrictions) on the property to ensure the integrity of the cap/soil cover for the long term and prevent exposure to contaminants left in place. Restrictions would likely include limits on subsurface excavation and any other activity that would compromise the integrity of the cover. The site owner would be obligated to inspect on a periodic basis and maintain the cover surface in perpetuity to ensure there is no damage that could potentially expose site occupants to the contamination contained beneath the cover. An Operations and Maintenance (O&M) Plan will be required to maintain the long-term effectiveness of the cover and institutional controls. The site owner will need to periodically provide certification to MassDEP that institutional and engineering controls are being employed as required by these plans.

O&M costs would be incurred to preserve the integrity of the cap/soil cover for the long-term, make repairs as needed based on normal wear and tear, and potentially replace the cover surface, depending upon the materials used to finish the ground surface. O&M costs are highly dependent upon the type of ground surface that is constructed, but are likely to be on the order of $10,000 to $20,000 per year.

5.4 Evaluation of Remedial Alternatives

To evaluate a range of potential remedial alternatives with varying degrees of excavation and off-site disposal, but with a cap/engineered barrier or soil cover to restrict potential exposure to contaminants, Nobis has developed cost estimates for several potential remedial scenarios. Each scenario involves excavation and off-site disposal of contaminated soil, placement of a physical barrier over contaminated soils to restrict direct exposure to contaminated soil, implementation of a deed restriction or AUL to restrict activities that might compromise the integrity of the cap/cover, and long-term maintenance and monitoring of the cap/cover to document its integrity and effectiveness. The scenarios offer potential combinations of the following three strategies:

- Target cleanup goal for soils contaminated with PCBs of 10 ppm, 50 ppm, or 100 ppm.
- Removal of soils containing metals above UCLs.
- Construction of a cap/Engineered Barrier or permeable soil cover.

The following is a tabular summary of the alternatives considered in this TBA Report.

Alternative	PCB Cleanup Goal	UCLs Removed	Soil Volume	Barrier
1A	10 mg/kg	Yes	75,000 CY	Cap
1B	10 mg/kg	Yes	75,000 CY	Cover
2A	50 mg/kg	Yes	10,000 CY	Cover
2B	50 mg/kg	No	9,000 CY	Cap
2C	50 mg/kg	No	9,000 CY	Cover
3A	100 mg/kg	Yes	4,000 CY	Cover
3B	100 mg/kg	No	2,000 CY	Cap
3C	100 mg/kg	No	2,000 CY	Cover

The following subsections provide a brief description of these alternatives with preliminary order-of-magnitude cost estimates for each alternative. The evaluation presented below assumes regulatory acceptance of the remedial approach and a Method 3 risk assessment demonstrating that the residual concentrations of contaminants left beneath the cap are protective of human health and the environment. Cost estimates do not include construction costs for redevelopment of the property, only preparation of the property for redevelopment and establishment of institutional controls required to protect human health and the environment. Cost estimate details are provided in Appendix A.

5.4.1 Alternative 1: Off-Site Disposal of Soils with PCB>10 mg/kg

Under this alternative, all soils containing greater than 10 mg/kg PCBs, and soils containing metals above UCLs (these areas overlap), would be excavated and transported for off-site disposal. The remaining soils (including those present within the soil berms) would be reused on-site to establish lines and grades for the cap/cover.

Based on the evaluation of soil analytical data from the 2016 TBA and historical investigations, Nobis has developed an estimate of the quantity of soil containing PCBs above 10 mg/kg, or with metals exceeding UCLs. The approximate lateral extent of soils exceeding these limits is depicted on Figure 5-1, along with the assumed depths of fill within each area based on observations made during the advancement of soil borings. Based on the areas and depths shown on this figure, the estimated volume of soil requiring excavation and off-site disposal under this alternative would be 75,000 cubic yards (CY).

Soils remaining on site after removal would be regraded across the Site to eliminate the berms along the northern and eastern property boundaries, to facilitate construction of the cap/cover and provide a more desirable grade for redevelopment of the property. The extent of the cap/cover would include the entire property. For budgeting purposes, Nobis assumed the cap/cover would be finished with a combination of grass and asphalt pavement. The proportion of vegetated to paved surfaces will vary based on the ultimate redevelopment plan, but a 2:1 ratio of vegetated to paved surface was assumed for cost estimating purposes. Construction of building foundations could be incorporated into the cap/cover design or accomplished after the fact with proper engineering controls to prevent exposure to contaminants by construction workers.

Two different containment options were evaluated for this alternative. The volume of soil removed for off-site disposal would be identical for each alternative. The only difference between the two would be the composition of the physical barrier placed over the contaminated soils.

- Alternative 1A: A cap/engineered barrier consisting of 3 feet of soil and a flexible membrane liner (FML) would be constructed over the entire site to prevent direct exposure to contaminated soil. The cap would have low permeability and minimize the infiltration of precipitation into groundwater. Drainage features would need to be incorporated into the design of the cap to manage storm water on the capped area. The cap would be finished with either grass or asphalt.

- Alternative 1B: A soil cover consisting of 2 feet of soil overlying a geofabric. The purpose of the geofabric would be to provide separation between the contaminated soils and clean cover materials, while serving as a warning layer for future excavation that the limits of the cover have been reached. The soil cover and geofabric would not contain a low permeability layer, and would provide no restriction to the movement of water through the cover into the underlying soils and groundwater. The cover would be finished with either grass or asphalt.

Each alternative would require the placement of a deed restriction/AUL on the property to restrict activities and uses that might damage the cap/cover. Each alternative would also require the City to monitor and maintain the physical barrier in perpetuity to ensure and document its integrity and effectiveness.

The estimated capital cost of Alternative 1A would be $45,000,000 to $70,000,000. Annual O&M costs for Alternative 1A would be $20,000 to $25,000.

The estimated capital cost of Alternative 1B would be $45,000,000 to $65,000,000. Annual O&M costs for Alternative 1B would be $10,000 to $15,000.

5.4.2 Alternative 2: Off-Site Disposal of Soils with PCB>50 mg/kg

Under this alternative, all soils containing greater than 50 mg/kg PCBs, and soils containing metals above UCLs, would be excavated and transported for off-site disposal (Alternative 2A). Alternatives 2B and 2C were developed to evaluate remedial scenarios whereby only soils containing PCBs greater than 50 mg/kg are removed from the Site. Under each scenario, the soils remaining after removal (including those present within the soil berms) would be reused on-site to establish lines and grades for the cap/cover.

Based on the evaluation of soil analytical data from the 2016 TBA and historical investigations, Nobis has developed an estimate of the quantity of soil containing PCBs above 50 mg/kg, and an estimate of the quantity of soil containing metals above UCLs. The approximate lateral extent of soil exceeding these limits is depicted on Figure 5-2A (PCBs>50 mg/kg and UCLs) and Figure 5-2B (PCBs>50 mg/kg), along with the assumed depths of fill within each area based on observations made during the advancement of soil borings. Based on the areas and depths shown on this figure, the estimated volume of soil requiring excavation and off-site disposal under Alternative 2A would be 10,000 CY, and under Alternatives 2B and 2C would be 9,000 CY.

Similar to Alternative 1, soils remaining on site after removal would be regraded across the Site to eliminate the berms along the northern and eastern property boundaries, to facilitate construction of the cap/cover and provide a more desirable grade for redevelopment of the property. The extent of the cap/cover would include the entire property. For budgeting purposes, Nobis assumed the cap/cover would be finished with a combination of grass and asphalt pavement. The proportion of vegetated to paved surfaces will vary based on the ultimate redevelopment plan, but a 2:1 ratio of vegetated to paved surface was assumed for cost estimating purposes. Construction of building foundations could be incorporated into the cap/cover design or accomplished after the fact with proper engineering controls to prevent exposure to contaminants by construction workers.

Three different containment options were evaluated for this alternative. Alternatives 2A and 2C would include a soil cover as described in Alternative 1B, whereas Alternative 2B would include a cap/engineered barrier as described in Alternative 1A. The volume of soil removed for off-site disposal would be the same for Alternatives 2B and 2C, with a slightly larger volume of soil removal for Alternative 2A.

As above, each alternative would require the placement of a deed restriction/AUL on the property to restrict activities and uses that might damage the cap/cover. Each alternative would also require the City to monitor and maintain the physical barrier in-perpetuity to ensure and document its integrity and effectiveness.

The estimated capital cost of Alternative 2A would be $7,500,000 to $11,000,000. Annual O&M costs for Alternative 2A would be $10,000 to $15,000.

The estimated capital cost of Alternative 2B would be $9,000,000 to $13,000,000. Annual O&M costs for Alternative 2B would be $20,000 to $25,000.

The estimated capital cost of Alternative 2C would be $7,000,000 to $10,000,000. Annual O&M costs for Alternative 2C would be $10,000 to $15,000.

5.4.3 Alternative 3: Off-Site Disposal of Soils with PCB>100 mg/kg

Alternatives 3A, 3B, and 3C are identical to Alternatives 2A, 2B, and 2C except that the cleanup goal for PCBs is increased to 100 mg/kg. This result is a much smaller volume of soil requiring excavation, management, and off-site disposal, and therefore a lower remedial cost estimate.

As above, Nobis developed an estimate of the quantity of soil containing PCBs above 100 mg/kg, and an estimate of the quantity of soil containing metals above UCLs. The approximate lateral extent of soil exceeding these limits is depicted on Figure 5-3A (PCBs>100 mg/kg and UCLs) and Figure 5-3B (PCBs>100 mg/kg). Based on the areas and depths shown on this figure, the estimated volume of soil requiring excavation and off-site disposal under Alternative 3A would be 4,000 CY, and under Alternatives 3B and 3C would be 3,000 CY.

The estimated capital cost of Alternative 3A would be $4,000,000 to $6,000,000. Annual O&M costs for Alternative 3A would be $10,000 to $15,000.

The estimated capital cost of Alternative 3B would be $4,500,000 to $7,000,000. Annual O&M costs for Alternative 3B would be $20,000 to $25,000.

The estimated capital cost of Alternative 3C would be $3,000,000 to $4,500,000. Annual O&M costs for Alternative 3C would be $10,000 to $15,000.

Table 5-1 provides a summary of the capital and O&M costs for these alternatives. O&M costs are estimated for Year 1 and would increase with inflation over time. Note that these estimates do not include any additional investigation and/or risk assessment costs associated with establishing cleanup goals and remedial strategies.

6.0 SUMMARY AND CONCLUSIONS

The following is a summary of the information and conclusions presented in this TBA Report:

- The Site is located in a mixed-use (commercial, residential, and industrial) area of Lawrence, Massachusetts. Historical uses of the Site have included a burn dump/landfill and a scrap metal recycling facility. The southern portion of the Site has historically been used as a soap manufacturing facility and a community landfill. The most recent use of the Site was as a metals recycling facility (John C. Tombarello & Sons and American Recycling of Massachusetts, Inc.), which operated until 2001. Since 2001, the Site has been unoccupied and unused, with the exception of a truck driving school which operated on the Site for a short time in 2006.

- An earthen berm ranging from approximately 10 to 20 feet high is present along the eastern and southern property boundaries. This berm was reportedly formed by pushing shallow soils from the Site toward the property boundaries. Several stockpiles of soil are present throughout the Site. Nobis performed field measurements of the berm and stockpiles, and estimates that there is approximately 28,000 cubic yards of soil present above grade throughout the Site.

- The Site is abutted to the east by Route 495; to the south by an automobile dealership (formerly a waste recycling facility); to the west by Marston Street, beyond which lies the Parthum Elementary and Middle School; and to the north by residential properties. Under the MCP, soils at the Site are classified as S-1. Groundwater categories S-1/GW-2 and S-1/GW-3 apply to the Site.

- Results of environmental investigations have identified surface soil, subsurface soil, and soil stockpiles that are impacted by contaminants including PCBs, metals, and SVOCs/EPH. Concentrations of contaminants detected at the Site exceed applicable MCP Method 1 risk assessment standards and UCLs, as well as TSCA cleanup goals for high- and low-occupancy areas.

- The presence of PCBs in surficial soils at a concentration greater than 10 mg/kg would constitute an Imminent Hazard and 2-hour reporting condition if not for the presence of the chain link fence at the perimeter of the Site. It is critical that this barrier remain intact and effective to prevent access to the Site until such time that remedial actions are taken to limit potential exposure to PCB-impacted soils.

- A limited number of detections of lead, chromium, and mercury have been detected at concentrations exceeding the MCP UCLs. The concentrations of SVOCs/EPH detected at the Site do not exceed established MCP UCLs.

- Limited removal efforts have been conducted previously to address elevated concentrations of PCBs and oil in soil. An on-site contaminated soil consolidation cell was established to temporarily store these materials until a comprehensive remedial action could be implemented.

- Due to the large volume of contaminated soil on the Site, cleanup to levels suitable for unrestricted use is not practical, therefore the optimal remediation strategy will involve the excavation and off-site disposal of a limited volume of soil, re-grading of the Site, capping or covering of contaminated soils, and placement of a deed restriction on the property.

- A range of potential remedial alternatives was evaluated to provide order-of-magnitude costs for site cleanup and analyze the cost impacts of several soil cleanup standards two different containment options. The least expensive remedial alternative includes cleanup of soils containing PCBs above 100 mg/kg, re-grading of contaminated soils, and placement of a permeable soil cover to prevent direct contact with contaminated soils. Additional risk assessment work, and collaboration with state and federal regulators, will be required to gain acceptance of this remedial approach by all stakeholders.

After review of environmental data available for the Site, Nobis identified the following data gaps. Nobis recommends additional investigations to address these data gaps, which will help to refine the remedial cost estimates provided in this TBA Report.

- Based on the concentrations of PCBs detected throughout the Site in surface and subsurface soils, samples should be collected from the concrete slabs located throughout the Site for PCB analysis to determine the proper off-site reuse/disposal options for this material.

- The results of the City's on-site drainage structure evaluation should be used identify outfall/discharge points to collect samples for PCB analysis to determine the potential for contamination to migrate off-site via drainage structures or surface runoff features.

- Based on the remedial cost estimates presented in Section 5.0, additional PCB soil sampling at the Site may be useful to refine the horizontal and vertical limits of proposed remediation areas. Additional soil analytical data may result in a reduction in the volume of soil requiring excavation and off-site disposal, as the current volume estimates are limited by the spatial distribution of sampling data and assumptions regarding the level of contamination between sampling points.

7.0 REFERENCES

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TABLES

Table 2-1
Monitoring Well Construction Details and Groundwater Elevations
Former Tombarello Property
Lawrence, Massachusetts

Well ID	Screen Depth (ft. bgs)	Measuring Point	MP Elevation	Depth to Bottom	Depth to Water	Groundwater Elevation
MW-1 Weston	3-13	PVC	35.21	13.10	9.15	26.06
MW-08	3-13	Lip of Roadbox	35.74	12.55	11.25	24.49
MW-09	3-13	Lip of Roadbox	35.62	12.85	12.11	23.51
MW-10	2-12	Lip of Roadbox	35.62	14.30	DRY	--
MW-11	3-13	Lip of Roadbox	33.39	12.51	9.86	23.53
MW-12	3-13	Lip of Roadbox	33.37	12.02	8.11	25.26
MW-13	3-13	Lip of Roadbox	33.09	12.55	7.14	25.95
MW-14	3-13	Lip of Roadbox	38.22	--	DRY	--
MW-15	3-13	Lip of Roadbox	35.27	12.84	7.25	28.02
MW-16	5-15	Lip of Roadbox	33.98	14.55	10.73	23.25

Notes:

1. Synoptic gauging performed June 17, 2016
2. Monitoring well and groundwater elevations are based on survey data collected on June 16, 2016 and using an assumed bench mark of 100 feet.

bgs = below grade surface

Table 3-1
Summary of TBA PCB Analytical Results
Former Tombarello Property
Lawrence, Massachusetts
Page 1 of 10

Sample Location		BPA-01		BPA-02			CD-34		CD-34E		CD-34N		CD-34S			CD-34W		CD-45		CD-45E		CD-45S		
Sample Depth (ft)		1 - 2	2 - 3	1 - 2	2 - 3	6 - 7	3 - 4	7 - 8	0 - 1	1 - 3	0 - 1	1 - 3	0 - 1	1 - 3		0 - 1	1 - 3	3 - 4	7 - 8	0 - 1	1 - 3	0 - 1	1 - 3	
Sample Date		06/07/16	06/07/16	06/07/16	06/07/16	06/07/16	06/06/16	06/06/16	06/06/16	06/06/16	06/06/16	06/06/16	06/06/16	06/06/16		06/06/16	06/06/16	06/06/16	06/06/16	06/06/16	06/06/16	06/06/16	06/06/16	
QC Identifier														FD	FD								FD	FD
Pesticides/PCBs	**Units**																							
Aroclor 1016	mg/kg	0.035 UJ	0.72 U	0.74 U	0.36 U	0.042 UJ	3.9 U	0.043 UJ	35 U	18 U	0.70 U	0.037 U	0.35 U	0.037 U	0.037 U	0.34 U	0.37 U	0.46 U	0.044 R	3.8 U	3.7 U	0.034 UJ	0.37 U	0.037 U
Aroclor 1221	mg/kg	0.035 UJ	0.72 U	0.74 U	0.36 U	0.042 UJ	3.9 U	0.043 UJ	35 U	18 U	0.70 U	0.037 U	0.35 U	0.037 U	0.037 U	0.34 U	0.37 U	0.46 U	0.044 U	3.8 U	3.7 U	0.034 UJ	0.37 U	0.037 U
Aroclor 1232	mg/kg	0.035 UJ	0.72 U	0.74 U	0.36 U	0.042 UJ	3.9 U	0.043 UJ	35 U	18 U	0.70 U	0.037 U	0.35 U	0.037 U	0.037 U	0.34 U	0.37 U	0.46 U	0.044 U	3.8 U	3.7 U	0.034 UJ	0.37 U	0.037 U
Aroclor 1242	mg/kg	0.035 UJ	0.72 U	0.74 U	0.36 U	0.042 UJ	3.9 U	0.043 UJ	35 U	18 U	0.70 U	0.037 U	0.35 U	0.037 U	0.037 U	0.34 U	0.37 U	0.46 U	0.044 U	3.8 U	3.7 U	0.034 UJ	0.37 U	0.037 U
Aroclor 1248	mg/kg	0.035 UJ	0.72 U	0.74 U	0.36 U	0.042 UJ	3.9 U	0.043 UJ	35 U	18 U	0.70 U	0.037 U	0.35 U	0.037 U	0.037 U	0.34 U	0.37 U	0.46 U	0.044 U	3.8 U	3.7 U	0.034 UJ	0.37 U	0.037 U
Aroclor 1254	mg/kg	0.035 UJ	0.72 U	0.74 U	0.36 U	0.042 UJ	3.9 U	0.043 UJ	35 U	18 U	0.70 U	0.037 U	0.35 U	0.037 U	0.037 U	0.34 U	0.37 U	0.46 U	0.044 U	3.8 U	3.7 U	0.034 UJ	0.37 U	0.037 U
Aroclor 1260	mg/kg	**0.064 J-**	**9.7**	**5.0**	**1.2**	0.042 UJ	**22**	**0.028 J**	**220**	**24**	**6.0**	0.037 U	**4.3**	0.037 U	0.037 U	**4.7**	**0.430 J**	**5.8**	0.044 U	**39**	**17**	0.034 UJ	**3.1 J**	0.037 UJ
Aroclor 1262	mg/kg	0.035 UJ	0.72 U	0.74 U	0.36 U	0.042 UJ	3.9 U	0.043 UJ	35 U	18 U	0.70 U	0.037 U	0.35 U	0.037 U	0.037 U	0.34 U	0.37 U	0.46 U	0.044 U	3.8 U	3.7 U	0.034 UJ	0.37 U	0.037 U
Aroclor 1268	mg/kg	0.035 UJ	0.72 U	0.74 U	0.36 U	0.042 UJ	3.9 U	0.043 UJ	35 U	18 U	0.70 U	0.037 U	0.35 U	0.037 U	0.037 U	0.34 U	0.37 U	0.46 U	0.044 U	3.8 U	3.7 U	0.034 UJ	0.37 U	0.037 U
Aroclor, Total	mg/kg	**0.064 J-**	**9.7**	**5.0**	**1.2**	0.042 UJ	**22**	**0.028 J**	**220**	**24**	**6.0**	0.037 U	**4.3**	0.037 U	0.037 U	**4.7**	**0.430 J**	**5.8**	0.044 U	**39**	**17**	0.034 UJ	**3.1 J**	0.037 UJ

Red: >100 ppm; Orange: >50 ppm; Yellow: >10 ppm; Green: >1 ppm; Bold - Detected; U - Not Detected;
J - Estimated; NA - Not Analyzed

Table 3-1
Summary of TBA PCB Analytical Results
Former Tombarello Property
Lawrence, Massachusetts

Sample Location		CD-45W		D-5			D-5E		D-5N		FB-01			FB-02		FB-03		FB-04				FG-34	
Sample Depth (ft)		0 - 1	1 - 3	0 - 2	2 - 3	6 - 7	0 - 1	1 - 3	0 - 1	1 - 3	1 - 2	2 - 3	5 - 7	1 - 2	2 - 3	1 - 2	2 - 3	1 - 2	2 - 3	5 - 7		0 - 1	1 - 3
Sample Date		06/06/16	06/06/16	06/06/16	06/06/16	06/06/16	06/06/16	06/06/16	06/06/16	06/06/16	06/06/16	06/06/16	06/06/16	06/07/16	06/07/16	06/06/16	06/06/16	06/06/16	06/06/16	06/06/16		06/07/16	06/07/16
QC Identifier																				FD	FD		
Pesticides/PCBs	**Units**																						
Aroclor 1016	mg/kg	3.5 U	0.036 U	0.19 U	3.7 U	0.043 U	1.8 U	0.037 UJ	0.36 U	0.074 U	0.035 U	0.039 U	0.043 UJ	0.18 U	0.037 UJ	0.038 U	0.035 UJ	0.035 U	0.037 UJ	0.041 U	0.042 U	7.5 U	0.21 U
Aroclor 1221	mg/kg	3.5 U	0.036 U	0.19 U	3.7 U	0.043 U	1.8 U	0.037 UJ	0.36 U	0.074 U	0.035 U	0.039 U	0.043 UJ	0.18 U	0.037 UJ	0.038 U	0.035 UJ	0.035 U	0.037 UJ	0.041 U	0.042 U	7.5 U	0.21 U
Aroclor 1232	mg/kg	3.5 U	0.036 U	0.19 U	3.7 U	0.043 U	1.8 U	0.037 UJ	0.36 U	0.074 U	0.035 U	0.039 U	0.043 UJ	0.18 U	0.037 UJ	0.038 U	0.035 UJ	0.035 U	0.037 UJ	0.041 U	0.042 U	7.5 U	0.21 U
Aroclor 1242	mg/kg	3.5 U	0.036 U	0.19 U	3.7 U	0.043 U	1.8 U	0.037 UJ	0.36 U	0.074 U	0.035 U	0.039 U	0.043 UJ	0.18 U	0.037 UJ	0.038 U	0.035 UJ	0.035 U	0.037 UJ	0.041 U	0.042 U	7.5 U	0.21 U
Aroclor 1248	mg/kg	3.5 U	0.036 U	0.19 U	3.7 U	0.043 U	1.8 U	0.037 UJ	0.36 U	0.074 U	0.035 U	0.039 U	0.043 UJ	0.18 U	0.037 UJ	0.038 U	0.035 UJ	0.035 U	0.037 UJ	0.041 U	0.042 U	7.5 U	0.21 U
Aroclor 1254	mg/kg	3.5 U	0.036 U	0.19 U	3.7 U	0.043 U	1.8 U	0.037 UJ	0.36 U	0.074 U	0.035 U	0.039 U	0.043 UJ	0.18 U	0.037 UJ	0.038 U	0.035 UJ	0.035 U	0.037 UJ	0.041 U	0.042 U	7.5 U	0.21 U
Aroclor 1260	mg/kg	**16**	0.036 U	**1.4**	**22**	0.043 U	**14**	0.037 UJ	**1.8**	**0.63**	0.035 U	**0.073**	0.043 UJ	**1.5 J**	**0.31 J-**	0.038 U	**0.033 J**	0.035 U	**0.11 J**	0.041 U	0.042 U	**67**	**1.5**
Aroclor 1262	mg/kg	3.5 U	0.036 U	0.19 U	3.7 U	0.043 U	1.8 U	0.037 UJ	0.36 U	0.074 U	0.035 U	0.039 U	0.043 UJ	0.18 U	0.037 UJ	0.038 U	0.035 UJ	0.035 U	0.037 UJ	0.041 U	0.042 U	7.5 U	0.21 U
Aroclor 1268	mg/kg	3.5 U	0.036 U	0.19 U	3.7 U	0.043 U	1.8 U	0.037 UJ	0.36 U	0.074 U	0.035 U	0.039 U	0.043 UJ	0.18 U	0.037 UJ	0.038 U	0.035 UJ	0.035 U	0.037 UJ	0.041 U	0.042 U	7.5 U	0.21 U
Aroclor, Total	mg/kg	**16**	0.036 U	**1.4**	**22**	0.043 U	**14**	0.037 UJ	**1.8**	**0.63**	0.035 U	**0.073**	0.043 UJ	**1.5 J**	**0.31 J-**	0.038 U	**0.033 J**	0.035 U	**0.11 J**	0.041 U	0.042 U	**67**	**1.5**

Red: >100 ppm; Orange: >50 ppm; Yellow: >10 ppm; Green: >1 ppm; Bold - Detected; U - Not Detected;
J - Estimated; NA - Not Analyzed

Table 3-1
Summary of TBA PCB Analytical Results
Former Tombarello Property
Lawrence, Massachusetts

Sample Location		FG-34N		FG-34S		FG-34W		FG-45E			FG-45N		FG-45S			FG-45W		G-3			G-3E		G-3N	
Sample Depth (ft)		0 - 1	1 - 3	0 - 1	1 - 3	0 - 1	1 - 3	0 - 1		1 - 3	0 - 1	1 - 3	0 - 1	1 - 3		0 - 1	1 - 3	1 - 2	2 - 3	5 - 6	0 - 2	2 - 3	0 - 1	2 - 3
Sample Date		06/07/16	06/07/16	06/07/16	06/07/16	06/07/16	06/07/16	06/08/16		06/08/16	06/08/16	06/08/16	06/08/16	06/08/16		06/08/16	06/08/16	06/07/16	06/07/16	06/07/16	06/07/16	06/07/16	06/07/16	06/07/16
QC Identifier								FD	FD					FD	FD									
Pesticides/PCBs	**Units**																							
Aroclor 1016	mg/kg	1.8 U	2.0 U	1.8 U	0.041 U	0.38 U	0.39 U	1.8 U	0.71 U	0.040 U	1.8 U	0.042 U	0.37 U	0.040 U	0.040 U	1.8 U	0.040 U	0.45 U	0.22 U	0.041 U	0.037 UJ	0.073 U	3.8 U	0.76 U
Aroclor 1221	mg/kg	1.8 U	2.0 U	1.8 U	0.041 U	0.38 U	0.39 U	1.8 U	0.71 U	0.040 U	1.8 U	0.042 U	0.37 U	0.040 U	0.040 U	1.8 U	0.040 U	0.45 U	0.22 U	0.041 U	0.037 UJ	0.073 U	3.8 U	0.76 U
Aroclor 1232	mg/kg	1.8 U	2.0 U	1.8 U	0.041 U	0.38 U	0.39 U	1.8 U	0.71 U	0.040 U	1.8 U	0.042 U	0.37 U	0.040 U	0.040 U	1.8 U	0.040 U	0.45 U	0.22 U	0.041 U	0.037 UJ	0.073 U	3.8 U	0.76 U
Aroclor 1242	mg/kg	1.8 U	2.0 U	1.8 U	0.041 U	0.38 U	0.39 U	1.8 U	0.71 U	0.040 U	1.8 U	0.042 U	0.37 U	0.040 U	0.040 U	1.8 U	0.040 U	0.45 U	0.22 U	0.041 U	0.037 UJ	0.073 U	3.8 U	0.76 U
Aroclor 1248	mg/kg	1.8 U	2.0 U	1.8 U	0.041 U	0.38 U	0.39 U	1.8 U	0.71 U	0.040 U	1.8 U	0.042 U	0.37 U	0.040 U	0.040 U	1.8 U	0.040 U	**2.6**	**1.9**	0.041 U	0.037 UJ	0.073 U	3.8 U	0.76 U
Aroclor 1254	mg/kg	1.8 U	2.0 U	1.8 U	0.041 U	0.38 U	0.39 U	1.8 U	0.71 U	0.040 U	1.8 U	0.042 U	0.37 U	0.040 U	0.040 U	1.8 U	0.040 U	0.45 U	0.22 U	0.041 U	0.037 UJ	0.073 U	3.8 U	0.76 U
Aroclor 1260	mg/kg	**13**	**20**	**24**	**0.22**	**3.2**	**3.7**	**15 J**	**8.5 J**	0.040 U	**25**	0.042 U	**1.4**	**0.18**	**0.19**	**4.6**	**0.32**	0.45 U	0.22 U	0.041 U	**0.55 J-**	**0.86**	**51**	**4.9**
Aroclor 1262	mg/kg	1.8 U	2.0 U	1.8 U	0.041 U	0.38 U	0.39 U	1.8 U	0.71 U	0.040 U	1.8 U	0.042 U	0.37 U	0.040 U	0.040 U	1.8 U	0.040 U	0.45 U	0.22 U	0.041 U	0.037 UJ	0.073 U	3.8 U	0.76 U
Aroclor 1268	mg/kg	1.8 U	2.0 U	1.8 U	0.041 U	0.38 U	0.39 U	1.8 U	0.71 U	0.040 U	1.8 U	0.042 U	0.37 U	0.040 U	0.040 U	1.8 U	0.040 U	0.45 U	0.22 U	0.041 U	0.037 UJ	0.073 U	3.8 U	0.76 U
Aroclor, Total	mg/kg	**13**	**20**	**24**	**0.22**	**3.2**	**3.7**	**15 J**	**8.5 J**	0.040 U	**25**	0.042 U	**1.4**	**0.18**	**0.19**	**4.6**	**0.32**	**2.6**	**1.9**	0.041 U	**0.55 J-**	**0.86**	**51**	**4.9**

Red: >100 ppm; Orange: >50 ppm; Yellow: >10 ppm; Green: >1 ppm; Bold - Detected; U - Not Detected;
J - Estimated; NA - Not Analyzed

Table 3-1
Summary of TBA PCB Analytical Results
Former Tombarello Property
Lawrence, Massachusetts
Page 4 of 10

Sample Location		G-3S		G-3W		HA-01		HA-02	HA-03	HA-04	HA-05	HA-06	HA-07		HA-08	HA-09	HA-10	HA-11	HA-12	LS-01		LS-02	
Sample Depth (ft)		0 - 1	2 - 3	0 - 1	2 - 3	0 - 1		0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1		0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	1 - 3	7 - 8	1 - 2	2 - 3
Sample Date		06/07/16	06/07/16	06/07/16	06/07/16	06/09/16		06/09/16	06/09/16	06/09/16	06/09/16	06/09/16	06/09/16		06/09/16	06/09/16	06/09/16	06/09/16	06/09/16	06/09/16	06/09/16	06/09/16	06/09/16
QC Identifier						FD	FD						FD	FD									
Pesticides/PCBs	**Units**																						
Aroclor 1016	mg/kg	3.9 U	0.043 U	0.76 U	0.042 U	0.19 U	0.75 U	180 U	1.8 U	0.72 U	0.72 U	0.74 U	0.76 U	0.76 U	0.71 U	0.75 U	0.72 U	18 U	18 U	0.035 U	0.042 U	0.035 U	0.043 UJ
Aroclor 1221	mg/kg	3.9 U	0.043 U	0.76 U	0.042 U	0.19 U	0.75 U	180 U	1.8 U	0.72 U	0.72 U	0.74 U	0.76 U	0.76 U	0.71 U	0.75 U	0.72 U	18 U	18 U	0.035 U	0.042 U	0.035 U	0.043 UJ
Aroclor 1232	mg/kg	3.9 U	0.043 U	0.76 U	0.042 U	0.19 U	0.75 U	180 U	1.8 U	0.72 U	0.72 U	0.74 U	0.76 U	0.76 U	0.71 U	0.75 U	0.72 U	18 U	18 U	0.035 U	0.042 U	0.035 U	0.043 UJ
Aroclor 1242	mg/kg	3.9 U	0.043 U	0.76 U	0.042 U	0.19 U	0.75 U	180 U	1.8 U	0.72 U	0.72 U	0.74 U	0.76 U	0.76 U	0.71 U	0.75 U	0.72 U	18 U	18 U	0.035 U	0.042 U	0.035 U	0.043 UJ
Aroclor 1248	mg/kg	**22**	0.043 U	0.76 U	0.042 U	0.19 U	0.75 U	180 U	**18**	**1.3**	**1.3**	**2.9**	**2.9**	**3.2**	**1.2**	0.75 U	0.72 U	18 U	18 U	**0.089**	0.042 U	**0.13**	0.043 UJ
Aroclor 1254	mg/kg	3.9 U	0.043 U	0.76 U	0.042 U	0.19 U	0.75 U	180 U	1.8 U	0.72 U	0.72 U	0.74 U	0.76 U	0.76 U	0.71 U	0.75 U	0.72 U	18 U	18 U	0.035 U	0.042 U	0.035 U	0.043 UJ
Aroclor 1260	mg/kg	**20**	0.043 U	**7.9**	**0.19**	**0.88**	**0.89**	**890**	**20**	**9.3**	**6.5**	**8.4**	**10**	**10**	**4.7**	**4.2**	**6.7**	**70**	**85**	**0.32**	0.042 R	**0.40**	0.043 UJ
Aroclor 1262	mg/kg	3.9 U	0.043 U	0.76 U	0.042 U	0.19 U	0.75 U	180 U	1.8 U	0.72 U	0.72 U	0.74 U	0.76 U	0.76 U	0.71 U	0.75 U	0.72 U	18 U	18 U	0.035 U	0.042 U	0.035 U	0.043 UJ
Aroclor 1268	mg/kg	3.9 U	0.043 U	0.76 U	0.042 U	0.19 U	0.75 U	180 U	1.8 U	0.72 U	0.72 U	0.74 U	0.76 U	0.76 U	0.71 U	0.75 U	0.72 U	18 U	18 U	0.035 U	0.042 U	0.035 U	0.043 UJ
Aroclor, Total	mg/kg	**42**	0.043 U	**7.9**	**0.19**	**0.88**	**0.89**	**890**	**38**	**10.6**	**7.8**	**11.3**	**12.9**	**13.2**	**5.9**	**4.2**	**6.7**	**70**	**85**	**0.409**	0.042 U	**0.53**	0.043 UJ

Red: >100 ppm; Orange: >50 ppm; Yellow: >10 ppm; Green: >1 ppm; Bold - Detected; U - Not Detected;
J - Estimated; NA - Not Analyzed

Table 3-1
Summary of TBA PCB Analytical Results
Former Tombarello Property
Lawrence, Massachusetts

Sample Location		M-4		M-4E		M-4N		M-4S	M-4W	M-7			M-7E		M-7S		M-7W		MS-01		MS-02		MS-03	
Sample Depth (ft)		2 - 3	12 - 13	0 - 1	1 - 3	0 - 1	1 - 3	1 - 3	1 - 3	1 - 2	2 - 3	6 - 7	0 - 1	1 - 3	0 - 1	1 - 3	0 - 1	1 - 3	1 - 2	2 - 3	1 - 2	2 - 3	1 - 2	2 - 3
Sample Date		06/09/16	06/09/16	06/09/16	06/09/16	06/09/16	06/09/16	06/09/16	06/09/16	06/07/16	06/07/16	06/07/16	06/07/16	06/07/16	06/07/16	06/07/16	06/07/16	06/07/16	06/10/16	06/10/16	06/10/16	06/10/16	06/10/16	06/10/16
QC Identifier																								
Pesticides/PCBs	**Units**																							
Aroclor 1016	mg/kg	0.045 UJ	0.042 U	740 U	740 U	0.037 UJ	1.8 U	0.86 U	0.041 U	0.036 UJ	0.042 U	0.042 UJ	3.9 U	2.1 U	20 U	0.037 U	0.73 U	0.044 U	0.033 U	0.038 U	6.9 U	0.36 U	0.035 U	0.036 U
Aroclor 1221	mg/kg	0.045 UJ	0.042 U	740 U	740 U	0.037 UJ	1.8 U	0.86 U	0.041 U	0.036 UJ	0.042 U	0.042 UJ	3.9 U	2.1 U	20 U	0.037 U	0.73 U	0.044 U	0.033 U	0.038 U	6.9 U	0.36 U	0.035 U	0.036 U
Aroclor 1232	mg/kg	0.045 UJ	0.042 U	740 U	740 U	0.037 UJ	1.8 U	0.86 U	0.041 U	0.036 UJ	0.042 U	0.042 UJ	3.9 U	2.1 U	20 U	0.037 U	0.73 U	0.044 U	0.033 U	0.038 U	6.9 U	0.36 U	0.035 U	0.036 U
Aroclor 1242	mg/kg	0.045 UJ	0.042 U	740 U	740 U	0.037 UJ	1.8 U	0.86 U	0.041 U	0.036 UJ	0.042 U	0.042 UJ	3.9 U	2.1 U	20 U	0.037 U	0.73 U	0.044 U	0.033 U	0.038 U	6.9 U	0.36 U	0.035 U	0.036 U
Aroclor 1248	mg/kg	0.045 UJ	0.042 U	740 U	740 U	**0.38 J**	**5.3**	0.86 U	**0.25 J+**	**0.11 J-**	0.042 U	0.042 UJ	3.9 U	2.1 U	20 U	0.037 U	0.73 U	0.044 U	**0.029 J**	**0.23**	**13**	**1.3**	**0.23**	**0.34**
Aroclor 1254	mg/kg	0.045 UJ	0.042 U	740 U	740 U	0.037 UJ	1.8 U	0.86 U	0.041 U	0.036 UJ	0.042 U	0.042 UJ	3.9 U	2.1 U	20 U	0.037 U	0.73 U	0.044 U	0.033 U	0.038 U	6.9 U	0.36 U	0.035 U	0.036 U
Aroclor 1260	mg/kg	**0.054 J**	0.042 U	740 U	740 U	**0.13 J**	**15**	**8.2**	**0.60 J+**	0.036 UJ	0.042 U	0.042 UJ	**28**	**23**	**110**	**3.5**	**3.9**	**0.31**	**0.038**	**0.074**	**3.4 J**	**3.3**	**0.092**	**0.12**
Aroclor 1262	mg/kg	0.045 UJ	0.042 U	740 U	740 U	0.037 UJ	1.8 U	0.86 U	0.041 U	0.036 UJ	0.042 U	0.042 UJ	3.9 U	2.1 U	20 U	0.037 U	0.73 U	0.044 U	0.033 U	0.038 U	6.9 U	0.36 U	0.035 U	0.036 U
Aroclor 1268	mg/kg	0.045 UJ	0.042 U	740 U	740 U	0.037 UJ	1.8 U	0.86 U	0.041 U	0.036 UJ	0.042 U	0.042 UJ	3.9 U	2.1 U	20 U	0.037 U	0.73 U	0.044 U	0.033 U	0.038 U	6.9 U	0.36 U	0.035 U	0.036 U
Aroclor, Total	mg/kg	**0.054 J**	0.042 U	740 U	740 U	**0.51 J**	**20.3**	**8.2**	**0.85 J**	**0.11 J-**	0.042 U	0.042 UJ	**28**	**23**	**110**	**3.5**	**3.9**	**0.31**	**0.067 J**	**0.304**	**16.4 J**	**4.6**	**0.322**	**0.46**

Red: >100 ppm; Orange: >50 ppm; Yellow: >10 ppm; Green: >1 ppm; Bold - Detected; U - Not Detected;
J - Estimated; NA - Not Analyzed

Table 3-1
Summary of TBA PCB Analytical Results
Former Tombarello Property
Lawrence, Massachusetts
Page 6 of 10

Sample Location		NPA-01		NPA-02		NPA-03		NPA-04		NPA-05		NPA-06		NPA-07		P-13			P-13N		P-13S		
Sample Depth (ft)		0.5 - 2	2 - 3	0.5 - 2	2 - 3	0.5 - 2	2 - 3	0.5 - 2	2 - 3	0.5 - 2	2 - 3	0.5 - 2	2 - 3	0.5 - 2	2 - 3	1 - 2	2 - 3	9 - 10	0 - 1	1 - 3	0 - 1	1 - 3	
Sample Date		06/10/16	06/10/16	06/10/16	06/10/16	06/10/16	06/10/16	06/10/16	06/10/16	06/10/16	06/10/16	06/10/16	06/10/16	06/10/16	06/10/16	06/08/16	06/08/16	06/08/16	06/08/16	06/08/16	06/08/16	06/08/16	
QC Identifier																						FD	FD
Pesticides/PCBs	**Units**																						
Aroclor 1016	mg/kg	0.071 U	0.037 U	0.037 U	7.2 U	0.35 U	0.037 U	0.035 U	0.036 UJ	0.075 U	0.038 UJ	0.37 U	0.038 UJ	0.36 U	0.034 U	0.80 U	0.81 U	0.044 U	0.80 U	0.044 UJ	1.5 U	1.5 U	0.76 U
Aroclor 1221	mg/kg	0.071 U	0.037 U	0.037 U	7.2 U	0.35 U	0.037 U	0.035 U	0.036 UJ	0.075 U	0.038 UJ	0.37 U	0.038 UJ	0.36 U	0.034 U	0.80 U	0.81 U	0.044 U	0.80 U	0.044 UJ	1.5 U	1.5 U	0.76 U
Aroclor 1232	mg/kg	0.071 U	0.037 U	0.037 U	7.2 U	0.35 U	0.037 U	0.035 U	0.036 UJ	0.075 U	0.038 UJ	0.37 U	0.038 UJ	0.36 U	0.034 U	0.80 U	0.81 U	0.044 U	0.80 U	0.044 UJ	1.5 U	1.5 U	0.76 U
Aroclor 1242	mg/kg	0.071 U	0.037 U	0.037 U	7.2 U	0.35 U	0.037 U	0.035 U	0.036 UJ	0.075 U	0.038 UJ	0.37 U	0.038 UJ	0.36 U	0.034 U	0.80 U	0.81 U	0.044 U	0.80 U	0.044 UJ	1.5 U	1.5 U	0.76 U
Aroclor 1248	mg/kg	**0.21**	0.037 U	**0.13**	**7.1 J**	0.35 U	0.037 U	**0.032 J**	0.036 UJ	**0.099**	0.038 UJ	**0.62**	0.038 UJ	**1.4**	0.034 U	0.80 U	0.81 U	0.044 U	0.80 U	0.044 UJ	**6.9**	**8.4 J**	0.76 UJ
Aroclor 1254	mg/kg	0.071 U	0.037 U	0.037 U	7.2 U	0.35 U	0.037 U	0.035 U	0.036 UJ	0.075 U	0.038 UJ	0.37 U	0.038 UJ	0.36 U	0.034 U	0.80 U	0.81 U	0.044 U	0.80 U	0.044 UJ	1.5 U	1.5 U	0.76 U
Aroclor 1260	mg/kg	0.071 U	**0.044**	0.037 U	7.2 U	**0.25 J**	0.037 U	0.035 U	**0.026 J**	0.075 U	**4.5 J**	**1.5**	0.038 UJ	0.36 U	**0.092**	**0.88**	**5.6**	0.044 U	**3.0**	**0.073 J-**	**7.0**	**9.1**	**6.1**
Aroclor 1262	mg/kg	0.071 U	0.037 U	0.037 U	7.2 U	0.35 U	0.037 U	0.035 U	0.036 UJ	0.075 U	0.038 UJ	0.37 U	0.038 UJ	0.36 U	0.034 U	0.80 U	0.81 U	0.044 U	0.80 U	0.044 UJ	1.5 U	1.5 U	0.76 U
Aroclor 1268	mg/kg	0.071 U	0.037 U	0.037 U	7.2 U	0.35 U	0.037 U	0.035 U	0.036 UJ	0.075 U	0.038 UJ	0.37 U	0.038 UJ	0.36 U	0.034 U	0.80 U	0.81 U	0.044 U	0.80 U	0.044 UJ	1.5 U	1.5 U	0.76 U
Aroclor, Total	mg/kg	**0.21**	**0.044**	**0.13**	**7.1 J**	**0.25 J**	0.037 U	**0.032 J**	**0.026 J**	**0.099**	**4.5 J**	**2.12**	0.038 UJ	**1.4**	**0.092**	**0.88**	**5.6**	0.044 U	**3.0**	**0.073 J-**	**13.9**	**17.5 J**	**6.1**

Red: >100 ppm; Orange: >50 ppm; Yellow: >10 ppm; Green: >1 ppm; Bold - Detected; U - Not Detected;
J - Estimated; NA - Not Analyzed

Table 3-1
Summary of TBA PCB Analytical Results
Former Tombarello Property
Lawrence, Massachusetts

Sample Location		P-13W		SA-01	SB-3		SB-3E		SB-3N	SB-3S		SB-3W	SBB-3W	SS-01		SVA-01		SVA-02		SVA-03		
Sample Depth (ft)		0 - 1	1 - 3	1 - 3	2 - 3	5 - 6	0 - 1	1 - 3	1 - 3	0 - 1	1 - 3	0 - 1	1 - 3	1 - 2	7 - 8	0 - 1	1 - 3	0 - 1	1 - 3	0 - 1	1 - 3	
Sample Date		06/08/16	06/08/16	06/09/16	06/09/16	06/09/16	06/09/16	06/09/16	06/09/16	06/09/16	06/09/16	06/09/16	06/09/16	06/08/16	06/08/16	06/07/16	06/07/16	06/08/16	06/08/16	06/08/16	06/08/16	
QC Identifier																					FD	FD
Pesticides/PCBs	**Units**																					
Aroclor 1016	mg/kg	3.9 U	0.052 U	0.81 U	0.038 UJ	0.040 UJ	0.034 UJ	0.38 U	0.39 U	0.72 U	3.6 U	0.034 UJ	18 U	0.73 U	0.055 U	17 U	0.041 U	3.6 U	0.40 U	0.36 U	0.43 U	0.88 U
Aroclor 1221	mg/kg	3.9 U	0.052 U	0.81 U	0.038 UJ	0.040 UJ	0.034 UJ	0.38 U	0.39 U	0.72 U	3.6 U	0.034 UJ	18 U	0.73 U	0.055 U	17 U	0.041 U	3.6 U	0.40 U	0.36 U	0.43 U	0.88 U
Aroclor 1232	mg/kg	3.9 U	0.052 U	0.81 U	0.038 UJ	0.040 UJ	0.034 UJ	0.38 U	0.39 U	0.72 U	3.6 U	0.034 UJ	18 U	0.73 U	0.055 U	17 U	0.041 U	3.6 U	0.40 U	0.36 U	0.43 U	0.88 U
Aroclor 1242	mg/kg	3.9 U	0.052 U	0.81 U	0.038 UJ	0.040 UJ	0.034 UJ	0.38 U	0.39 U	0.72 U	3.6 U	0.034 UJ	18 U	0.73 U	0.055 U	17 U	0.041 U	3.6 U	0.40 U	0.36 U	0.43 U	0.88 U
Aroclor 1248	mg/kg	**19**	**0.17**	**1.4**	**0.054 J**	0.040 UJ	0.034 UJ	**0.89**	**0.53**	**1.9**	**4.9**	0.034 UJ	18 U	0.73 U	0.055 U	17 U	0.041 U	3.6 U	0.40 U	0.36 U	0.43 U	**4.5 J**
Aroclor 1254	mg/kg	3.9 U	0.052 U	0.81 U	0.038 UJ	0.040 UJ	0.034 UJ	0.38 U	0.39 U	0.72 U	3.6 U	0.034 UJ	18 U	0.73 U	0.055 U	17 U	0.041 U	3.6 U	0.40 U	0.36 U	0.43 U	0.88 U
Aroclor 1260	mg/kg	**29**	**0.20**	**5.3**	**0.41 J**	0.040 UJ	**0.18 J**	**5.1**	**4.1**	**5.7**	**25**	0.034 UJ	**62**	**8.4**	**0.095**	**100**	**0.32**	**37**	**1.2**	**2.2**	**3.4 J**	**10 J**
Aroclor 1262	mg/kg	3.9 U	0.052 U	0.81 U	0.038 UJ	0.040 UJ	0.034 UJ	0.38 U	0.39 U	0.72 U	3.6 U	0.034 UJ	18 U	0.73 U	0.055 U	17 U	0.041 U	3.6 U	0.40 U	0.36 U	0.43 U	0.88 U
Aroclor 1268	mg/kg	3.9 U	0.052 U	0.81 U	0.038 UJ	0.040 UJ	0.034 UJ	0.38 U	0.39 U	0.72 U	3.6 U	0.034 UJ	18 U	0.73 U	0.055 U	17 U	0.041 U	3.6 U	0.40 U	0.36 U	0.43 U	0.88 U
Aroclor, Total	mg/kg	**48**	**0.37**	**6.7**	**0.46 J**	0.040 UJ	**0.18 J**	**5.99**	**4.63**	**7.6**	**29.9**	0.034 UJ	**62**	**8.4**	**0.095**	**100**	**0.32**	**37**	**1.2**	**2.2**	**3.4 J**	**14.5 J**

Red: >100 ppm; Orange: >50 ppm; Yellow: >10 ppm; Green: >1 ppm; Bold - Detected; U - Not Detected;
J - Estimated; NA - Not Analyzed

Table 3-1
Summary of TBA PCB Analytical Results
Former Tombarello Property
Lawrence, Massachusetts
Page 8 of 10

Sample Location		SVA-04		SVA-05		SVA-06		SVA-07		SVA-08		TP-01		TP-02		TP-03		TP-04		TP-05		TP-06	
Sample Depth (ft)		0 - 1	1 - 3	0 - 1	1 - 3	0 - 1	1 - 3	0 - 1	1 - 3	0 - 1	1 - 3	0 - 1	2 - 3	0 - 1	3 - 4	0 - 1	4 - 5	0 - 1	5 - 6	0 - 1	4 - 5	0 - 1	9 - 10
Sample Date		06/08/16	06/08/16	06/08/16	06/08/16	06/08/16	06/08/16	06/09/16	06/09/16	06/09/16	06/09/16	06/15/16	06/15/16	06/15/16	06/15/16	06/15/16	06/15/16	06/15/16	06/15/16	06/15/16	06/15/16	06/14/16	06/14/16
QC Identifier																							
Pesticides/PCBs	**Units**																						
Aroclor 1016	mg/kg	0.36 U	0.042 U	3.8 U	190 U	0.38 U	0.73 U	0.36 U	0.37 U	0.034 UJ	0.37 U	17 U	0.36 U	18 U	18 U	0.037 U	3.8 U	0.074 U	0.38 U	0.036 U	3.9 U	19 U	7.4 U
Aroclor 1221	mg/kg	0.36 U	0.042 U	3.8 U	190 U	0.38 U	0.73 U	0.36 U	0.37 U	0.034 UJ	0.37 U	17 U	0.36 U	18 U	18 U	0.037 U	3.8 U	0.074 U	0.38 U	0.036 U	3.9 U	19 U	7.4 U
Aroclor 1232	mg/kg	0.36 U	0.042 U	3.8 U	190 U	0.38 U	0.73 U	0.36 U	0.37 U	0.034 UJ	0.37 U	17 U	0.36 U	18 U	18 U	0.037 U	3.8 U	0.074 U	0.38 U	0.036 U	3.9 U	19 U	7.4 U
Aroclor 1242	mg/kg	0.36 U	0.042 U	3.8 U	190 U	0.38 U	0.73 U	0.36 U	0.37 U	0.034 UJ	0.37 U	17 U	0.36 U	18 U	18 U	0.037 U	3.8 U	0.074 U	0.38 U	0.036 U	3.9 U	19 U	7.4 U
Aroclor 1248	mg/kg	0.36 U	0.042 U	**16**	190 U	0.38 U	**6.4**	**0.60**	**0.67**	**0.16 J**	**0.90**	**9.0 J**	**0.43**	**22**	**6.0 J**	**0.083**	**11**	**0.086**	**1.7**	**4.1**	**20**	**37**	**7.6**
Aroclor 1254	mg/kg	0.36 U	0.042 U	3.8 U	190 U	0.38 U	0.73 U	0.36 U	0.37 U	0.034 UJ	0.37 U	17 U	0.36 U	18 U	18 U	0.037 U	3.8 U	0.074 U	0.38 U	0.036 U	3.9 U	19 U	7.4 U
Aroclor 1260	mg/kg	**2.3**	**0.23**	**27**	**1300**	**1.3**	**5.0**	**1.9**	**2.3**	**0.33 J**	**2.7**	**18**	**3.8**	**62**	**22**	**2.4**	**34**	**0.28**	**4.7**	**7.9 J**	**14**	**41**	**15**
Aroclor 1262	mg/kg	0.36 U	0.042 U	3.8 U	190 U	0.38 U	0.73 U	0.36 U	0.37 U	0.034 UJ	0.37 U	17 U	0.36 U	18 U	18 U	0.037 U	3.8 U	0.074 U	0.38 U	0.036 U	3.9 U	19 U	7.4 U
Aroclor 1268	mg/kg	0.36 U	0.042 U	3.8 U	190 U	0.38 U	0.73 U	0.36 U	0.37 U	0.034 UJ	0.37 U	17 U	0.36 U	18 U	18 U	0.037 U	3.8 U	0.074 U	0.38 U	0.036 U	3.9 U	19 U	7.4 U
Aroclor, Total	mg/kg	**2.3**	**0.23**	**43**	**1300**	**1.3**	**11.4**	**2.5**	**2.97**	**0.49 J**	**3.6**	**27 J**	**4.23**	**84**	**28 J**	**2.4**	**45**	**0.366**	**6.4**	**12 J**	**34**	**78**	**22.6**

Table 3-1
Summary of TBA PCB Analytical Results
Former Tombarello Property
Lawrence, Massachusetts
Page 9 of 10

Sample Location		TP-07		TP-08			TP-09		TP-10		TP-11		TP-12		TP-13		TP-14		TP-15		TP-16		TP-17	
Sample Depth (ft)		0 - 1	7 - 8	0 - 1	9 - 10		0 - 1	9 - 10	0 - 1	6 - 7	0 - 1	5 - 6	0 - 1	6 - 7	0 - 1	5 - 6	0 - 1	5 - 6	0 - 1	8 - 9	0 - 1	8 - 9	0 - 1	3 - 4
Sample Date		06/14/16	06/14/16	06/14/16	06/14/16		06/14/16	06/14/16	06/14/16	06/14/16	06/16/16	06/16/16	06/15/16	06/15/16	06/15/16	06/15/16	06/15/16	06/15/16	06/14/16	06/14/16	06/14/16	06/14/16	06/15/16	06/15/16
QC Identifier					FD	FD																		
Pesticides/PCBs	**Units**																							
Aroclor 1016	mg/kg	0.79 U	0.79 U	19 U	40 U	22 U	7.6 U	9.3 U	0.38 U	0.40 U	0.73 U	7.7 U	0.36 U	0.37 U	0.36 U	0.75 U	0.036 U	0.19 U	0.36 U	0.37 U	7.3 U	19 U	17 U	18 U
Aroclor 1221	mg/kg	0.79 U	0.79 U	19 U	40 U	22 U	7.6 U	9.3 U	0.38 U	0.40 U	0.73 U	7.7 U	0.36 U	0.37 U	0.36 U	0.75 U	0.036 U	0.19 U	0.36 U	0.37 U	7.3 U	19 U	17 U	18 U
Aroclor 1232	mg/kg	0.79 U	0.79 U	19 U	40 U	22 U	7.6 U	9.3 U	0.38 U	0.40 U	0.73 U	7.7 U	0.36 U	0.37 U	0.36 U	0.75 U	0.036 U	0.19 U	0.36 U	0.37 U	7.3 U	19 U	17 U	18 U
Aroclor 1242	mg/kg	0.79 U	0.79 U	19 U	40 U	22 U	7.6 U	9.3 U	0.38 U	0.40 U	0.73 U	7.7 U	0.36 U	0.37 U	0.36 U	0.75 U	0.036 U	0.19 U	0.36 U	0.37 U	7.3 U	19 U	17 U	18 U
Aroclor 1248	mg/kg	**6.1**	**8.0**	**15 J**	**26 J**	**27**	7.6 U	9.3 U	**0.64**	**2.1**	**3.9**	**36**	**2.6**	**3.2**	**2.2**	**8.0**	**2.1**	**0.97**	**2.1**	**1.9**	**47**	**19**	**8.7 J**	**6.1 J**
Aroclor 1254	mg/kg	0.79 U	0.79 U	19 U	40 U	22 U	7.6 U	9.3 U	0.38 U	0.40 U	0.73 U	7.7 U	0.36 U	0.37 U	0.36 U	0.75 U	0.036 U	0.19 U	0.36 U	0.37 U	7.3 U	19 U	17 U	18 U
Aroclor 1260	mg/kg	**2.9**	**3.1**	**54**	**50**	**81**	**12**	**16**	**3.9**	**3.1**	0.73 U	**19**	**2.1**	**2.1**	**1.3**	**4.3**	**4.3 J**	**1.3**	**3.2**	**5.1**	**23**	19 U	**57**	**73**
Aroclor 1262	mg/kg	0.79 U	0.79 U	19 U	40 U	22 U	7.6 U	9.3 U	0.38 U	0.40 U	0.73 U	7.7 U	0.36 U	0.37 U	0.36 U	0.75 U	0.036 U	0.19 U	0.36 U	0.37 U	7.3 U	19 U	17 U	18 U
Aroclor 1268	mg/kg	0.79 U	0.79 U	19 U	40 U	22 U	7.6 U	9.3 U	0.38 U	0.40 U	0.73 U	7.7 U	0.36 U	0.37 U	0.36 U	0.75 U	0.036 U	0.19 U	0.36 U	0.37 U	7.3 U	19 U	17 U	18 U
Aroclor, Total	mg/kg	**9.0**	**11.1**	**69 J**	**76 J**	**108**	**12**	**16**	**4.54**	**5.2**	**3.9**	**55**	**4.7**	**5.3**	**3.5**	**12.3**	**6.4 J**	**2.27**	**5.3**	**7.0**	**70**	**19**	**65.7 J**	**79.1 J**

Red: >100 ppm; Orange: >50 ppm; Yellow: >10 ppm; Green: >1 ppm; Bold - Detected; U - Not Detected;
J - Estimated; NA - Not Analyzed

Table 3-1
Summary of TBA PCB Analytical Results
Former Tombarello Property
Lawrence, Massachusetts

Sample Location		TP-18		TP-19		TP-20			WSB-6		WSB-6N		WSB-6W	
Sample Depth (ft)		0 - 1	3 - 4	0 - 1	6 - 7	0 - 1		5 - 6	0 - 1	1 - 3	0 - 1	1 - 3	0 - 1	1 - 3
Sample Date		06/16/16	06/16/16	06/15/16	06/15/16	06/14/16		06/14/16	06/07/16	06/07/16	06/07/16	06/07/16	06/07/16	06/07/16
QC Identifier						FD	FD							
Pesticides/PCBs	**Units**													
Aroclor 1016	mg/kg	0.36 U	0.034 U	0.36 U	0.37 U	0.35 U	0.35 U	0.36 U	0.71 U	0.039 U	0.71 U	0.040 U	0.72 U	0.044 U
Aroclor 1221	mg/kg	0.36 U	0.034 U	0.36 U	0.37 U	0.35 U	0.35 U	0.36 U	0.71 U	0.039 U	0.71 U	0.040 U	0.72 U	0.044 U
Aroclor 1232	mg/kg	0.36 U	0.034 U	0.36 U	0.37 U	0.35 U	0.35 U	0.36 U	0.71 U	0.039 U	0.71 U	0.040 U	0.72 U	0.044 U
Aroclor 1242	mg/kg	0.36 U	0.034 U	0.36 U	0.37 U	0.35 U	0.35 U	0.36 U	0.71 U	0.039 U	0.71 U	0.040 U	0.72 U	0.044 U
Aroclor 1248	mg/kg	**2.8**	0.034 U	**3.1**	**3.6**	**1.5**	**1.4**	**2.4**	0.71 U	0.039 U	0.71 U	0.040 U	0.72 U	0.044 U
Aroclor 1254	mg/kg	0.36 U	0.034 U	0.36 U	0.37 U	0.35 U	0.35 U	0.36 U	0.71 U	0.039 U	0.71 U	0.040 U	0.72 U	0.044 U
Aroclor 1260	mg/kg	**1.8**	**0.19**	**2.3**	**2.2**	**3.2**	**2.4**	**4.5**	**5.2**	**0.099**	**5.7**	**0.11**	**5.5**	0.044 U
Aroclor 1262	mg/kg	0.36 U	0.034 U	0.36 U	0.37 U	0.35 U	0.35 U	0.36 U	0.71 U	0.039 U	0.71 U	0.040 U	0.72 U	0.044 U
Aroclor 1268	mg/kg	0.36 U	0.034 U	0.36 U	0.37 U	0.35 U	0.35 U	0.36 U	0.71 U	0.039 U	0.71 U	0.040 U	0.72 U	0.044 U
Aroclor, Total	mg/kg	**4.6**	**0.19**	**5.4**	**5.8**	**4.7**	**3.8**	**6.9**	**5.2**	**0.099**	**5.7**	**0.11**	**5.5**	0.044 U

Red: >100 ppm; Orange: >50 ppm; Yellow: >10 ppm; Green: >1 ppm; Bold - Detected; U - Not Detected;
J - Estimated; NA - Not Analyzed

Table 3-2
Historical PCB Analytical Results
Former Tombarello Property
Lawrence, Massachusetts

Sample Location		A-05	A-06	A-07	AB13		AB35		B-04	B-05	B-06	B-07	B-08	B-09	B4	BC13		BC35		BLR-TP1		BLR-TP2
Sample Depth (ft)		0 - 0.5	0 - 0.5	0 - 0.5	0 - 1	1 - 3	0 - 1	1 - 3	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 1	0 - 1	1 - 3	0 - 1	1 - 3	1.5 - 2	3 - 4.5	0 - 1
Sample Date		10/01/10	10/01/10	10/01/10	07/14/03	07/14/03	07/14/03	07/14/03	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	09/01/01	07/14/03	07/14/03	07/14/03	07/14/03	09/01/01	09/01/01	09/01/01
QC Identifier																						
	Units																					
Aroclor 1016	mg/kg	ND	ND	ND	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	**3.2**	**2.1**	NA
Aroclor 1242	mg/kg	ND	ND	ND	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1248	mg/kg	ND	ND	ND	NA	NA	NA	NA	ND	**24**	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1254	mg/kg	ND	ND	ND	NA	NA	NA	NA	ND	ND	ND	ND	ND	**2.0**	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1260	mg/kg	**19**	**0.91**	**2.1**	NA	NA	NA	NA	ND	ND	ND	**9.8**	**4.0**	**2.3**	**0.85**	NA	NA	NA	NA	**2.8**	**3.6**	**2.0**
Aroclor 1262	mg/kg	ND	ND	ND	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1268	mg/kg	ND	ND	ND	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor, Total	mg/kg	**19**	**0.91**	**2.1**	**1.1**	0.6 U	**17.2**	0.7 U	ND	**24**	ND	**9.8**	**4.0**	**4.3**	**0.85**	**10.2**	**1.2**	**3.9**	0.7 U	**6.0**	**5.7**	**2.0**

Red: >100 ppm; Orange: >50 ppm; Yellow: >10 ppm; Green: >1 ppm; Bold - Detected; U - Not Detected;
J - Estimated; NA - Not Analyzed

Table 3-2
Historical PCB Analytical Results
Former Tombarello Property
Lawrence, Massachusetts

Sample Location		BRM-TP1	BRM-TP3	BRM-TP4		BRM-TP5	BRM-TP6	BRM-TP7		BRM-TP8		BRM-TP10	BRM-TP9/9A	C-05	C-06	C-07	C-08	C-09	CD13		CD35		D-05	D-06
Sample Depth (ft)		4 - 6	9 - 11	3.5 - 5	6 - 7	9 - 11	11 - 13	3 - 6	12 - 15	4 - 5	5 - 6	0 - 1	4 - 6	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 1	1 - 3	0 - 1	1 - 3	0 - 0.5	0 - 0.5
Sample Date		09/01/01	09/01/01	09/01/01	09/01/01	09/01/01	09/01/01	09/01/01	09/01/01	09/01/01	09/01/01	09/01/01	09/01/01	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	07/14/03	07/14/03	07/14/03	07/14/03	10/01/10	10/01/10
QC Identifier																								
	Units																							
Aroclor 1016	mg/kg	NA	**2.6**	NA	**9.3**	**11**	**4.5**	NA	**0.37**	NA	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	NA	ND	ND
Aroclor 1242	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	NA	ND	ND
Aroclor 1248	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	NA	ND	ND
Aroclor 1254	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	**11**	**0.68**	**0.86**	NA	ND	ND	ND	ND	ND	NA	NA	NA	NA	ND	ND
Aroclor 1260	mg/kg	**13**	**9.3**	**78**	**62**	**60**	**11**	**9.9**	**0.57**	NA	**0.47**	**1.1**	**42**	**3.5**	**3.9**	**4.5**	**9.2**	**1.4**	NA	NA	NA	NA	**2.1**	**3.9**
Aroclor 1262	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	NA	ND	ND
Aroclor 1268	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	NA	ND	ND
Aroclor, Total	mg/kg	**13**	**11.9**	**78**	**71.3**	**71**	**15.5**	**9.9**	**0.94**	**11**	**1.15**	**1.96**	**42**	**3.5**	**3.9**	**4.5**	**9.2**	**1.4**	**22.1**	0.6 U	**4.6**	**200**	**2.1**	**3.9**

Red: >100 ppm; Orange: >50 ppm; Yellow: >10 ppm; Green: >1 ppm; Bold - Detected; U - Not Detected;
J - Estimated; NA - Not Analyzed

Table 3-2
Historical PCB Analytical Results
Former Tombarello Property
Lawrence, Massachusetts

Sample Location		D-07	D-08	D-09	D5	DE13		DE35		E-02	E-05	E-07	E-08	E4	EF13		EF35		F-08	F2	F4	FG13	
Sample Depth (ft)		0 - 0.5	0 - 0.5	0 - 0.5	0 - 1	0 - 1	1 - 3	0 - 1	1 - 3	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 1	0 - 1	1 - 3	0 - 1	1 - 3	0 - 0.5	0 - 1	0 - 1	0 - 1	1 - 3
Sample Date		10/01/10	10/01/10	10/01/10	09/01/01	07/14/03	07/14/03	07/14/03	07/14/03	10/01/10	10/01/10	10/01/10	10/01/10	09/01/01	07/14/03	07/14/03	07/14/03	07/14/03	10/01/10	09/01/01	09/01/01	07/14/03	07/14/03
QC Identifier																							
	Units																						
Aroclor 1016	mg/kg	ND	ND	ND	NA	NA	NA	NA	NA	ND	ND	ND	ND	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA
Aroclor 1242	mg/kg	ND	ND	ND	NA	NA	NA	NA	NA	ND	ND	ND	ND	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA
Aroclor 1248	mg/kg	ND	ND	ND	NA	NA	NA	NA	NA	ND	ND	ND	ND	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA
Aroclor 1254	mg/kg	ND	ND	ND	NA	NA	NA	NA	NA	ND	ND	ND	ND	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA
Aroclor 1260	mg/kg	**4.0**	**0.9**	**1.5**	**52**	NA	NA	NA	NA	**2.2**	**1.1**	**2.4**	**1.5**	**15**	NA	NA	NA	NA	**3.4**	**15**	**26**	NA	NA
Aroclor 1262	mg/kg	ND	ND	ND	NA	NA	NA	NA	NA	ND	ND	ND	ND	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA
Aroclor 1268	mg/kg	ND	ND	ND	NA	NA	NA	NA	NA	ND	ND	ND	ND	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA
Aroclor, Total	mg/kg	**4.0**	**0.9**	**1.5**	**52**	**45**	0.60 U	**3.4**	0.60 U	**2.2**	**1.1**	**2.4**	**1.5**	**15**	**11**	0.60 U	**20**	**7.8**	**3.4**	**15**	**26**	**38**	0.60 U

Red: >100 ppm; Orange: >50 ppm; Yellow: >10 ppm; Green: >1 ppm; Bold - Detected; U - Not Detected;
J - Estimated; NA - Not Analyzed

Sample Location		FG35			G-08	G3	G4	GH24		GH46		H-08	H-09	H2	H3	H6	HI24		HI46		I-08	I-09	I3	I4
Sample Depth (ft)		0 - 1	1 - 3		0 - 0.5	0 - 1	0 - 1	0 - 1	1 - 3	0 - 1	1 - 3	0 - 0.5	0 - 0.5	0 - 1	0 - 1	0 - 1	0 - 1	1 - 3	0 - 1	1 - 3	0 - 0.5	0 - 0.5	0 - 1	0 - 1
Sample Date		07/14/03	07/14/03	07/15/03	10/01/10	09/01/01	09/01/01	07/14/03	07/14/03	07/14/03	07/14/03	10/01/10	10/01/10	09/01/01	09/01/01	09/01/01	07/14/03	07/14/03	07/14/03	07/14/03	10/01/10	10/01/10	09/01/01	09/01/01
QC Identifier			FD	FD																				
	Units																							
Aroclor 1016	mg/kg	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	ND	ND	NA	**6.5**	**8.7**	NA	NA	NA	NA	ND	ND	NA	**0.81**
Aroclor 1242	mg/kg	NA	NA	NA	ND	**64**	NA	NA	NA	NA	NA	ND	ND	NA	NA	NA	NA	NA	NA	NA	ND	ND	NA	NA
Aroclor 1248	mg/kg	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	ND	ND	NA	NA	NA	NA	NA	NA	NA	ND	ND	NA	NA
Aroclor 1254	mg/kg	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	ND	ND	NA	NA	NA	NA	NA	NA	NA	ND	ND	NA	NA
Aroclor 1260	mg/kg	NA	NA	NA	**3.2**	NA	**21**	NA	NA	NA	NA	**2.0**	**1.7**	**11**	**37.0**	**8.2**	NA	NA	NA	NA	**4.7**	**5.6**	**43**	**2.2**
Aroclor 1262	mg/kg	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	ND	ND	NA	NA	NA	NA	NA	NA	NA	ND	ND	NA	NA
Aroclor 1268	mg/kg	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	ND	ND	NA	NA	NA	NA	NA	NA	NA	ND	ND	NA	NA
Aroclor, Total	mg/kg	**66**	**38**	0.60 U	**3.2**	**64**	**21**	**3.7**	0.60 U	**28**	0.50 U	**2.0**	**1.7**	**11**	**43.5**	**16.9**	**2.8**	0.60 U	**11.4**	**1.5**	**4.7**	**5.6**	**43**	**3.01**

Red: >100 ppm; Orange: >50 ppm; Yellow: >10 ppm; Green: >1 ppm; Bold - Detected; U - Not Detected;
J - Estimated; NA - Not Analyzed

Table 3-2
Historical PCB Analytical Results
Former Tombarello Property
Lawrence, Massachusetts
Page 5 of 17

Sample Location		IJ24		IJ46		J-04	J-05	J-08	J-09	J1	J5	JK24		JK46		K-08-01	K-08-02	K-04	K-05	K-06	K-07	K-08	K-09
Sample Depth (ft)		0 - 1	1 - 3	0 - 1	1 - 3	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 1	0 - 1	0 - 1	1 - 3	0 - 1	1 - 3	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5
Sample Date		07/14/03	07/14/03	07/14/03	07/14/03	10/01/10	10/01/10	10/01/10	10/01/10	09/01/01	09/01/01	07/14/03	07/14/03	07/14/03	07/14/03	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10
QC Identifier																							
	Units																						
Aroclor 1016	mg/kg	NA	NA	NA	NA	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor 1242	mg/kg	NA	NA	NA	NA	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor 1248	mg/kg	NA	NA	NA	NA	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor 1254	mg/kg	NA	NA	NA	NA	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	**2.6**	ND	ND
Aroclor 1260	mg/kg	NA	NA	NA	NA	**12**	**1.5**	**5.2**	**17**	**2.6**	**0.74**	NA	NA	NA	NA	**15**	**3.4**	**27**	**2.5**	**4.1**	**9.8**	**15**	**2.2**
Aroclor 1262	mg/kg	NA	NA	NA	NA	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor 1268	mg/kg	NA	NA	NA	NA	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor, Total	mg/kg	**18.1**	0.60 U	**15.2**	0.60 U	**12**	**1.5**	**5.2**	**17**	**2.6**	**0.74**	**7.0**	3.5 U	**37.8**	**4.0**	**15**	**3.4**	**27**	**2.5**	**4.1**	**12.4**	**15**	**2.2**

Red: >100 ppm; Orange: >50 ppm; Yellow: >10 ppm; Green: >1 ppm; Bold - Detected; U - Not Detected;
J - Estimated; NA - Not Analyzed

Table 3-2
Historical PCB Analytical Results
Former Tombarello Property
Lawrence, Massachusetts
Page 6 of 17

Sample Location		KL24		L-04	L-05	L-06	L-07	L-08	L-09	L5	LM24		M-03	M-04	M-05	M-06	M-07	M-08	M-09	M2	M3	M4	N-03	N-04
Sample Depth (ft)		0 - 1	1 - 3	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 1	0 - 1	1 - 3	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 1	0 - 1	0 - 1	0 - 0.5	0 - 0.5
Sample Date		07/14/03	07/14/03	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	09/01/01	07/14/03	07/14/03	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	09/01/01	09/01/01	09/01/01	10/01/10	10/01/10
QC Identifier																								
	Units																							
Aroclor 1016	mg/kg	NA	NA	ND	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND
Aroclor 1242	mg/kg	NA	NA	ND	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	**66**	ND	ND
Aroclor 1248	mg/kg	NA	NA	**0.92**	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	**11**	ND	ND	NA	NA	NA	**5.1**	**1.2**
Aroclor 1254	mg/kg	NA	NA	**2.5**	**1.5**	ND	ND	ND	ND	NA	NA	NA	**11**	**9.9**	**2.0**	ND	**18**	**5.1**	ND	NA	**9.2**	NA	**7.1**	**7.5**
Aroclor 1260	mg/kg	NA	NA	**3.5**	**2.2**	**16**	**25**	**40**	**7.7**	**3.8**	NA	NA	**15**	**5.9**	**3.5**	**26**	**46**	**14**	**6.1**	**1.4**	**2.4**	NA	**4.8**	**6.4**
Aroclor 1262	mg/kg	NA	NA	ND	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND
Aroclor 1268	mg/kg	NA	NA	ND	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND
Aroclor, Total	mg/kg	**4.9**	**5.9**	**6.92**	**3.7**	**16**	**25**	**40**	**7.7**	**3.8**	**25.7**	0.60 U	**26**	**15.8**	**5.5**	**26**	**75**	**19.1**	**6.1**	**1.4**	**11.6**	**66**	**17**	**15.1**

Red: >100 ppm; Orange: >50 ppm; Yellow: >10 ppm; Green: >1 ppm; Bold - Detected; U - Not Detected;
J - Estimated; NA - Not Analyzed

Sample Location		N-05	N-07	N-08	N-09	N-10	N-11	N-12	O-03	O-04	O-05	O-06	O-07	O-08	O-09	O-10	O-11	O-12	O-13	P-03	P-04	P-05	P-06	P-10
Sample Depth (ft)		0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5
Sample Date		10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	09/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10
QC Identifier																								
	Units																							
Aroclor 1016	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor 1242	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor 1248	mg/kg	ND	**7.2**	ND	ND	ND	ND	**20**	ND	ND	ND	ND	**5.7**	ND	ND	ND	ND	**2.2**	**5.2**	ND	ND	ND	ND	**1.0**
Aroclor 1254	mg/kg	**1.4**	**4.8**	**11**	ND	**7.0**	**3.7**	**7.0**	**2.0**	**2.6**	ND	**1.1**	**14**	**6.7**	ND	**4.1**	**4.2**	**2.8**	**3.0**	**4.1**	**2.6**	**1.8**	ND	**6.5**
Aroclor 1260	mg/kg	**2.2**	**4.2**	**21**	**3.2**	**8.2**	**4.3**	**4.4**	**3.7**	**4.2**	ND	**1.8**	**6.6**	**11**	**3.7**	**3.7**	**4.4**	**3.5**	**3.5**	**6.5**	**3.7**	**3.4**	**4.2**	**17**
Aroclor 1262	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor 1268	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor, Total	mg/kg	**3.6**	**16.2**	**32**	**3.2**	**15.2**	**8.0**	**31.4**	**5.7**	**6.8**	ND	**2.9**	**26.3**	**17.7**	**3.7**	**7.8**	**8.6**	**8.5**	**11.7**	**10.6**	**6.3**	**5.2**	**4.2**	**24.5**

Red: >100 ppm; Orange: >50 ppm; Yellow: >10 ppm; Green: >1 ppm; Bold - Detected; U - Not Detected;
J - Estimated; NA - Not Analyzed

Table 3-2
Historical PCB Analytical Results
Former Tombarello Property
Lawrence, Massachusetts

Sample Location		P-11	P-12	P-13	Q-03	Q-04	Q-05	Q-06	Q-10	Q-12	Q-13	R-03	R-04	R-05	R-06	R-07	R-08	R-10	R-11	R-12	R-13	S-04-01	S-04-02	S-07-01
Sample Depth (ft)		0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5
Sample Date		10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10
QC Identifier																								
	Units																							
Aroclor 1016	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor 1242	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor 1248	mg/kg	**0.79**	**2.1**	ND	ND	ND	ND	ND	**1.2**	ND	ND	ND	ND	ND	ND	ND	ND	**4.1**	**6.9**	**8.8**	ND	ND	ND	ND
Aroclor 1254	mg/kg	**1.8**	**4.9**	**7.7**	**2.8**	**4.0**	**1.3**	**3.1**	**1.8**	**6.3**	**5.0**	**3.2**	**1.2**	**4.6**	ND	**2.1**	**3.2**	**2.7**	**4.1**	**11**	**1.5**	ND	**1.1**	**11**
Aroclor 1260	mg/kg	**2.4**	**12**	**57**	**2.6**	**4.0**	**2.1**	**4.4**	**2.1**	**4.0**	**2.2**	**3.4**	**1.1**	**5.2**	**24**	**3.4**	**2.7**	**3.3**	**4.8**	**19**	**3.3**	**1.6**	**1.3**	**7.4**
Aroclor 1262	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor 1268	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor, Total	mg/kg	**4.99**	**19**	**64.7**	**5.4**	**8.0**	**3.4**	**7.5**	**5.1**	**10.3**	**7.2**	**6.6**	**2.3**	**9.8**	**24**	**5.5**	**5.9**	**10.1**	**15.8**	**38.8**	**4.8**	**1.6**	**2.4**	**18.4**

Red: >100 ppm; Orange: >50 ppm; Yellow: >10 ppm; Green: >1 ppm; Bold - Detected; U - Not Detected;
J - Estimated; NA - Not Analyzed

Table 3-2
Historical PCB Analytical Results
Former Tombarello Property
Lawrence, Massachusetts

Sample Location		S-08-01	S-03	S-04	S-05	S-06	S-07	S-08	S-8	S-09	S-9	S-10	S-11	S-12	S-13	SB1-S1	SB1	SB2	SB3	SB4	SB5-E	SB5-N	SB5-S	SB5-W
Sample Depth (ft)		0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 2	0 - 2	0 - 2	0 - 2	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5
Sample Date		10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	07/08/98	10/01/10	07/08/98	10/01/10	10/01/10	10/01/10	10/01/10	06/02/99	07/08/98	07/08/98	07/08/98	07/08/98	04/28/99	04/28/99	04/28/99	04/28/99
QC Identifier																								
	Units																							
Aroclor 1016	mg/kg	ND	ND	ND	ND	ND	ND	ND	0.33 U	ND	0.333 U	ND	ND	ND	ND	NA	0.166 U	0.033 U	3.330 U	0.033 U	0.1 U	1 U	0.1 U	0.1 U
Aroclor 1242	mg/kg	ND	ND	ND	ND	ND	ND	ND	0.33 U	ND	0.333 U	ND	ND	ND	ND	NA	0.166 U	0.033 U	3.330 U	0.033 U	0.1 U	1 U	0.1 U	0.1 U
Aroclor 1248	mg/kg	ND	ND	ND	ND	ND	ND	**2.1**	**7.193**	ND	0.333 U	ND	**9.0**	**13**	**5.9**	0.1 U	**3.097**	**0.619**	3.330 U	0.033 U	0.2 U	1 U	0.1 U	2 U
Aroclor 1254	mg/kg	**18**	ND	ND	**2.6**	**2.0**	ND	**4.9**	0.33 U	**0.97**	0.333 U	**2.0**	**4.2**	**4.1**	**11**	NA	0.166 U	0.033 U	3.330 U	0.033 U	**2.0**	**2.1**	0.1 U	**2.3**
Aroclor 1260	mg/kg	**5.2**	**3.6**	**11**	**5.1**	**1.9**	**1.3**	**12**	**3.397**	**1.3**	0.333 U	**1.8**	**2.3**	**3.1**	**14**	0.1 U	**3.913**	**0.765**	**59.3**	**0.609**	0.1 U	0.1 U	0.1 U	0.1 U
Aroclor 1262	mg/kg	ND	ND	ND	ND	ND	ND	ND	NA	0 U	NA	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1268	mg/kg	ND	ND	ND	ND	ND	ND	ND	NA	0 U	NA	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor, Total	mg/kg	**23.2**	**3.6**	**11**	**7.7**	**3.9**	**1.3**	**19**	**10.6**	**2.27**	0.333 U	**3.8**	**15.5**	**20.2**	**30.9**	0.2 U	**7.01**	**1.385**	**59.3**	**0.609**	**2.0**	**2.1**	0.1 U	**2.3**

Red: >100 ppm; Orange: >50 ppm; Yellow: >10 ppm; Green: >1 ppm; Bold - Detected; U - Not Detected;
J - Estimated; NA - Not Analyzed

Table 3-2
Historical PCB Analytical Results
Former Tombarello Property
Lawrence, Massachusetts

Sample Location		SB6-E1	SB6-N1	SB6-SS1	SB6-SS2	SB6-W1	SB6	SCC-1	SM2-3	SS-7-E	SS-7-N	SS-7-S	SS-7-W	SS-7		SS-8		SS-9	SS8-E	SS8-N	SS8-S	SS8-W	T-11-01	T-12-01
Sample Depth (ft)		0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 2	0 - 1	0 - 1	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5		0 - 0.5		0 - 0.5	0 - 0.05	0 - 0.05	0 - 0.05	0 - 0.05	0 - 0.5	0 - 0.5
Sample Date		06/02/99	06/02/99	04/28/99	06/02/99	06/02/99	07/08/98	09/01/01	09/01/01	04/28/99	04/28/99	04/28/99	04/28/99	04/28/99		07/08/98	04/28/99	07/08/98	04/28/99	04/28/99	04/28/99	04/28/99	10/01/10	10/01/10
QC Identifier														FD	FD	FD	FD							
	Units																							
Aroclor 1016	mg/kg	NA	NA	NA	NA	NA	0.033 U	NA	NA	NA	NA	NA	NA	NA	NA	0.1 U	NA	NA	0.1 U	0.1 U	0.1 U	0.1 U	ND	ND
Aroclor 1242	mg/kg	NA	NA	NA	NA	NA	0.033 U	NA	NA	NA	NA	NA	NA	NA	NA	0.1 U	NA	NA	0.1 U	0.1 U	0.1 U	0.1 U	ND	ND
Aroclor 1248	mg/kg	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.033 U	NA	NA	0.1 U	0.1 U	0.1 U	0.1 U	**3.696**	0.1 U	**7.193**	0.1 U	0.33 U	0.1 U	0.1 U	0.1 U	0.1 U	ND	**5.8**
Aroclor 1254	mg/kg	NA	NA	NA	NA	NA	0.033 U	NA	NA	NA	NA	NA	NA	NA	NA	**0.95**	NA	NA	**2.3**	**3.0**	**3.4**	**2.3**	**2.6**	**8.6**
Aroclor 1260	mg/kg	**3.8**	**92**	**57**	0.1 U	0.1 U	**0.679**	**3.2**	**2.8**	**3.5**	**2.6**	**3.2**	**2.9**	**2.707**	**3.2**	**3.397**	0.1 U	0.33 U	0.1 U	0.1 U	0.1 U	0.1 U	**2.4**	**3.1**
Aroclor 1262	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND
Aroclor 1268	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND
Aroclor, Total	mg/kg	**3.8**	**92**	**57**	0.2 U	0.2 U	**0.679**	**3.2**	**2.8**	**3.5**	**2.6**	**3.2**	**2.9**	**6.403**	**3.2**	**10.59**	**0.95**	NA	**2.3**	**3.0**	**3.4**	**2.3**	**5.0**	**17.5**

Red: >100 ppm; Orange: >50 ppm; Yellow: >10 ppm; Green: >1 ppm; Bold - Detected; U - Not Detected;
J - Estimated; NA - Not Analyzed

Table 3-2
Historical PCB Analytical Results
Former Tombarello Property
Lawrence, Massachusetts

Sample Location		T-12-02	T-12-03	T-03	T-04	T-05	T-09	T-10	T-11	T-12	T-13	U-09-01	U-10-01	U-10-02	U-11-01	U-11-02	U-12-01	U-12-02	U-13-01	U-03	U-04	U-05	U-07	U-09
Sample Depth (ft)		0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5
Sample Date		10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10
QC Identifier																								
	Units																							
Aroclor 1016	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor 1242	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor 1248	mg/kg	**8.6**	**7.4**	ND	ND	ND	**2.2**	ND	ND	**4.5**	ND	ND	ND	ND	ND	**1.1**	**5.1**	**9.9**	**16**	ND	ND	ND	ND	**1.9**
Aroclor 1254	mg/kg	**5.1**	**6.8**	**1.8**	ND	**0.94**	**8.8**	**3.6**	**2.5**	**6.5**	**5.4**	**9.0**	**26**	**11**	**5.7**	**2.9**	**5.6**	**7.9**	**6.0**	ND	**0.93**	ND	**1.5**	**5.6**
Aroclor 1260	mg/kg	**2.5**	**2.8**	**2.6**	**1.1**	**1.6**	**4.0**	**3.5**	**2.1**	**3.2**	**7.8**	**2.5**	ND	**3.0**	**12**	**2.4**	**2.7**	**2.8**	**2.3**	**0.98**	**1.2**	ND	**1.6**	**2.0**
Aroclor 1262	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor 1268	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor, Total	mg/kg	**16.2**	**17**	**4.4**	**1.1**	**2.5**	**15**	**7.1**	**4.6**	**14.2**	**13.2**	**11.5**	**26**	**14**	**17.7**	**6.4**	**13.4**	**20.6**	**24.3**	**0.98**	**2.13**	ND	**3.1**	**9.5**

Red: >100 ppm; Orange: >50 ppm; Yellow: >10 ppm; Green: >1 ppm; Bold - Detected; U - Not Detected;
J - Estimated; NA - Not Analyzed

Sample Location		U-10	U-11	U-12	U-13	V-12-01	V-12-02	V-04	V-05	V-07	V-08	V-09	V-10	V-11	V-12	V-13	W-05-01	W-06-01	W-09-01	W-09-02	W-09-03	W-04	W-05	W-06
Sample Depth (ft)		0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5
Sample Date		10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10
QC Identifier																								
	Units																							
Aroclor 1016	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor 1242	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor 1248	mg/kg	**1.5**	**4.2**	**3.7**	**18**	**4.3**	**2.1**	ND	ND	ND	ND	**4.0**	**0.91**	**1.4**	**3.2**	**30**	ND	**1.1**	**1.1**	ND	ND	ND	ND	**2.3**
Aroclor 1254	mg/kg	**1.0**	**6.9**	**4.9**	**5.4**	**4.1**	**3.7**	**1.5**	**1.0**	**1.4**	ND	**5.0**	**1.9**	**3.5**	**5.8**	**8.0**	ND	**2.3**	**2.4**	**1.5**	**1.8**	**1.8**	**1.6**	**2.2**
Aroclor 1260	mg/kg	**2.1**	**8.0**	**2.5**	**2.9**	**2.3**	**3.4**	**1.4**	**1.2**	**1.2**	**1.6**	**5.0**	**2.6**	**3.0**	**4.4**	**2.9**	**8.9**	**2.0**	**1.6**	**1.4**	**1.2**	**2.0**	**2.6**	**2.1**
Aroclor 1262	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor 1268	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor, Total	mg/kg	**4.6**	**19.1**	**11.1**	**26.3**	**10.7**	**9.2**	**2.9**	**2.2**	**2.6**	**1.6**	**14**	**5.41**	**7.9**	**13.4**	**41**	**8.9**	**5.6**	**5.1**	**2.9**	**3.0**	**3.8**	**4.2**	**6.6**

Table 3-2
Historical PCB Analytical Results
Former Tombarello Property
Lawrence, Massachusetts
Page 13 of 17

Sample Location		W-07	W-08	W-09	W-10	W-11	W-12	WSB-1					WSB-2					WSB-3		WSB-4		WSB-5	
Sample Depth (ft)		0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	1 - 2	1 - 3	2 - 3	3 - 5	0 - 0.5	1 - 2	1 - 3	2 - 3	3 - 5	0 - 1	1 - 3	0 - 1	1 - 3	0 - 1	1 - 3
Sample Date		10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	05/02/05	05/03/05	02/01/03	05/04/05	02/01/03	05/02/05	05/02/05	02/01/03	05/02/05	02/01/03	02/01/03	02/01/03	02/01/03	02/01/03	02/01/03	02/01/03
QC Identifier																							
	Units																						
Aroclor 1016	mg/kg	ND	ND	ND	ND	ND	ND	0.054 U	0.539 U	NA	0.551 U	NA	0.27 U	0.58 U	NA	0.58 U	NA	NA	NA	NA	NA	NA	NA
Aroclor 1242	mg/kg	ND	ND	ND	ND	ND	ND	0.054 U	0.539 U	NA	0.551 U	NA	0.27 U	0.58 U	NA	0.58 U	NA	NA	NA	NA	NA	NA	NA
Aroclor 1248	mg/kg	**23**	ND	ND	**6.1**	**1.9**	**1.7**	0.054 U	0.539 U	NA	0.551 U	NA	0.27 U	0.58 U	NA	0.58 U	NA	NA	NA	NA	NA	NA	NA
Aroclor 1254	mg/kg	**6.0**	**2.1**	**0.92**	**5.0**	**4.1**	**5.5**	0.054 U	0.539 U	NA	0.551 U	NA	0.27 U	0.58 U	NA	0.58 U	NA	NA	NA	NA	NA	NA	NA
Aroclor 1260	mg/kg	**3.2**	**1.7**	**1.2**	**4.7**	**2.2**	**4.6**	**0.73**	**6.95**	NA	**2.95**	NA	**1.71**	**0.376**	NA	**0.651**	NA	NA	NA	NA	NA	NA	NA
Aroclor 1262	mg/kg	ND	ND	ND	ND	ND	ND	0.054 U	0.539 U	NA	0.551 U	NA	0.27 U	0.58 U	NA	0.58 U	NA	NA	NA	NA	NA	NA	NA
Aroclor 1268	mg/kg	ND	ND	ND	ND	ND	ND	0.054 U	0.539 U	NA	0.551 U	NA	0.27 U	0.58 U	NA	0.58 U	NA	NA	NA	NA	NA	NA	NA
Aroclor, Total	mg/kg	**32.2**	**3.8**	**2.12**	**15.8**	**8.2**	**11.8**	**0.73**	**6.95**	**1.6**	**2.95**	**0.05**	**1.71**	**0.376**	**26.4**	**0.651**	0.050 U	**0.27**	**21.8**	**9.8**	**0.25**	**1.9**	**7.0**

Table 3-2
Historical PCB Analytical Results
Former Tombarello Property
Lawrence, Massachusetts

Sample Location		WSB-6		WSB-7		WSB-8		WSB-9		WSB-10		WSB-11		WSB-12		WSB-14				WSB-16		
Sample Depth (ft)		0 - 1	1 - 3	0 - 1	1 - 3	1 - 3	3 - 5	0 - 1	1 - 3	0 - 1	1 - 3	0 - 1	1 - 3	0 - 1	1 - 3	0 - 1	1 - 3	3 - 5	5 - 7	0 - 1	1 - 2	2 - 3
Sample Date		02/01/03	02/01/03	02/01/03	02/01/03	02/01/03	02/01/03	02/01/03	02/01/03	02/01/03	02/01/03	02/01/03	02/01/03	02/01/03	02/01/03	02/01/03	02/01/03	02/01/03	02/01/03	07/14/03	07/14/03	07/15/03
QC Identifier																						
	Units																					
Aroclor 1016	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1242	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1248	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1254	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1260	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1262	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1268	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor, Total	mg/kg	**2700**	**34**	**0.8**	**7.1**	**7.3**	0.040 U	**0.36**	**0.04**	**4.8**	**26**	**0.45**	**4.5**	**7.1**	**0.09**	**0.15**	**7.85**	0.040 U	0.040 U	**3.1**	0.50 U	0.60 U

Red: >100 ppm; Orange: >50 ppm; Yellow: >10 ppm; Green: >1 ppm; Bold - Detected; U - Not Detected;
J - Estimated; NA - Not Analyzed

Table 3-2
Historical PCB Analytical Results
Former Tombarello Property
Lawrence, Massachusetts

Sample Location		WSB-17				WSB-18			WSB-21			WSB-22			WSB-25			WSB-26				WSB-27		
Sample Depth (ft)		0 - 1		1 - 2	2 - 3	0 - 1	1 - 2	2 - 3	0 - 1	1 - 2	2 - 3	0 - 1	1 - 2	2 - 3	0 - 1	1 - 2	2 - 3	0 - 1		1 - 2	2 - 3	0 - 1	1 - 2	2 - 3
Sample Date		07/14/03	07/16/03	07/14/03	07/14/03	07/14/03	07/14/03	07/14/03	07/14/03	07/14/03	07/14/03	07/14/03	07/14/03	07/14/03	07/14/03	07/14/03	07/14/03	07/14/03		07/14/03	07/14/03	07/14/03	07/14/03	07/14/03
QC Identifier																		FD	FD					
	Units																							
Aroclor 1016	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1242	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1248	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1254	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1260	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1262	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1268	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor, Total	mg/kg	**2.5**	**3.7**	0.60 U	0.60 U	**1.7**	0.60 U	0.60 U	**18.2**	0.60 U	0.60 U	**17**	0.60 U	0.60 U	**14.9**	0.60 U	0.60 U	**39**	**50**	**510**	**7.1**	**24**	0.60 U	0.60 U

Red: >100 ppm; Orange: >50 ppm; Yellow: >10 ppm; Green: >1 ppm; Bold - Detected; U - Not Detected;
J - Estimated; NA - Not Analyzed

Table 3-2
Historical PCB Analytical Results
Former Tombarello Property
Lawrence, Massachusetts

Sample Location		WSB-30			WSB-31			WSB-32			X-05-01	X-07-01	X-07-02	X-07-03	X-10-01	X-10-02	X-10-03	X-10-04	X-11-01	X-11-02	X-11-03	X-04	X-05	X-06
Sample Depth (ft)		0 - 1	1 - 2	2 - 3	0 - 1	1 - 2	2 - 3	0 - 1	1 - 2	2 - 3	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5
Sample Date		07/14/03	07/14/03	07/14/03	07/14/03	07/14/03	07/14/03	07/14/03	07/14/03	07/14/03	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10
QC Identifier																								
	Units																							
Aroclor 1016	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor 1242	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor 1248	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	**1.5**	**4.0**	**7.7**	**11**	ND	ND	**1.7**	ND	ND	**1.0**
Aroclor 1254	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	**10**	**1.9**	ND	**1.8**	**7.5**	**8.6**	**7.8**	**13**	**21**	**4.9**	**4.1**	**2.1**	ND	**2.7**
Aroclor 1260	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	**16**	**0.86**	ND	**0.83**	**3.4**	**4.3**	**4.3**	**4.4**	**4.9**	**3.4**	**1.9**	**6.5**	**8.1**	**3.9**
Aroclor 1262	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor 1268	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor, Total	mg/kg	**20**	**20**	0.60 U	**13000**	**2.7**	0.60 U	3.00 U	3.00 U	0.60 U	**26**	**2.76**	ND	**2.63**	**12.4**	**16.9**	**19.7**	**28.4**	**25.9**	**8.3**	**7.7**	**8.6**	**8.1**	**7.6**

Red: >100 ppm; Orange: >50 ppm; Yellow: >10 ppm; Green: >1 ppm; Bold - Detected; U - Not Detected;
J - Estimated; NA - Not Analyzed

Table 3-2
Historical PCB Analytical Results
Former Tombarello Property
Lawrence, Massachusetts

Sample Location		X-07	X-08	X-10	X-11	X-12	Z-00	Z-01	Z-02	Z-03	Z-04	Z-05	Z-06	Z-07	Z-08	Z-09
Sample Depth (ft)		0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5
Sample Date		10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10
QC Identifier																
	Units															
Aroclor 1016	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor 1242	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor 1248	mg/kg	**1.2**	ND	**4.5**	**0.85**	**2.0**	ND	ND	ND	ND	ND	ND	ND	ND	ND	**6.0**
Aroclor 1254	mg/kg	**2.3**	**3.0**	**7.3**	**5.0**	**5.4**	ND	ND	ND	ND	ND	**1.9**	**3.7**	**17**	**7.3**	**9.0**
Aroclor 1260	mg/kg	**1.2**	**1.1**	**5.2**	**2.2**	**3.8**	ND	**3.0**	**3.6**	**12**	**15**	**2.6**	**6.6**	**3.1**	**11**	**3.5**
Aroclor 1262	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor 1268	mg/kg	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor, Total	mg/kg	**4.7**	**4.1**	**17**	**8.05**	**11.2**	ND	**3.0**	**3.6**	**12**	**15**	**4.5**	**10.3**	**20.1**	**18.3**	**18.5**

Red: >100 ppm; Orange: >50 ppm; Yellow: >10 ppm; Green: >1 ppm; Bold - Detected; U - Not Detected;
J - Estimated; NA - Not Analyzed

Table 3-3
Summary of TBA Metals and Cyanide Soil Sample Results
Former Tombarello Property
Lawrence, Massachusetts

					Sample Location	BPA-01		BPA-02			CD-34		CD-34E		CD-34N		CD-34S			CD-34W		CD-45	
					Sample Depth (ft)	1 - 2	2 - 3	1 - 2	2 - 3	6 - 7	3 - 4	7 - 8	0 - 1	1 - 3	0 - 1	1 - 3	0 - 1	1 - 3		0 - 1	1 - 3	3 - 4	7 - 8
					Sample Date	06/07/16	06/07/16	06/07/16	06/07/16	06/07/16	06/06/16	06/06/16	06/06/16	06/06/16	06/06/16	06/06/16	06/06/16	06/06/16		06/06/16	06/06/16	06/06/16	06/06/16
					QC Identifier													FD	FD				
	Units	**S-1/GW-1**	**S-1/GW-2**	**S-1/GW-3**	**Soil UCL**																		
Metals																							
Arsenic	mg/kg	20	20	20	500	**7.6**	**8.1**	**13**	**6.9**	**7.0**	NA	NA	NA	NA	NA	**20**	**5.5**	NA	NA	NA	NA	**11**	**6.2**
Barium	mg/kg	1000	1000	1000	10000	**22**	**150**	**970**	**310**	**23**	NA	NA	NA	NA	NA	**140**	**50**	NA	NA	NA	NA	**170**	**25**
Cadmium	mg/kg	70	70	70	1000	**8.8**	**2.6**	**22**	**7.0**	0.24 U	NA	NA	NA	NA	NA	**0.97**	**1.1**	NA	NA	NA	NA	**11**	0.23 U
Chromium	mg/kg	100	100	100	2000	**25**	**33**	**99**	**32**	**11**	NA	NA	NA	NA	NA	**38**	**100**	NA	NA	NA	NA	**55**	**13**
Chromium-Hexavalent	mg/kg	100	100	100	2000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	mg/kg	200	200	200	6000	**18**	**240**	**5300**	**590**	**5.7**	NA	NA	NA	NA	NA	**650**	**280**	NA	NA	NA	NA	**3700**	**5.0**
Mercury	mg/kg	20	20	20	300	**0.013 J**	**0.42**	**2.8**	**0.88**	0.05 U	NA	NA	NA	NA	NA	**0.34**	**0.18**	NA	NA	NA	NA	**0.73**	**0.008 J**
Selenium	mg/kg	400	400	400	7000	**1.4**	**2.1**	**5.4**	**3.5**	**2.8**	NA	NA	NA	NA	NA	**3.2**	**1.2**	NA	NA	NA	NA	**4.0**	**1.1 J**
Silver	mg/kg	100	100	100	2000	**0.21 J**	**0.27 J**	**3.7**	**1.3**	1.5 U	NA	NA	NA	NA	NA	**0.39 J**	**0.42 J**	NA	NA	NA	NA	**1.4 J**	1.4 U
General Chemistry																							
Cyanide	mg/kg	30	30	30	5000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cyanide (PAC)	mg/kg	--	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Percent Moisture	%	--	--	--	--	**4.5 J**	**8.4 J**	**10**	**10**	**23**	**15**	**24**	**6.3 J**	**9.9 J**	**6 J**	**12**	**5.7 J**	**11**	**9.7 J**	**5.7 J**	**11**	**30**	**25**

Red Shading - UCL Exceeded; Black Shading - Method 1 Std Exceeded; Bold - Detected; U - Not Detected;
J - Estimated; NA - Not Analyzed

Table 3-3
Summary of TBA Metals and Cyanide Soil Sample Results
Former Tombarello Property
Lawrence, Massachusetts
Page 2 of 12

Sample Location						CD-45E		CD-45N		CD-45S		CD-45W		D-5			D-5E		D-5N		FB-01		
Sample Depth (ft)						0 - 1	1 - 3	0 - 1	1 - 3	0 - 1	1 - 3		0 - 1	1 - 3	0 - 2	2 - 3	6 - 7	0 - 1	1 - 3	0 - 1	1 - 3	1 - 2	2 - 3	5 - 7
Sample Date						06/06/16	06/06/16	06/06/16	06/06/16	06/06/16	06/06/16		06/06/16	06/06/16	06/06/16	06/06/16	06/06/16	06/06/16	06/06/16	06/06/16	06/06/16	06/06/16	06/06/16	06/06/16
QC Identifier											FD	FD												
	Units	**S-1/GW-1**	**S-1/GW-2**	**S-1/GW-3**	**Soil UCL**																			
Metals																								
Arsenic	mg/kg	20	20	20	500	NA	**20**	NA	NA	NA	**16**	**12**	NA	NA	NA	NA	NA	NA	**5.1**	**8.5**	NA	**5.8**	**7.5**	**8.7**
Barium	mg/kg	1000	1000	1000	10000	NA	**1700**	NA	NA	NA	**530**	**460**	NA	NA	NA	NA	NA	NA	**98**	**100**	NA	**36**	**51**	**29**
Cadmium	mg/kg	70	70	70	1000	NA	**37**	NA	NA	NA	**14**	**10**	NA	NA	NA	NA	NA	NA	**0.61**	**2.2**	NA	**0.13 J**	**0.84**	0.24 U
Chromium	mg/kg	100	100	100	2000	NA	**110**	NA	NA	NA	**90**	**130**	NA	NA	NA	NA	NA	NA	**19**	**49**	NA	**22**	**24**	**16**
Chromium-Hexavalent	mg/kg	100	100	100	2000	NA	NA	NA	NA	NA	**0.749**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	mg/kg	200	200	200	6000	NA	**6400**	NA	NA	NA	**8600 J**	**2300 J**	NA	NA	NA	NA	NA	NA	**180**	**370**	NA	**38**	**350**	**15**
Mercury	mg/kg	20	20	20	300	NA	**6.5**	NA	NA	NA	**4.7**	**5.8**	NA	NA	NA	NA	NA	NA	**0.32**	**0.72**	NA	**0.037 J**	**0.14**	**0.019 J**
Selenium	mg/kg	400	400	400	7000	NA	1.6 U	NA	NA	NA	**3.2 J**	**1.8 J**	NA	NA	NA	NA	NA	NA	**0.91 J**	**1.6**	NA	**1 J**	**0.99 J**	**1.7**
Silver	mg/kg	100	100	100	2000	NA	**3.0**	NA	NA	NA	**5.9 J**	**1.9 J**	NA	NA	NA	NA	NA	NA	**0.28 J**	**0.85 J**	NA	**0.15 J**	**0.2 J**	**0.15 J**
General Chemistry																								
Cyanide	mg/kg	30	30	30	5000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.397 U	0.465 U	0.643 U
Cyanide (PAC)	mg/kg	--	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.05 U	1.18 U	1.3 U
Percent Moisture	%	--	--	--	--	**14**	**11**	**6.7 J**	**14**	**5.5 J**	**11**	**13**	**8.1 J**	**8.1 J**	**13**	**11**	**25**	**7.1 J**	**12**	**9.2 J**	**11**	**7.7 J**	**15**	**23**

Red Shading - UCL Exceeded; Black Shading - Method 1 Std Exceeded; Bold - Detected; U - Not Detected;
J - Estimated; NA - Not Analyzed

Table 3-3
Summary of TBA Metals and Cyanide Soil Sample Results
Former Tombarello Property
Lawrence, Massachusetts
Page 3 of 12

					Sample Location	FB-02		FB-03		FB-04				FG-34		FG-34N		FG-34S		FG-34W		FG-45E		
					Sample Depth (ft)	1 - 2	2 - 3	1 - 2	2 - 3	1 - 2	2 - 3	5 - 7		0 - 1	1 - 3	0 - 1	1 - 3	0 - 1	1 - 3	0 - 1	1 - 3	0 - 1		1 - 3
					Sample Date	06/07/16	06/07/16	06/06/16	06/06/16	06/06/16	06/06/16	06/06/16		06/07/16	06/07/16	06/07/16	06/07/16	06/07/16	06/07/16	06/07/16	06/07/16	06/08/16		06/08/16
					QC Identifier							FD	FD									FD	FD	
	Units	**S-1/GW-1**	**S-1/GW-2**	**S-1/GW-3**	**Soil UCL**																			
Metals																								
Arsenic	mg/kg	20	20	20	500	**8.8 J**	**10 J**	**4.5**	**5.4**	**7.3**	**6.9**	**7.5**	**7.2**	NA	NA	NA	NA	**14**	NA	NA	**10**	NA	NA	**5.2**
Barium	mg/kg	1000	1000	1000	10000	**54**	**50**	**18**	**30**	**33**	**52**	**74**	**62**	NA	NA	NA	NA	**140**	NA	NA	**250**	NA	NA	**20**
Cadmium	mg/kg	70	70	70	1000	**0.76**	**0.64**	0.24 U	**0.12 J**	**0.052 J**	**0.36**	**0.8**	**0.56**	NA	NA	NA	NA	**2.7**	NA	NA	**6.4**	NA	NA	0.23 U
Chromium	mg/kg	100	100	100	2000	**35**	**37**	**8.6**	**20**	**27**	**29**	**26**	**38**	NA	NA	NA	NA	**91**	NA	NA	**51**	NA	NA	**12**
Chromium-Hexavalent	mg/kg	100	100	100	2000	NA	NA	NA	0.53 U	0.533 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	mg/kg	200	200	200	6000	**46 J**	**120 J**	**7.6**	**76**	**29**	**35**	**110**	**130**	NA	NA	NA	NA	**720**	NA	NA	**1000**	NA	NA	**12**
Mercury	mg/kg	20	20	20	300	**0.084 J-**	**0.08 J-**	**0.014 J**	**0.17**	**0.055**	**0.027 J**	**0.088**	**0.15**	NA	NA	NA	NA	**1.2**	NA	NA	**0.44**	NA	NA	**0.015 J**
Selenium	mg/kg	400	400	400	7000	**0.71 J**	**1.8**	**0.76 J**	1.4 U	**0.68 J**	1.3 U	**1.2**	**1.3 J**	NA	NA	NA	NA	**3.2**	NA	NA	**4.7**	NA	NA	**2.7**
Silver	mg/kg	100	100	100	2000	**0.22 J**	**0.2 J**	1.5 U	**0.11 J**	**0.18 J**	**0.13 J**	**0.24 J**	**0.33 J**	NA	NA	NA	NA	**0.9 J**	NA	NA	**0.95 J**	NA	NA	**0.12 J**
General Chemistry																								
Cyanide	mg/kg	30	30	30	5000	0.54 U	0.547 U	0.526 U	0.499 U	0.453 U	0.571 U	0.539 U	0.555 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cyanide (PAC)	mg/kg	--	--	--	--	1.07 U	1.11 U	1.14 U	1.07 U	1.07 U	1.13 U	1.24 U	1.26 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Percent Moisture	%	--	--	--	--	**7.9 J**	**10**	**12**	**7.1 J**	**6.3 J**	**10**	**20**	**22**	**12**	**22**	**11**	**18**	**9.6 J**	**20**	**13**	**17**	**8 J**	**7.7 J**	**18**

Red Shading - UCL Exceeded; Black Shading - Method 1 Std Exceeded; Bold - Detected; U - Not Detected;
J - Estimated; NA - Not Analyzed

Table 3-3
Summary of TBA Metals and Cyanide Soil Sample Results
Former Tombarello Property
Lawrence, Massachusetts

					Sample Location	FG-45N		FG-45S			FG-45W		G-3			G-3E		G-3N		G-3S		G-3W	
					Sample Depth (ft)	0 - 1	1 - 3	0 - 1	1 - 3		0 - 1	1 - 3	1 - 2	2 - 3	5 - 6	0 - 2	2 - 3	0 - 1	2 - 3	0 - 1	2 - 3	0 - 1	2 - 3
					Sample Date	06/08/16	06/08/16	06/08/16	06/08/16		06/08/16	06/08/16	06/07/16	06/07/16	06/07/16	06/07/16	06/07/16	06/07/16	06/07/16	06/07/16	06/07/16	06/07/16	06/07/16
					QC Identifier				FD	FD													
	Units	**S-1/GW-1**	**S-1/GW-2**	**S-1/GW-3**	**Soil UCL**																		
Metals																							
Arsenic	mg/kg	20	20	20	500	NA	NA	NA	NA	NA	**9.4**	NA	NA	NA	NA	NA	NA	**10**	NA	NA	**10 J**	NA	NA
Barium	mg/kg	1000	1000	1000	10000	NA	NA	NA	NA	NA	**99**	NA	NA	NA	NA	NA	NA	**220**	NA	NA	**320 J**	NA	NA
Cadmium	mg/kg	70	70	70	1000	NA	NA	NA	NA	NA	**2.0**	NA	NA	NA	NA	NA	NA	**5.5**	NA	NA	**2.7 J**	NA	NA
Chromium	mg/kg	100	100	100	2000	NA	NA	NA	NA	NA	**37**	NA	NA	NA	NA	NA	NA	**47**	NA	NA	**23 J**	NA	NA
Chromium-Hexavalent	mg/kg	100	100	100	2000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	mg/kg	200	200	200	6000	NA	NA	NA	NA	NA	**310**	NA	NA	NA	NA	NA	NA	**2100**	NA	NA	**290 J**	NA	NA
Mercury	mg/kg	20	20	20	300	NA	NA	NA	NA	NA	**0.49**	NA	NA	NA	NA	NA	NA	**0.94**	NA	NA	**0.18**	NA	NA
Selenium	mg/kg	400	400	400	7000	NA	NA	NA	NA	NA	**3.7**	NA	NA	NA	NA	NA	NA	**5.4**	NA	NA	**4.1**	NA	NA
Silver	mg/kg	100	100	100	2000	NA	NA	NA	NA	NA	**1.6**	NA	NA	NA	NA	NA	NA	**1.5**	NA	NA	**0.39 J**	NA	NA
General Chemistry																							
Cyanide	mg/kg	30	30	30	5000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cyanide (PAC)	mg/kg	--	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Percent Moisture	%	--	--	--	--	**7.1 J**	**22**	**12**	**17**	**19**	**11**	**17**	**26**	**23**	**20**	**11**	**11**	**12**	**14**	**16**	**24**	**14**	**21**

Red Shading - UCL Exceeded; Black Shading - Method 1 Std Exceeded; Bold - Detected; U - Not Detected;
J - Estimated; NA - Not Analyzed

Table 3-3
Summary of TBA Metals and Cyanide Soil Sample Results
Former Tombarello Property
Lawrence, Massachusetts

					Sample Location	HA-01		HA-02	HA-03	HA-04	HA-05	HA-06	HA-07		HA-08	HA-09	HA-10	HA-11	HA-12	LS-01		LS-02	
					Sample Depth (ft)	0 - 1		0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	0 - 1		0 - 1	0 - 1	0 - 1	0 - 1	0 - 1	1 - 3	7 - 8	1 - 2	2 - 3
					Sample Date	06/09/16		06/09/16	06/09/16	06/09/16	06/09/16	06/09/16	06/09/16		06/09/16	06/09/16	06/09/16	06/09/16	06/09/16	06/09/16	06/09/16	06/09/16	06/09/16
					QC Identifier	FD	FD						FD	FD									
	Units	S-1/GW-1	S-1/GW-2	S-1/GW-3	Soil UCL																		
Metals																							
Arsenic	mg/kg	20	20	20	500	40 J	16 J	17	11	13	17	27	16	18	11	12	11	13	20	5.9	5.8	11	22
Barium	mg/kg	1000	1000	1000	10000	480	480	450	150	310	300	370	450	520	260 J	170	320	300	370	23	31	70	850
Cadmium	mg/kg	70	70	70	1000	9.6	9.3	15	5.6	5.8	7.7	14	12	14	4.8 J	7.3	3.8	11	13	0.16 J	0.25 U	0.65	5.8
Chromium	mg/kg	100	100	100	2000	92	74	120	55 J	54	310	180	93	92	47 J	51	38	68	230	13	12	44	55
Chromium-Hexavalent	mg/kg	100	100	100	2000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	mg/kg	200	200	200	6000	5700 J	910 J	1200	810 J	940	730	860	1500	2000	1600 J	310	720	1100	1400	15	5.5	67	1400
Mercury	mg/kg	20	20	20	300	0.43	0.38	4.0	1.7	1.8	1.1	1.8	2.3 J	2.9	1.4	0.38	1.1	4.1	4.9	0.037 J	0.05 U	0.1	3.6
Selenium	mg/kg	400	400	400	7000	2.8	2.5	1.5	2.0	1.5	1.3 U	1.2 U	1.2 U	1.1 J	1.6	2.9	2.9	1.1 U	1.4 U	1 J	1.5 J	1.5	1.6 U
Silver	mg/kg	100	100	100	2000	1.4	1.4 U	1.5 U	1.4 U	2.6	1.3 U	1.2 U	1.6	1.8	1.4	1.3 U	1.4 U	2.0	1.6	1 U	1.5 U	1 U	1.6 U
General Chemistry																							
Cyanide	mg/kg	30	30	30	5000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cyanide (PAC)	mg/kg	--	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Percent Moisture	%	--	--	--	--	12	12	8.3 J	7.2 J	9.2 J	8.8 J	11	13	13	7.7 J	12	9 J	9.1 J	8.2 J	6.3 J	22	5.5 J	24

Red Shading - UCL Exceeded; Black Shading - Method 1 Std Exceeded; Bold - Detected; U - Not Detected;
J - Estimated; NA - Not Analyzed

Table 3-3
Summary of TBA Metals and Cyanide Soil Sample Results
Former Tombarello Property
Lawrence, Massachusetts

					Sample Location	M-4		M-4E		M-4N		M-4S	M-4W	M-7			M-7E		M-7S		M-7W	
					Sample Depth (ft)	2 - 3	12 - 13	0 - 1	1 - 3	0 - 1	1 - 3	1 - 3	1 - 3	1 - 2	2 - 3	6 - 7	0 - 1	1 - 3	0 - 1	1 - 3	0 - 1	1 - 3
					Sample Date	06/09/16	06/09/16	06/09/16	06/09/16	06/09/16	06/09/16	06/09/16	06/09/16	06/07/16	06/07/16	06/07/16	06/07/16	06/07/16	06/07/16	06/07/16	06/07/16	06/07/16
					QC Identifier																	
	Units	**S-1/GW-1**	**S-1/GW-2**	**S-1/GW-3**	**Soil UCL**																	
Metals																						
Arsenic	mg/kg	20	20	20	500	NA	NA	NA	NA	NA	**35**	**15**	NA	NA	**4.5**	NA	NA	**21**	NA	NA	NA	NA
Barium	mg/kg	1000	1000	1000	10000	NA	NA	NA	NA	NA	**610**	**1100**	NA	NA	**23**	NA	NA	**950**	NA	NA	NA	NA
Cadmium	mg/kg	70	70	70	1000	NA	NA	NA	NA	NA	**11**	**3.9**	NA	NA	0.25 U	NA	NA	**16**	NA	NA	NA	NA
Chromium	mg/kg	100	100	100	2000	NA	NA	NA	NA	NA	**54**	**66**	NA	NA	**14**	NA	NA	**81**	NA	NA	NA	NA
Chromium-Hexavalent	mg/kg	100	100	100	2000	NA	NA	NA	NA	NA	NA	6.61 UJ	NA	NA	NA	NA	NA	NA	NA	NA	0.588 U	NA
Lead	mg/kg	200	200	200	6000	NA	NA	NA	NA	NA	**1400**	**1300**	NA	NA	**14**	NA	NA	**1800**	NA	NA	NA	NA
Mercury	mg/kg	20	20	20	300	NA	NA	NA	NA	NA	**1.2**	**3.8 J**	NA	NA	**0.055**	NA	NA	**2.8**	NA	NA	NA	NA
Selenium	mg/kg	400	400	400	7000	NA	NA	NA	NA	NA	0.87 U	1.8 U	NA	NA	**2.6**	NA	NA	**7.2**	NA	NA	NA	NA
Silver	mg/kg	100	100	100	2000	NA	NA	NA	NA	NA	0.87 U	1.8 U	NA	NA	**0.11 J**	NA	NA	**2.0**	NA	NA	NA	NA
General Chemistry																						
Cyanide	mg/kg	30	30	30	5000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cyanide (PAC)	mg/kg	--	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Percent Moisture	%	--	--	--	--	**28**	**22**	**12**	**12**	**13**	**11**	**23**	**19**	**8.9 J**	**23**	**22**	**14**	**20**	**16**	**13**	**9.9 J**	**25**

Red Shading - UCL Exceeded; Black Shading - Method 1 Std Exceeded; Bold - Detected; U - Not Detected;
J - Estimated; NA - Not Analyzed

Table 3-3
Summary of TBA Metals and Cyanide Soil Sample Results
Former Tombarello Property
Lawrence, Massachusetts

					Sample Location	MS-01		MS-02		MS-03		NPA-01		NPA-02		NPA-03		NPA-04		NPA-05		NPA-06	
					Sample Depth (ft)	1 - 2	2 - 3	1 - 2	2 - 3	1 - 2	2 - 3	0.5 - 2	2 - 3	0.5 - 2	2 - 3	0.5 - 2	2 - 3	0.5 - 2	2 - 3	0.5 - 2	2 - 3	0.5 - 2	2 - 3
					Sample Date	06/10/16	06/10/16	06/10/16	06/10/16	06/10/16	06/10/16	06/10/16	06/10/16	06/10/16	06/10/16	06/10/16	06/10/16	06/10/16	06/10/16	06/10/16	06/10/16	06/10/16	06/10/16
					QC Identifier																		
	Units	**S-1/GW-1**	**S-1/GW-2**	**S-1/GW-3**	**Soil UCL**																		
Metals																							
Arsenic	mg/kg	20	20	20	500	**9.4**	**9.6**	**8.7**	**8.9**	**8.1**	**8.3**	**5.1**	**8.9**	**6.2 J**	**8.4 J**	**9.3**	**4.9**	**7.0**	**8.5**	**8.6**	**13**	**18**	**9.8**
Barium	mg/kg	1000	1000	1000	10000	**190**	**85**	**120**	**210**	**130**	**110**	**87**	**32**	**58**	**49**	**91**	**91**	**65**	**39**	**97**	**66**	**140**	**450**
Cadmium	mg/kg	70	70	70	1000	**0.37**	**1.0**	**2.0**	**4.9**	**2.0**	**1.4**	**0.61**	**0.2**	**0.63**	**0.15 J**	**0.33**	**0.19 J**	**0.46**	**1.1**	**0.62**	**9**	**0.74**	**5.8**
Chromium	mg/kg	100	100	100	2000	**44**	**26**	**45**	**45**	**21**	**26**	**18**	**13**	**21**	**17**	**32**	**10**	**26**	**15**	**15**	**25**	**56**	**43**
Chromium-Hexavalent	mg/kg	100	100	100	2000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	mg/kg	200	200	200	6000	**230**	**190**	**160**	**490**	**190**	**210**	**350**	**100**	**230**	**160**	**390**	**600**	**450**	**250**	**270**	**370**	**320**	**750**
Mercury	mg/kg	20	20	20	300	**0.076**	**1.2**	**0.21**	**0.38**	**0.11**	**0.18**	**0.83**	**0.27**	**0.12**	**0.12**	**0.18**	**0.21**	**0.37**	**0.15**	**0.31**	**0.95**	**0.32**	**0.22**
Selenium	mg/kg	400	400	400	7000	**0.88 J**	**1.1 J**	**1 J**	**0.79 J**	**0.71 J**	**0.78 J**	**0.83 J**	**0.73 J**	**0.75 J**	1.4 U	**1.3 J**	1.5 U	1.3 U	1.4 U	1.6 U	**0.68 J**	**2.0**	1.3 U
Silver	mg/kg	100	100	100	2000	1.4 U	1.3 U	**0.32 J**	**0.13 J**	1.5 U	**0.078 J**	1.2 U	1 U	1.4 U	1.4 U	1.4 U	1.5 U	1.3 U	1.4 U	1.6 U	**0.21 J**	**0.18 J**	**0.15 J**
General Chemistry																							
Cyanide	mg/kg	30	30	30	5000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cyanide (PAC)	mg/kg	--	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Percent Moisture	%	--	--	--	--	**2.3 J**	**15**	**5 J**	**9.6 J**	**6.4 J**	**7.4 J**	**8.1 J**	**10**	**11**	**9 J**	**8.2 J**	**12**	**6.2 J**	**8.4 J**	**13**	**13**	**11**	**13**

Red Shading - UCL Exceeded; Black Shading - Method 1 Std Exceeded; Bold - Detected; U - Not Detected;
J - Estimated; NA - Not Analyzed

					Sample Location	NPA-07		P-13			P-13N		P-13S			P-13W		SA-01	SB-3		SB-3E		SB-3N
					Sample Depth (ft)	0.5 - 2	2 - 3	1 - 2	2 - 3	9 - 10	0 - 1	1 - 3	0 - 1	1 - 3		0 - 1	1 - 3	1 - 3	2 - 3	5 - 6	0 - 1	1 - 3	1 - 3
					Sample Date	06/10/16	06/10/16	06/08/16	06/08/16	06/08/16	06/08/16	06/08/16	06/08/16	06/08/16		06/08/16	06/08/16	06/09/16	06/09/16	06/09/16	06/09/16	06/09/16	06/09/16
					QC Identifier									FD	FD								
	Units	**S-1/GW-1**	**S-1/GW-2**	**S-1/GW-3**	**Soil UCL**																		
Metals																							
Arsenic	mg/kg	20	20	20	500	**8.4**	**9.9**	**42**	NA	NA	NA	NA	**14**	NA	NA	NA	NA	**29 J**	NA	NA	NA	NA	**21**
Barium	mg/kg	1000	1000	1000	10000	**120**	**140**	**600**	NA	NA	NA	NA	**350**	NA	NA	NA	NA	**880 J**	NA	NA	NA	NA	**3400**
Cadmium	mg/kg	70	70	70	1000	**1.3**	**0.45**	**9.8**	NA	NA	NA	NA	**13**	NA	NA	NA	NA	**8.6**	NA	NA	NA	NA	**5.3**
Chromium	mg/kg	100	100	100	2000	**32**	**22**	**130**	NA	NA	NA	NA	**200**	NA	NA	NA	NA	**90 J+**	NA	NA	NA	NA	**31**
Chromium-Hexavalent	mg/kg	100	100	100	2000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	mg/kg	200	200	200	6000	**450**	**710**	**2400**	NA	NA	NA	NA	**1700**	NA	NA	NA	NA	**1400 J**	NA	NA	NA	NA	**3800**
Mercury	mg/kg	20	20	20	300	**1.3**	**0.5**	**5.3**	NA	NA	NA	NA	**4.1**	NA	NA	NA	NA	**5.0**	NA	NA	NA	NA	**5.4**
Selenium	mg/kg	400	400	400	7000	1.5 U	**0.52 J**	1.3 U	NA	NA	NA	NA	**2.4**	NA	NA	NA	NA	1.4 UJ	NA	NA	NA	NA	**2.5**
Silver	mg/kg	100	100	100	2000	**0.1 J**	**0.12 J**	**2.5**	NA	NA	NA	NA	**4.2**	NA	NA	NA	NA	**0.35 J**	NA	NA	NA	NA	**1.3 J**
General Chemistry																							
Cyanide	mg/kg	30	30	30	5000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cyanide (PAC)	mg/kg	--	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Percent Moisture	%	--	--	--	--	**11**	**3.2 J**	**18**	**19**	**25**	**18**	**25**	**13**	**13**	**14**	**14**	**37**	**19**	**14**	**18**	**3.9 J**	**14**	**15**

Red Shading - UCL Exceeded; Black Shading - Method 1 Std Exceeded; Bold - Detected; U - Not Detected;
J - Estimated; NA - Not Analyzed

Table 3-3
Summary of TBA Metals and Cyanide Soil Sample Results
Former Tombarello Property
Lawrence, Massachusetts

					Sample Location	SB-3S		SB-3W	SBB-3W	SS-01		SVA-01		SVA-02		SVA-03			SVA-04		SVA-05		SVA-06	
					Sample Depth (ft)	0 - 1	1 - 3	0 - 1	1 - 3	1 - 2	7 - 8	0 - 1	1 - 3	0 - 1	1 - 3	0 - 1	1 - 3		0 - 1	1 - 3	0 - 1	1 - 3	0 - 1	1 - 3
					Sample Date	06/09/16	06/09/16	06/09/16	06/09/16	06/08/16	06/08/16	06/07/16	06/07/16	06/08/16	06/08/16	06/08/16	06/08/16		06/08/16	06/08/16	06/08/16	06/08/16	06/08/16	06/08/16
					QC Identifier												FD	FD						
	Units	**S-1/GW-1**	**S-1/GW-2**	**S-1/GW-3**	**Soil UCL**																			
Metals																								
Arsenic	mg/kg	20	20	20	500	**50**	NA	NA	NA	**8.9**	**20**	**8.9**	**7.7**	**19**	**15**	**11 J**	**28 J**	**53 J**	**11**	**16**	**12**	**13**	0.72 U	**10**
Barium	mg/kg	1000	1000	1000	10000	**150**	NA	NA	NA	**110**	**1600**	**120**	**57**	**350**	**480**	**120**	**1200**	**1100**	**270**	**520**	**270**	**250**	**170**	**160**
Cadmium	mg/kg	70	70	70	1000	**4.1**	NA	NA	NA	**1.3**	**4.6**	**1.9**	**0.48**	**6.2**	**5.6**	**2.7**	**6.7**	**7.8**	**4.2**	**3.1**	**13**	**12**	**24**	**6.2**
Chromium	mg/kg	100	100	100	2000	**83**	NA	NA	NA	**51**	**46**	**42**	**18**	**61**	**42**	**57 J**	**440 J**	**450 J**	**50**	**48**	**110**	**120**	**40000**	**100**
Chromium-Hexavalent	mg/kg	100	100	100	2000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.605 U	3.09 U	NA	NA	NA	NA	NA	NA
Lead	mg/kg	200	200	200	6000	**500**	NA	NA	NA	**210**	**3100**	**740**	**38**	**1000**	**1200**	**380 J**	**6700 J**	**5400 J**	**1400**	**2900**	**1400**	**1100**	**680**	**930**
Mercury	mg/kg	20	20	20	300	**0.92**	NA	NA	NA	**0.49**	**0.91**	**0.49**	**0.071**	**1.8**	**0.99**	**1.5 J**	**0.48 J**	**0.57 J**	**2.6**	**1.9**	**4.4**	**4.8**	**11**	**2.4**
Selenium	mg/kg	400	400	400	7000	**3.6**	NA	NA	NA	**2.1**	**11**	**3.2**	**3.2**	**5.7**	**5.2**	**4.9 J**	**9.7 J**	**4 J**	**5.6**	**8.5**	**3.8**	**5.1**	1.1 U	**5.6**
Silver	mg/kg	100	100	100	2000	**1.4**	NA	NA	NA	**0.8 J**	**2.4**	**2.7**	**0.22 J**	**2.0**	**1.4 J**	**1.6**	**2.7**	**2.7**	**1.4**	**8.0**	**3.1**	**3.0**	**1.7**	**2.2**
General Chemistry																								
Cyanide	mg/kg	30	30	30	5000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cyanide (PAC)	mg/kg	--	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Percent Moisture	%	--	--	--	--	**8.8 J**	**8.6 J**	**3.4 J**	**8.3 J**	**10**	**41**	**6.6 J**	**21**	**9.2 J**	**17**	**8.4 J**	**23**	**26**	**11**	**23**	**13**	**15**	**15**	**11**

Red Shading - UCL Exceeded; Black Shading - Method 1 Std Exceeded; Bold - Detected; U - Not Detected;
J - Estimated; NA - Not Analyzed

Table 3-3
Summary of TBA Metals and Cyanide Soil Sample Results
Former Tombarello Property
Lawrence, Massachusetts

					Sample Location	SVA-07		SVA-08		TP-01		TP-02		TP-03		TP-04		TP-05		TP-06		TP-07	
					Sample Depth (ft)	0 - 1	1 - 3	0 - 1	1 - 3	0 - 1	2 - 3	0 - 1	3 - 4	0 - 1	4 - 5	0 - 1	5 - 6	0 - 1	4 - 5	0 - 1	9 - 10	0 - 1	7 - 8
					Sample Date	06/09/16	06/09/16	06/09/16	06/09/16	06/15/16	06/15/16	06/15/16	06/15/16	06/15/16	06/15/16	06/15/16	06/15/16	06/15/16	06/15/16	06/14/16	06/14/16	06/14/16	06/14/16
					QC Identifier																		
	Units	**S-1/GW-1**	**S-1/GW-2**	**S-1/GW-3**	**Soil UCL**																		
Metals																							
Arsenic	mg/kg	20	20	20	500	**9.2**	**15**	**12**	**28**	**13**	**8.9**	**12**	**17**	**6.9**	**12**	**9.6**	**11**	**13 J**	0.78 UJ	**15**	**9.1**	**9.3**	**14**
Barium	mg/kg	1000	1000	1000	10000	**170**	**360**	**110**	**440**	**260**	**97**	**250**	**380**	**41**	**260**	**110**	**210**	**300 J**	**210 J**	**270**	**190**	**120**	**260**
Cadmium	mg/kg	70	70	70	1000	**4.2**	**4.8**	**1.5**	**3.7**	**8.7**	**1.8**	**7.8**	**17**	**0.14 J**	**5.9**	**1.2**	**2.1**	**4.8 J**	**29 J**	**17**	**3.2**	**8.2**	**25**
Chromium	mg/kg	100	100	100	2000	**57**	**44**	**87**	**74**	**260**	**38**	**61**	**74**	**18**	**77**	**53**	**34**	**160 J**	**86000 J**	**230**	**100**	**55**	**100**
Chromium-Hexavalent	mg/kg	100	100	100	2000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	mg/kg	200	200	200	6000	**610**	**1200**	**240**	**800**	**760**	**150**	**660**	**1400**	**64**	**550**	**210**	**510**	**660 J**	**1200 J**	**1200**	**430**	**510 J**	**1000**
Mercury	mg/kg	20	20	20	300	**2.7**	**2.7**	**0.6**	**1.5**	**1.4**	**0.4**	**1.1**	**3.6**	**0.093**	**1.2**	**0.2**	**1.4**	**2.2 J**	**2.6 J**	**6.9**	**1.3**	**13**	**14**
Selenium	mg/kg	400	400	400	7000	**3.0**	**1.4**	**1.1 J**	**1.7**	**5.6**	**4.2**	**6.0**	**2.8**	**3.0**	**4.5**	**5.3**	**4.3**	**3.4**	1.2 U	1.3 U	**1.2 J**	**5.4**	1.3 U
Silver	mg/kg	100	100	100	2000	**0.55 J**	**0.57 J**	**0.18 J**	**0.55 J**	**1.1 J**	1.5 U	**0.5 J**	**0.76 J**	1.6 U	**0.51 J**	1.5 U	**0.33 J**	**1.1 J**	1.2 U	**2.0**	**0.45 J**	**0.95 J**	**2.3**
General Chemistry																							
Cyanide	mg/kg	30	30	30	5000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cyanide (PAC)	mg/kg	--	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Percent Moisture	%	--	--	--	--	**8.7 J**	**13**	**5.8 J**	**11**	**6.1 J**	**9.3 J**	**8.7 J**	**10**	**12**	**12**	**11**	**13**	**10**	**15**	**14**	**11**	**16**	**17**

Red Shading - UCL Exceeded; Black Shading - Method 1 Std Exceeded; Bold - Detected; U - Not Detected;
J - Estimated; NA - Not Analyzed

Table 3-3
Summary of TBA Metals and Cyanide Soil Sample Results
Former Tombarello Property
Lawrence, Massachusetts
Page 11 of 12

					Sample Location	TP-08			TP-09		TP-10		TP-11		TP-12		TP-13		TP-14		TP-15		TP-16	
					Sample Depth (ft)	0 - 1	9 - 10		0 - 1	9 - 10	0 - 1	6 - 7	0 - 1	5 - 6	0 - 1	6 - 7	0 - 1	5 - 6	0 - 1	5 - 6	0 - 1	8 - 9	0 - 1	8 - 9
					Sample Date	06/14/16	06/14/16		06/14/16	06/14/16	06/14/16	06/14/16	06/16/16	06/16/16	06/15/16	06/15/16	06/15/16	06/15/16	06/15/16	06/15/16	06/14/16	06/14/16	06/14/16	06/14/16
					QC Identifier		FD	FD																
	Units	**S-1/GW-1**	**S-1/GW-2**	**S-1/GW-3**	**Soil UCL**																			
Metals																								
Arsenic	mg/kg	20	20	20	500	**15**	**14**	**15**	**22**	**20**	**18**	**12**	**15**	**16**	**65**	**20**	**17**	**41**	**21**	**26**	**15**	**15**	**13**	**13**
Barium	mg/kg	1000	1000	1000	10000	**350**	**320**	**320**	**290**	**390**	**250**	**340**	**330**	**360**	**400**	**390**	**210**	**260**	**230**	**280**	**280**	**280**	**240**	**230**
Cadmium	mg/kg	70	70	70	1000	**12**	**11**	**15**	**19**	**16**	**26**	**3.2**	**18**	**26**	**18**	**20**	**16**	**27**	**11**	**15**	**11**	**15**	**21**	**12**
Chromium	mg/kg	100	100	100	2000	**140 J**	**62**	**71 J**	**150**	**95**	**130**	**44**	**150**	**170**	**91**	**260**	**270**	**14000**	**1400**	**290**	**120**	**230**	**120**	**170**
Chromium-Hexavalent	mg/kg	100	100	100	2000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	mg/kg	200	200	200	6000	**1400**	**1300**	**1400 J**	**1200**	**2000**	**1000**	**1000**	**1300**	**1500**	**790**	**6500**	**740**	**1100**	**1100**	**1700**	**700**	**1500**	**820**	**740**
Mercury	mg/kg	20	20	20	300	**3.1**	**2.5**	**2.1**	**6.3**	**2.4**	**3.2**	**0.96**	**14**	**18**	**4.8**	**5.7**	**6.4**	**6.1**	**4.2**	**4.1**	**3.4**	**2.1**	**16**	**12**
Selenium	mg/kg	400	400	400	7000	1.3 U	1.4 U	**1.7**	1.5 U	1.6 U	1.6 U	**1.6**	1 U	1.5 U	0.87 U	1.4 U	1.1 U	1.1 U	1.1 U	1.5 U	1.6 U	1.2 U	1.5 U	1.2 U
Silver	mg/kg	100	100	100	2000	**1.8**	**2.1**	**1.9**	**2.7**	**2.3**	**0.83 J**	**2.6**	**1.6**	**0.55 J**	**3.1**	**4.3**	**2.9**	**6.9**	**1.4**	**3.1**	**1.8**	**2.0**	**11**	**3.1**
General Chemistry																								
Cyanide	mg/kg	30	30	30	5000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cyanide (PAC)	mg/kg	--	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Percent Moisture	%	--	--	--	--	**14**	**18**	**25**	**15**	**29**	**15**	**17**	**9.6 J**	**14**	**8.8 J**	**12**	**9.5 J**	**12**	**9.5 J**	**13**	**8.9 J**	**12**	**10**	**12**

Red Shading - UCL Exceeded; Black Shading - Method 1 Std Exceeded; Bold - Detected; U - Not Detected;
J - Estimated; NA - Not Analyzed

Table 3-3
Summary of TBA Metals and Cyanide Soil Sample Results
Former Tombarello Property
Lawrence, Massachusetts

					Sample Location	TP-17		TP-18		TP-19		TP-20			WSB-6		WSB-6N		WSB-6W	
					Sample Depth (ft)	0 - 1	3 - 4	0 - 1	3 - 4	0 - 1	6 - 7	0 - 1		5 - 6	0 - 1	1 - 3	0 - 1	1 - 3	0 - 1	1 - 3
					Sample Date	06/15/16	06/15/16	06/16/16	06/16/16	06/15/16	06/15/16	06/14/16		06/14/16	06/07/16	06/07/16	06/07/16	06/07/16	06/07/16	06/07/16
					QC Identifier							FD	FD							
	Units	**S-1/GW-1**	**S-1/GW-2**	**S-1/GW-3**	**Soil UCL**															
Metals																				
Arsenic	mg/kg	20	20	20	500	**15**	**17**	**10**	**5.6**	**29**	**16**	NA	**12**	**18**	NA	NA	NA	NA	NA	NA
Barium	mg/kg	1000	1000	1000	10000	**280**	**300**	**240**	**34**	**370**	**280**	NA	**170**	**140**	NA	NA	NA	NA	NA	NA
Cadmium	mg/kg	70	70	70	1000	**6.9**	**6.3**	**9.9**	**0.32**	**19**	**12**	NA	**16**	**6.7**	NA	NA	NA	NA	NA	NA
Chromium	mg/kg	100	100	100	2000	**160**	**100**	**79**	**28**	**1200**	**130**	NA	**120**	**55**	NA	NA	NA	NA	NA	NA
Chromium-Hexavalent	mg/kg	100	100	100	2000	NA	NA	NA	NA	NA	0.568 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	mg/kg	200	200	200	6000	**780**	**920**	**690**	**26**	**2000**	**1200**	NA	**610**	**10000**	NA	NA	NA	NA	NA	NA
Mercury	mg/kg	20	20	20	300	**0.81**	**0.65**	**12**	**0.091**	**7.1**	**7.2**	NA	**0.86**	**1.2**	NA	NA	NA	NA	NA	NA
Selenium	mg/kg	400	400	400	7000	**4.7**	**4.2**	**2.7**	**0.71 J**	1.1 U	1.4 U	NA	**180**	**2.4**	NA	NA	NA	NA	NA	NA
Silver	mg/kg	100	100	100	2000	**0.34 J**	**1.3**	**2.7**	1.1 U	**2.2**	**1.6**	NA	**1.7**	**1.2 J**	NA	NA	NA	NA	NA	NA
General Chemistry																				
Cyanide	mg/kg	30	30	30	5000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cyanide (PAC)	mg/kg	--	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Percent Moisture	%	--	--	--	--	**6.7 J**	**7.7 J**	**8.1 J**	**4.2 J**	**7.8 J**	**10**	**6 J**	**6.6 J**	**11**	**7.5 J**	**17**	**7.2 J**	**19**	**7.8 J**	**26**

Red Shading - UCL Exceeded; Black Shading - Method 1 Std Exceeded; Bold - Detected; U - Not Detected;
J - Estimated; NA - Not Analyzed

Table 3-4
Historical Metals Soil Sample Results
Former Tombarello Property
Lawrence, Massachusetts

					Sample Location	A-05	A-06	A-07	B-04	B-05	B-06	B-07	B-08	B-09	C-05	C-06	C-07	C-08	C-09	D-05	D-06	D-07	D-08	D-09	E-02
					Sample Depth (ft)	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5
					Sample Date	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10
					QC Identifier																				
Metals	**Units**	**S-1/GW-1**	**S-1/GW-2**	**S-1/GW-3**	**Soil UCL**																				
Arsenic	mg/kg	20	20	20	500	**50**	ND	**95**	ND	ND	**64**	**94**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**25**	**33**	ND
Barium	mg/kg	1000	1000	1000	10000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium	mg/kg	70	70	70	1000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**20**	ND	ND	ND	ND	ND	ND	ND
Chromium	mg/kg	100	100	100	2000	**94**	ND	**80**	**82**	**40**	**66**	ND	**65**	**135**	**143**	**43**	**36**	**79**	**58**	**58**	**54**	**92**	ND	**36**	**52**
Lead	mg/kg	200	200	200	6000	**557**	**248**	**1192**	**275**	**717**	**1210**	**3186**	**771**	**1129**	**1351**	**632**	**920**	**1051**	**503**	**164**	**267**	**981**	**226**	**299**	**180**
Mercury	mg/kg	20	20	20	300	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Selenium	mg/kg	400	400	400	7000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Silver	mg/kg	100	100	100	2000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Red Shading - UCL Exceeded; Black Shading - Method 1 Std Exceeded; Bold - Detected; U - Not Detected;
J - Estimated; NA - Not Analyzed

Table 3-4
Historical Metals Soil Sample Results
Former Tombarello Property
Lawrence, Massachusetts

					Sample Location	E-05	E-07	E-08	F-08	G-08	H-08	H-09	I-08	I-09	J-04	J-05	J-08	J-09	K-08-01	K-08-02	K-04	K-05	K-06	K-07	K-08
					Sample Depth (ft)	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5
					Sample Date	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10
					QC Identifier																				
Metals	**Units**	**S-1/GW-1**	**S-1/GW-2**	**S-1/GW-3**	**Soil UCL**																				
Arsenic	mg/kg	20	20	20	500	**47**	ND	ND	ND	**42**	ND	ND	**45**	ND	ND	ND	**71**	ND	ND	ND	ND	ND	**48**	**41**	ND
Barium	mg/kg	1000	1000	1000	10000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium	mg/kg	70	70	70	1000	ND	ND	ND	ND	ND	ND	ND	**40**	ND	ND	ND	**14**	ND	ND	**11.45**	ND	ND	ND	ND	ND
Chromium	mg/kg	100	100	100	2000	**75**	ND	**45**	ND	**80**	**29**	ND	**88**	ND	**72**	**83**	**98**	**52**	**55**	**71**	**64**	**52**	**196**	**55**	**69**
Lead	mg/kg	200	200	200	6000	**679**	**338**	**271**	**423**	**533**	**296**	**290**	**886**	**607**	**368**	**328**	**929**	**395**	**658**	**626**	**659**	**395**	**515**	**629**	**693**
Mercury	mg/kg	20	20	20	300	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Selenium	mg/kg	400	400	400	7000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Silver	mg/kg	100	100	100	2000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Red Shading - UCL Exceeded; Black Shading - Method 1 Std Exceeded; Bold - Detected; U - Not Detected;
J - Estimated; NA - Not Analyzed

Table 3-4
Historical Metals Soil Sample Results
Former Tombarello Property
Lawrence, Massachusetts
Page 3 of 13

					Sample Location	K-09	L-04	L-05	L-06	L-07	L-08	L-09	M-03	M-04	M-05	M-06	M-07	M-08	M-09	N-03	N-04	N-05	N-07	N-08	N-09
					Sample Depth (ft)	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5
					Sample Date	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10
					QC Identifier																				
Metals	**Units**	**S-1/GW-1**	**S-1/GW-2**	**S-1/GW-3**	**Soil UCL**																				
Arsenic	mg/kg	20	20	20	500	**55**	ND	ND	**87**	**57**	**58**	**45**	**53**	ND	ND	ND	**89**	ND	**38**	ND	**77**	**34**	**48**	**100**	**78**
Barium	mg/kg	1000	1000	1000	10000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium	mg/kg	70	70	70	1000	ND	ND	ND	ND	ND	**14**	**16**	ND	**16**	ND	ND	**35**	ND	ND	**18**	**15**	ND	ND	**25**	ND
Chromium	mg/kg	100	100	100	2000	ND	**188**	**77**	**114**	**90**	**61**	**47**	**101**	**119**	**76**	**65**	**137**	**59**	**57**	**57**	**410**	**73**	**151**	**102**	**105**
Lead	mg/kg	200	200	200	6000	**447**	**2256**	**305**	**820**	**548**	**613**	**671**	**771**	**1896**	**403**	**605**	**1553**	**704**	**435**	**370**	**524**	**379**	**1117**	**1479**	**687**
Mercury	mg/kg	20	20	20	300	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Selenium	mg/kg	400	400	400	7000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Silver	mg/kg	100	100	100	2000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Red Shading - UCL Exceeded; Black Shading - Method 1 Std Exceeded; Bold - Detected; U - Not Detected;
J - Estimated; NA - Not Analyzed

Table 3-4
Historical Metals Soil Sample Results
Former Tombarello Property
Lawrence, Massachusetts

					Sample Location	N-10	N-11	N-12	O-03	O-04	O-05	O-06	O-07	O-08	O-09	O-10	O-11	O-12	O-13	P-03	P-04	P-05	P-06	P-10	P-11
					Sample Depth (ft)	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5
					Sample Date	10/01/10	10/01/10	10/01/10	09/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10
					QC Identifier																				
Metals	**Units**	**S-1/GW-1**	**S-1/GW-2**	**S-1/GW-3**	**Soil UCL**																				
Arsenic	mg/kg	20	20	20	500	**91**	ND	ND	ND	**45**	ND	ND	**61**	**65**	ND	ND	ND	ND	ND	**41**	ND	**33**	ND	ND	**74**
Barium	mg/kg	1000	1000	1000	10000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium	mg/kg	70	70	70	1000	**23.1**	ND	ND	ND	ND	**13**	**17**	**15**	**14**	**33**	ND	ND	ND	**49**	ND	ND	ND	ND	ND	ND
Chromium	mg/kg	100	100	100	2000	**114**	**157**	**251**	**156**	**303**	**64**	**189**	**221**	**160**	**146**	**179**	**653**	**251**	**293**	**69**	**71**	**61**	**75**	**114**	**154**
Lead	mg/kg	200	200	200	6000	**1858**	**1535**	**1457**	**277**	**341**	**560**	**985**	**1095**	**937**	**798**	**1300**	**1348**	**1139**	**1143**	**484**	**486**	**425**	**377**	**1448**	**1283**
Mercury	mg/kg	20	20	20	300	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Selenium	mg/kg	400	400	400	7000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Silver	mg/kg	100	100	100	2000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Red Shading - UCL Exceeded; Black Shading - Method 1 Std Exceeded; Bold - Detected; U - Not Detected;
J - Estimated; NA - Not Analyzed

Table 3-4
Historical Metals Soil Sample Results
Former Tombarello Property
Lawrence, Massachusetts

					Sample Location	P-12	P-13	Q-03	Q-04	Q-05	Q-06	Q-10	Q-12	Q-13	R-03	R-04	R-05	R-06	R-07	R-08	R-10	R-11	R-12	R-13	S-04-01
					Sample Depth (ft)	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5
					Sample Date	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10
					QC Identifier																				
Metals	**Units**	**S-1/GW-1**	**S-1/GW-2**	**S-1/GW-3**	**Soil UCL**																				
Arsenic	mg/kg	20	20	20	500	**63**	**74**	ND	**41**	ND	ND	**75**	**80**	**184**	ND	ND	ND	ND	**79**	**52**	ND	**63**	ND	ND	**266**
Barium	mg/kg	1000	1000	1000	10000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium	mg/kg	70	70	70	1000	**22**	**40**	ND	ND	ND	ND	**22**	**23**	**29**	ND	ND	**11**	ND	**18**	ND	ND	**26**	ND	ND	ND
Chromium	mg/kg	100	100	100	2000	**122**	**261**	**65**	**62**	**92**	**125**	**159**	**99**	**152**	ND	**54**	**36**	**81**	**215**	**138**	**282**	**270**	**162**	**233**	**178**
Lead	mg/kg	200	200	200	6000	**1155**	**1566**	**486**	**515**	**294**	**900**	**1350**	**1560**	**2224**	**338**	**483**	**252**	**947**	**1646**	**848**	**1394**	**1068**	**5830**	**1565**	**415**
Mercury	mg/kg	20	20	20	300	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**1277**
Selenium	mg/kg	400	400	400	7000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Silver	mg/kg	100	100	100	2000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Red Shading - UCL Exceeded; Black Shading - Method 1 Std Exceeded; Bold - Detected; U - Not Detected;
J - Estimated; NA - Not Analyzed

Table 3-4
Historical Metals Soil Sample Results
Former Tombarello Property
Lawrence, Massachusetts

					Sample Location	S-04-02	S-07-01	S-08-01	S-03	S-04	S-05	S-06	S-07	S-08	S-8	S-09	S-9	S-10	S-11	S-12	S-13	SB1		SB2	
					Sample Depth (ft)	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0 - 2	2 - 4	0 - 2	2 - 4
					Sample Date	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	07/08/98	10/01/10	07/08/98	10/01/10	10/01/10	10/01/10	10/01/10	07/08/98	07/08/98	07/08/98	07/08/98
					QC Identifier																				
Metals	**Units**	**S-1/GW-1**	**S-1/GW-2**	**S-1/GW-3**	**Soil UCL**																				
Arsenic	mg/kg	20	20	20	500	ND	ND	ND	**27**	ND	ND	**47**	**64**	ND	**11.8**	**36**	**4.98**	ND	ND	ND	**58**	**4.76**	**3.22**	**2.74**	**3.18**
Barium	mg/kg	1000	1000	1000	10000	ND	ND	ND	ND	ND	ND	ND	ND	ND	**552**	ND	**52.9**	ND	ND	ND	ND	**45.5**	**25.6**	**13.3**	**16.7**
Cadmium	mg/kg	70	70	70	1000	ND	**58**	ND	ND	ND	ND	**16**	ND	**36**	**4.95**	ND	0.96 U	ND	ND	ND	ND	**1.9**	**2.62**	0.98 U	0.99 U
Chromium	mg/kg	100	100	100	2000	**48**	ND	**147**	**76**	**64**	**57**	**103**	**41**	**174**	**64**	**1265**	**38.3**	**239**	**151**	**1240**	**278**	**15.2**	**10.1**	**6.46**	**8.55**
Lead	mg/kg	200	200	200	6000	**604**	**244**	**716**	**297**	**415**	**469**	**918**	**1159**	**2053**	**1110**	**484**	**172**	**2178**	**971**	**1398**	**1468**	**146**	**712**	**26.8**	**9.74**
Mercury	mg/kg	20	20	20	300	ND	ND	ND	ND	ND	ND	ND	ND	ND	**7.13**	ND	**1.06**	ND	ND	ND	ND	**0.32**	0.1 U	**0.43**	0.1 U
Selenium	mg/kg	400	400	400	7000	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.95 U	ND	0.96 U	ND	ND	ND	ND	0.95 U	1.01 U	0.98 U	0.99 U
Silver	mg/kg	100	100	100	2000	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.95 U	ND	0.96 U	ND	ND	ND	ND	0.95 U	**2.21**	0.98 U	0.99 U

Red Shading - UCL Exceeded; Black Shading - Method 1 Std Exceeded; Bold - Detected; U - Not Detected;
J - Estimated; NA - Not Analyzed

Table 3-4
Historical Metals Soil Sample Results
Former Tombarello Property
Lawrence, Massachusetts

					Sample Location	SB3		SB4	SB5-E	SB5-N	SB5-S	SB5-W	SB5		SB6-SS1	SB6		SS-7	SS-8		SS-9	SS8-E	SS8-N	SS8-S	SS8-W
					Sample Depth (ft)	0 - 2	2 - 4	0 - 2	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 2	4 - 6	0 - 0.5	0 - 2	4 - 6	0 - 0.5	0 - 0.5		0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5
					Sample Date	07/08/98	07/08/98	07/08/98	04/28/99	04/28/99	04/28/99	04/28/99	07/08/98	07/08/98	04/28/99	07/08/98	07/08/98	04/28/99	07/08/98	04/28/99	07/08/98	04/28/99	04/28/99	04/28/99	04/28/99
					QC Identifier														FD	FD					
Metals	**Units**	**S-1/GW-1**	**S-1/GW-2**	**S-1/GW-3**	**Soil UCL**																				
Arsenic	mg/kg	20	20	20	500	**9.52**	**4.04**	**5.73**	NA	NA	NA	NA	**13.3**	**3.99**	NA	**3.62**	**4.2**	**10.7**	**11.8**	NA	**4.98**	NA	NA	NA	NA
Barium	mg/kg	1000	1000	1000	10000	**333**	**12.5**	**54**	NA	NA	NA	NA	**197**	**16.4**	NA	**44.3**	**19.8**	**141**	**552**	NA	**52.9**	NA	NA	NA	NA
Cadmium	mg/kg	70	70	70	1000	**2.67**	1.01 U	0.99 U	**5.45**	**6.6**	**0.59**	**5.4**	**5.78**	1 U	**8.21**	1.01 U	0.95 U	**8.19**	**4.95**	**2.72**	0.96 U	**3.36**	**4.58**	**3.42**	**2.98**
Chromium	mg/kg	100	100	100	2000	**60.4**	**8.69**	**33**	NA	NA	NA	NA	**57.4**	**7.19**	NA	**14.5**	**7.63**	**62.3**	**64**	NA	**38.3**	NA	NA	NA	NA
Lead	mg/kg	200	200	200	6000	**918**	**5.45**	**106**	**980**	**550**	**100**	**670**	**3470**	**8.58**	**790**	**37.4**	**4.01**	**672**	**1110**	**270**	**172**	**490**	**500**	**310**	**330**
Mercury	mg/kg	20	20	20	300	**0.97**	0.1 U	**0.5**	NA	NA	NA	NA	**2.13**	0.1 U	NA	0.1 U	0.1 U	**4.19**	**7.13**	NA	**1.06**	NA	NA	NA	NA
Selenium	mg/kg	400	400	400	7000	0.95 U	1.01 U	0.99 U	NA	NA	NA	NA	0.096 U	1 U	NA	1.01 U	0.95 U	0.95 U	0.95 U	NA	0.96 U	NA	NA	NA	NA
Silver	mg/kg	100	100	100	2000	**1.71**	1.01 U	0.99 U	NA	NA	NA	NA	0.096 U	1 U	NA	1.01 U	0.95 U	**20.8**	0.95 U	NA	0.96 U	NA	NA	NA	NA

Red Shading - UCL Exceeded; Black Shading - Method 1 Std Exceeded; Bold - Detected; U - Not Detected;
J - Estimated; NA - Not Analyzed

					Sample Location	T-11-01	T-12-01	T-12-02	T-12-03	T-03	T-04	T-05	T-09	T-10	T-11	T-12	T-13	U-09-01	U-10-01	U-10-02	U-11-01	U-11-02	U-12-01	U-12-02	U-13-01
					Sample Depth (ft)	0.0 - 0.5	0.0 - 0.5	0.0 - 0.5	0.0 - 0.5	0.0 - 0.5	0.0 - 0.5	0.0 - 0.5	0.0 - 0.5	0.0 - 0.5	0.0 - 0.5	0.0 - 0.5	0.0 - 0.5	0.0 - 0.5	0.0 - 0.5	0.0 - 0.5	0.0 - 0.5	0.0 - 0.5	0.0 - 0.5	0.0 - 0.5	0.0 - 0.5
					Sample Date	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10
					QC Identifier																				
Metals	**Units**	**S-1/GW-1**	**S-1/GW-2**	**S-1/GW-3**	**Soil UCL**																				
Arsenic	mg/kg	20	20	20	500	**54**	ND	ND	ND	**88**	ND	**31**	**176**	ND	ND	**83**	ND	**135**	**102**	**235**	**60**	ND	ND	ND	ND
Barium	mg/kg	1000	1000	1000	10000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium	mg/kg	70	70	70	1000	ND	ND	ND	ND	ND	ND	ND	**37**	ND	**20**	**25**	ND	**32**	**34**	**31**	ND	ND	ND	ND	ND
Chromium	mg/kg	100	100	100	2000	**236**	**204**	**216**	**179**	**133**	**84**	**41**	**291**	**38**	**185**	**110**	**116**	**237**	**255**	**223**	**195**	**288**	**254**	**322**	**224**
Lead	mg/kg	200	200	200	6000	**1012**	**1542**	**1347**	**1289**	**852**	**409**	**369**	**4992**	**512**	**1359**	**1897**	**1604**	**3133**	**2151**	**4332**	**1184**	**1092**	**1377**	**2016**	**1537**
Mercury	mg/kg	20	20	20	300	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Selenium	mg/kg	400	400	400	7000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Silver	mg/kg	100	100	100	2000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Red Shading - UCL Exceeded; Black Shading - Method 1 Std Exceeded; Bold - Detected; U - Not Detected;
J - Estimated; NA - Not Analyzed

Table 3-4
Historical Metals Soil Sample Results
Former Tombarello Property
Lawrence, Massachusetts

					Sample Location	U-03	U-04	U-05	U-07	U-09	U-10	U-11	U-12	U-13	V-12-01	V-12-02	V-04	V-05	V-07	V-08	V-09	V-10	V-11	V-12	V-13
					Sample Depth (ft)	0.0 - 0.5	0.0 - 0.5	0.0 - 0.5	0.0 - 0.5	0.0 - 0.5	0.0 - 0.5	0.0 - 0.5	0.0 - 0.5	0.0 - 0.5	0.0 - 0.5	0.0 - 0.5	0.0 - 0.5	0.0 - 0.5	0.0 - 0.5	0.0 - 0.5	0.0 - 0.5	0.0 - 0.5	0.0 - 0.5	0.0 - 0.5	0.0 - 0.5
					Sample Date	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10
					QC Identifier																				
Metals	**Units**	**S-1/GW-1**	**S-1/GW-2**	**S-1/GW-3**	**Soil UCL**																				
Arsenic	mg/kg	20	20	20	500	ND	ND	ND	ND	**168**	ND	ND	**52**	**76**	**50**	ND	**40**	**32**	ND	ND	**117**	ND	**69**	**92**	**49**
Barium	mg/kg	1000	1000	1000	10000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium	mg/kg	70	70	70	1000	ND	ND	ND	ND	**42**	ND	**20**	ND	ND	ND	ND	ND	ND	ND	**25**	**20**	ND	**23**	ND	ND
Chromium	mg/kg	100	100	100	2000	**40**	**87**	**35**	**74**	**324**	**273**	**102**	**185**	**174**	**499**	**482**	**87**	**116**	**124**	**198**	**201**	**179**	**162**	**147**	**207**
Lead	mg/kg	200	200	200	6000	**357**	**369**	**177**	**528**	**2328**	**1797**	**1091**	**900**	**920**	**1247**	**1478**	**445**	**390**	**746**	**1624**	**1997**	**730**	**902**	**1191**	**1176**
Mercury	mg/kg	20	20	20	300	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Selenium	mg/kg	400	400	400	7000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Silver	mg/kg	100	100	100	2000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Red Shading - UCL Exceeded; Black Shading - Method 1 Std Exceeded; Bold - Detected; U - Not Detected;
J - Estimated; NA - Not Analyzed

Table 3-4
Historical Metals Soil Sample Results
Former Tombarello Property
Lawrence, Massachusetts

Sample Location						W-05-01	W-06-01	W-09-01	W-09-02	W-09-03	W-04	W-05	W-06	W-07	W-08	W-09	W-10	W-11	W-12	WSB-1		WSB-2		WSB-3	
Sample Depth (ft)						0.0 - 0.5	0.0 - 0.5	0.0 - 0.5	0.0 - 0.5	0.0 - 0.5	0.0 - 0.5	0.0 - 0.5	0.0 - 0.5	0.0 - 0.5	0.0 - 0.5	0.0 - 0.5	0.0 - 0.5	0.0 - 0.5	0.0 - 0.5	1 - 3	3 - 5	1 - 3	3 - 5	0 - 1	1 - 3
Sample Date						10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	02/01/03	02/01/03	02/01/03	02/01/03	02/01/03	02/01/03
QC Identifier																									
Metals	**Units**	**S-1/GW-1**	**S-1/GW-2**	**S-1/GW-3**	**Soil UCL**																				
Arsenic	mg/kg	20	20	20	500	ND	75	ND	ND	101	54	ND	48	115	ND	ND	97	ND	ND	6.1	5.88	7.42	11	5.49	6.75
Barium	mg/kg	1000	1000	1000	10000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	106	64	107	166	74.4	142
Cadmium	mg/kg	70	70	70	1000	ND	ND	ND	ND	ND	ND	ND	ND	23	ND	17	35	27	25	4.01	0.796 U	716	20	1.82	3.86
Chromium	mg/kg	100	100	100	2000	64	103	230	190	577	192	36	106	128	107	125	258	194	826	23.2	12.4	34.4	220	27.5	30.7
Lead	mg/kg	200	200	200	6000	490	906	1234	895	1267	572	451	900	1319	1374	877	1624	1562	1027	1180	159	1330	168	389	563
Mercury	mg/kg	20	20	20	300	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.71	0.145	1.17	0.367 U	3.07	2.42
Selenium	mg/kg	400	400	400	7000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	7.1 U	7.96 U	6.89 U	10.7 U	7.94 U	7.12 U
Silver	mg/kg	100	100	100	2000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.71 U	0.796 U	0.689 U	1.07 U	0.794 U	0.712 U

Red Shading - UCL Exceeded; Black Shading - Method 1 Std Exceeded; Bold - Detected; U - Not Detected;
J - Estimated; NA - Not Analyzed

Table 3-4
Historical Metals Soil Sample Results
Former Tombarello Property
Lawrence, Massachusetts

					Sample Location	WSB-4		WSB-5		WSB-6		WSB-7		WSB-8		WSB-9		WSB-10		WSB-11		WSB-12	
					Sample Depth (ft)	0 - 1	1 - 3	0 - 1	1 - 3	0 - 1	1 - 3	0 - 1	1 - 3	1 - 3	3 - 5	0 - 1	1 - 3	0 - 1	1 - 3	0 - 1	1 - 3	0 - 1	1 - 3
					Sample Date	02/01/03	02/01/03	02/01/03	02/01/03	02/01/03	02/01/03	02/01/03	02/01/03	02/01/03	02/01/03	02/01/03	02/01/03	02/01/03	02/01/03	02/01/03	02/01/03	02/01/03	02/01/03
					QC Identifier																		
Metals	**Units**	**S-1/GW-1**	**S-1/GW-2**	**S-1/GW-3**	**Soil UCL**																		
Arsenic	mg/kg	20	20	20	500	**8.97**	**15.6**	**13.6**	**14.2**	**17.9**	**8.52**	**9.89**	**6.13**	**4.49**	**8.1**	**7.33**	**5.56**	**69.4**	**10.8**	**6.04**	**14.3**	**8.51**	3.91 U
Barium	mg/kg	1000	1000	1000	10000	**156**	**52.9**	**344**	**867**	**55.8**	**19.4**	**70.6**	**197**	**35.3**	**184**	**228**	**18.9**	**195**	**526**	**82.3**	**176**	**376**	**46.6**
Cadmium	mg/kg	70	70	70	1000	**2.88**	0.796 U	**3.75**	**5.77**	**1.61**	0.801 U	**2.3**	**3.07**	0.669 U	**3.55**	**1.42**	0.866 U	**0.977**	**4.1**	**1.68**	**12.5**	**10.6**	0.782 U
Chromium	mg/kg	100	100	100	2000	**29.1**	**15.5**	**40**	**52.2**	**29.6**	**12.6**	**48.6**	**28.9**	**15.5**	**35.5**	**20.6**	**12.6**	**40.1**	**47**	**28.7**	**57.9**	**40.7**	**10.1**
Lead	mg/kg	200	200	200	6000	**381**	**30.2**	**2700**	**1260**	**92.2**	8.01 U	**215**	**517**	**99.2**	**464**	**94.9**	8.66 U	**789**	**1320**	**216**	**709**	**652**	**13.7**
Mercury	mg/kg	20	20	20	300	**0.912**	0.0392 U	**1.07**	1.86 U	**0.327**	0.0414 U	**1.39**	**0.535**	**0.401**	**1.29**	**0.174**	0.0433 U	**0.323**	**2.08**	**0.661**	**2.26**	**0.751**	0.0382 U
Selenium	mg/kg	400	400	400	7000	6.87 U	7.96 U	7.48 U	8.66 U	6.89 U	8.01 U	7.12 U	7.2 U	6.69 U	7.58 U	8.38 U	8.66 U	7.18 U	7.41 U	7.51 U	7.51 U	7.33 U	7.82 U
Silver	mg/kg	100	100	100	2000	0.687 U	0.796 U	0.748 U	0.866 U	0.689 U	0.801 U	0.712 U	1.62 U	0.669 U	0.758 U	0.838 U	0.866 U	0.718 U	0.741 U	0.751 U	0.751 U	0.733 U	0.782 U

Red Shading - UCL Exceeded; Black Shading - Method 1 Std Exceeded; Bold - Detected; U - Not Detected;
J - Estimated; NA - Not Analyzed

Table 3-4
Historical Metals Soil Sample Results
Former Tombarello Property
Lawrence, Massachusetts
Page 12 of 13

					Sample Location	WSB-14				X-05-01	X-07-01	X-07-02	X-07-03	X-10-01	X-10-02	X-10-03	X-10-04	X-11-01	X-11-02	X-11-03	X-04	X-05	X-06
					Sample Depth (ft)	0 - 1	1 - 3	3 - 5	5 - 7	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5
					Sample Date	02/01/03	02/01/03	02/01/03	02/01/03	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10
					QC Identifier																		
Metals	**Units**	**S-1/GW-1**	**S-1/GW-2**	**S-1/GW-3**	**Soil UCL**																		
Arsenic	mg/kg	20	20	20	500	3.69 U	**14.05**	**10.7**	**4.66**	ND	**123**	**152**	**110**	ND	**77**	ND	ND	**83**	ND	**64**	ND	**51**	ND
Barium	mg/kg	1000	1000	1000	10000	**45.8**	**765**	**1480**	**18.1**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium	mg/kg	70	70	70	1000	**2.11**	**6.245**	0.808 U	0.786 U	ND	ND	**40**	**41**	ND	ND	ND	ND	ND	ND	ND	**18**	ND	ND
Chromium	mg/kg	100	100	100	2000	**24.6**	**52.15**	**15.1**	**8.34**	**94**	**366**	**241**	**355**	**440**	**453**	**300**	**386**	**218**	**178**	**270**	**122**	**121**	**100**
Lead	mg/kg	200	200	200	6000	**115**	**1240**	**2230**	7.86 U	**611**	**2155**	**1896**	**1904**	**1397**	**1294**	**1415**	**1885**	**1457**	**1110**	**1391**	**1108**	**590**	**3476**
Mercury	mg/kg	20	20	20	300	**1.28**	**1.41**	**0.28**	0.0398 U	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Selenium	mg/kg	400	400	400	7000	7.38 U	7.7 U	8.08 U	7.86 U	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Silver	mg/kg	100	100	100	2000	0.738 U	**0.99**	0.808 U	0.786 U	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Red Shading - UCL Exceeded; Black Shading - Method 1 Std Exceeded; Bold - Detected; U - Not Detected;
J - Estimated; NA - Not Analyzed

Table 3-4
Historical Metals Soil Sample Results
Former Tombarello Property
Lawrence, Massachusetts
Page 13 of 13

					Sample Location	X-07	X-08	X-10	X-11	X-12	Z-00	Z-01	Z-02	Z-03	Z-04	Z-05	Z-06	Z-07	Z-08	Z-09
					Sample Depth (ft)	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5
					Sample Date	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10	10/01/10
					QC Identifier															
Metals	**Units**	**S-1/GW-1**	**S-1/GW-2**	**S-1/GW-3**	**Soil UCL**															
Arsenic	mg/kg	20	20	20	500	**206**	ND	**97**	ND	ND	ND	ND	ND	ND	ND	ND	**82**	ND	ND	ND
Barium	mg/kg	1000	1000	1000	10000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium	mg/kg	70	70	70	1000	ND	ND	**21**	ND	**17**	ND	ND	ND	ND	ND	ND	ND	**51**	ND	ND
Chromium	mg/kg	100	100	100	2000	**339**	**142**	**363**	**52**	**143**	**75**	ND	**50**	**86**	**104**	**143**	**82**	**358**	**153**	**175**
Lead	mg/kg	200	200	200	6000	**4415**	**1027**	**1241**	**411**	**1306**	**412**	**543**	**473**	**398**	**1921**	**728**	**505**	**3279**	**1256**	**1037**
Mercury	mg/kg	20	20	20	300	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Selenium	mg/kg	400	400	400	7000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Silver	mg/kg	100	100	100	2000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Table 3-5
Summary of TCLP Metals Soil Sampling Results
Former Tombarello Property
Lawrence, Massachusetts

		Sample Location	CD-45E	CD-45S	SVA-03	SVA-06	TP-20	TP-05	TP-13	TP-12
		Sample Depth (ft)	1-3	1-3	1-3	0-1	5-6	4-5	5-6	6-7
		Sample Date	06/06/16	06/06/16	06/08/16	06/08/16	06/14/16	06/15/16	06/15/16	06/15/16
TCLP Metals (mg/L)	**Units**	**RCRA Limits**								
Chromium	mg/L	5	NA	NA	NA	0.0059 J	NA	0.0189	0.0038 J	NA
Lead	mg/L	5	**95**	**28**	4.73	NA	3.2	NA	NA	1.58

U – not detected; J – estimated value; UJ – not detected, reporting limit estimated

Table 3-6
Summary of TBA EPH and SVOC Soil Sample Results
Former Tombarello Property
Lawrence, Massachusetts
Page 1 of 6

					Sample Location	BPA-01	BPA-02	CD-34E	CD-34W	CD-45E	CD-45N		CD-45W	FB-01	FB-02		FB-04	FG-34	FG-34N	FG-45N
					Sample Depth (ft)	2 - 3	2 - 3	1 - 3	0 - 1	0 - 1	0 - 1	1 - 3	1 - 3	1 - 2	1 - 2	2 - 3	1 - 2	0 - 1	1 - 3	0 - 1
					Sample Date	06/07/16	06/07/16	06/06/16	06/06/16	06/06/16	06/06/16	06/06/16	06/06/16	06/06/16	06/07/16	06/07/16	06/06/16	06/07/16	06/07/16	06/08/16
					QC Identifier															
Semivolatiles	**Units**	**S-1/GW-1**	**S-1/GW-2**	**S-1/GW-3**	**Soil UCL**															
2-Methylnaphthalene	ug/kg	700	80000	300000	5000000	**1500**	370 U	**4000 J+**	**2200 J+**	**3900**	**970**	**11000 J**	**1800**	350 U	**310 J**	**380**	**3200**	**2200**	**210 J**	**270 J**
Acenaphthene	ug/kg	4000	1000000	1000000	10000000	**3700**	370 U	**22000 J**	**16000 J**	**17000 J**	**470**	**64000**	**5000**	**150 J**	**620**	**940**	**8100 J**	**2500**	**880**	**430**
Acenaphthylene	ug/kg	1000	600000	10000	10000000	**930**	370 U	**3600 J+**	**970 J+**	**1800**	**1200**	**5600 J-**	**7600 J**	**72 J**	**81 J**	**120 J**	**750**	**2200**	**390 J**	**880**
Anthracene	ug/kg	1000000	1000000	1000000	10000000	**10000**	**310 J**	**63000 J**	**30000 J**	**36000**	**1800**	**150000**	**23000**	**400**	**1800**	**2700**	**27000**	**6800**	**2100**	**1400**
Benzo(a)anthracene	ug/kg	7000	7000	7000	3000000	**17000**	**630**	**110000**	**69000 J**	**86000**	**5500**	**240000**	**37000**	**1000**	**2400**	**3800**	**33000**	**14000**	**4900**	**5300**
Benzo(a)pyrene	ug/kg	2000	2000	2000	300000	**15000**	**690**	**110000**	**61000 J**	**72000**	**5300**	**210000**	**37000**	**710 J-**	**2200**	**3100**	**29000**	**13000**	**4700**	**4400**
Benzo(b)fluoranthene	ug/kg	7000	7000	7000	3000000	**19000**	**940**	**140000**	**84000**	**98000**	**11000**	**250000**	**45000**	**1500**	**3000**	**4400**	**36000**	**16000**	**6000**	**9000**
Benzo(g,h,i)perylene	ug/kg	1000000	1000000	1000000	10000000	**8000**	**830**	**62000 J**	**35000 J**	**46000**	**5000**	**99000**	**23000**	**530**	**1200**	**1800**	**14000**	**7800**	**3600**	**5300**
Benzo(k)fluoranthene	ug/kg	70000	70000	70000	10000000	**5200**	**380**	**53000 J**	**430 J+**	**42000**	**1800**	**92000**	**18000**	**590**	**1200**	**1500**	**15000**	**5000**	**2700**	**3300**
Chrysene	ug/kg	70000	70000	70000	10000000	**17000**	**630**	**120000**	**66000 J**	**85000**	**7000**	**1400 J-**	**35000**	**1000**	**2200**	**3300**	**31000**	**14000**	**4300**	**5100**
Dibenz(a,h)anthracene	ug/kg	700	700	700	300000	**2100**	**120 J**	360 U	350 U	380 U	350 U	380 UJ	350 U	350 U	**320 J**	**460**	340 U	**2200**	**880**	**1400**
Fluoranthene	ug/kg	1000000	1000000	1000000	10000000	**37000**	**1200**	**300000**	**500 J+**	**190000**	**10000**	**460000**	**79000**	**2100**	**5000**	**9200**	**80000**	**30000**	**11000**	**9300**
Fluorene	ug/kg	1000000	1000000	1000000	10000000	**4400**	370 U	**33000 J**	**17000 J**	**19000 J**	**1100**	**97000**	**13000**	**160 J**	**920**	**1500**	**14000**	**4400**	**940**	**570**
Indeno(1,2,3-cd)pyrene	ug/kg	7000	7000	7000	3000000	**9500**	**630**	**70000 J**	**40000 J**	**49000**	**5400**	**110000**	**25000**	**620**	**1300**	**1900**	**16000**	**8800**	**3800**	**5300**
Naphthalene	ug/kg	4000	20000	500000	10000000	**2900**	370 U	90000 U	**4300 J+**	**10000 J**	**930**	**30000 J**	**2800**	350 U	**450**	**660**	**5200**	**3600**	**400**	**270 J**
Phenanthrene	ug/kg	10000	500000	500000	10000000	**38000**	**820**	**260000**	**120000**	**170000**	**5200**	**430000**	**71000**	**1600**	**5300**	**9400**	**76000**	**27000**	**8200**	**4500**
Pyrene	ug/kg	1000000	1000000	1000000	10000000	**28000**	**1100**	**210000**	**110000**	**140000**	**9500**	**390000**	**59000**	**1900**	**4200**	**5900**	**54000**	**23000**	**8400**	**8000**

Shading - UCL Exceeded; Bold - Detected; U - Not Detected;
J - Estimated; R - Rejected; NA - Not Analyzed

Table 3-6
Summary of TBA EPH and SVOC Soil Sample Results
Former Tombarello Property
Lawrence, Massachusetts

					Sample Location	BPA-01	BPA-02	CD-34E	CD-34W	CD-45E	CD-45N		CD-45W	FB-01	FB-02		FB-04	FG-34	FG-34N	FG-45N
					Sample Depth (ft)	2 - 3	2 - 3	1 - 3	0 - 1	0 - 1	0 - 1	1 - 3	1 - 3	1 - 2	1 - 2	2 - 3	1 - 2	0 - 1	1 - 3	0 - 1
					Sample Date	06/07/16	06/07/16	06/06/16	06/06/16	06/06/16	06/06/16	06/06/16	06/06/16	06/06/16	06/07/16	06/07/16	06/06/16	06/07/16	06/07/16	06/08/16
					QC Identifier															
EPH	**Units**	**S-1/GW-1**	**S-1/GW-2**	**S-1/GW-3**	**Soil UCL**															
C11-C22 Aromatics	mg/kg	1000	1000	1000	10000	**417**	**514**	NA	NA	NA	NA	NA	NA	**15.1**	**313**	**204**	**199 J**	NA	NA	NA
C19-C36 Aliphatics	mg/kg	3000	3000	3000	20000	**277**	**2160 J**	NA	NA	NA	NA	NA	NA	10.5 U	**741 J**	**544**	10.4 U	NA	NA	NA
C9-C18 Aliphatics	mg/kg	1000	1000	1000	20000	27.4 U	**752 J**	NA	NA	NA	NA	NA	NA	10.5 U	**49.8**	**33.9**	10.4 UJ	NA	NA	NA
2-Methylnaphthalene	mg/kg	0.7	80	300	5000	0.911 U	0.358 U	NA	NA	NA	NA	NA	NA	0.35 U	**1.07**	0.352 U	**0.935 J**	NA	NA	NA
Acenaphthene	mg/kg	4	1000	1000	10000	**2.57**	0.358 U	NA	NA	NA	NA	NA	NA	0.35 U	**1.95**	**0.851**	**2.51 J**	NA	NA	NA
Acenaphthylene	mg/kg	1	600	10	10000	0.911 U	0.358 U	NA	NA	NA	NA	NA	NA	0.35 U	0.352 U	0.352 U	0.695 UJ	NA	NA	NA
Anthracene	mg/kg	1000	1000	1000	10000	**7.18**	0.358 U	NA	NA	NA	NA	NA	NA	**0.518**	**6.77**	**2.83**	**9.72 J**	NA	NA	NA
Benzo(a)anthracene	mg/kg	7	7	7	3000	**15.9**	**0.606**	NA	NA	NA	NA	NA	NA	**1.11**	**8.02**	**5.59**	**13.2 J**	NA	NA	NA
Benzo(a)pyrene	mg/kg	2	2	2	300	**13.4**	**0.714**	NA	NA	NA	NA	NA	NA	**1.14**	**6.9**	**4.77**	**9.77 J**	NA	NA	NA
Benzo(b)fluoranthene	mg/kg	7	7	7	3000	**9.57**	**0.46**	NA	NA	NA	NA	NA	NA	**0.672**	**4.6**	**3.09**	**6.37 J**	NA	NA	NA
Benzo(g,h,i)perylene	mg/kg	1000	1000	1000	10000	**5.56**	**0.559**	NA	NA	NA	NA	NA	NA	**0.493**	**2.95**	**2.4**	**3.95 J**	NA	NA	NA
Benzo(k)fluoranthene	mg/kg	70	70	70	10000	**10.8**	**0.646**	NA	NA	NA	NA	NA	NA	**1.1**	**6.01**	**3.67**	**7.77 J**	NA	NA	NA
Chrysene	mg/kg	70	70	70	10000	**13.7**	**0.635**	NA	NA	NA	NA	NA	NA	**1.2**	**6.9**	**4.84**	**10.7 J**	NA	NA	NA
Dibenz(a,h)anthracene	mg/kg	0.7	0.7	0.7	300	**1.73**	0.358 U	NA	NA	NA	NA	NA	NA	0.35 U	**0.872**	**0.703**	**1.11 J**	NA	NA	NA
Fluoranthene	mg/kg	1000	1000	1000	10000	**31.7**	**1.16**	NA	NA	NA	NA	NA	NA	**2.65**	**17.2**	**11.5**	**31.2 J**	NA	NA	NA
Fluorene	mg/kg	1000	1000	1000	10000	**3.71**	**0.403**	NA	NA	NA	NA	NA	NA	0.35 U	**4**	**1.22**	**4.92 J**	NA	NA	NA
Indeno(1,2,3-cd)pyrene	mg/kg	7	7	7	3000	**5.82**	**0.476**	NA	NA	NA	NA	NA	NA	**0.406**	**2.93**	**2.34**	**3.82 J**	NA	NA	NA
Naphthalene	mg/kg	4	20	500	10000	**2.03**	0.358 U	NA	NA	NA	NA	NA	NA	0.35 U	**1.2**	**0.421**	**1.48 J**	NA	NA	NA
Phenanthrene	mg/kg	10	500	500	10000	**33.1**	**0.86**	NA	NA	NA	NA	NA	NA	**2.0**	**19.8**	**10.8**	**33.2 J**	NA	NA	NA
Pyrene	mg/kg	1000	1000	1000	10000	**26.6**	**1.13**	NA	NA	NA	NA	NA	NA	**2.26**	**13.3**	**9.18**	**24.2 J**	NA	NA	NA

Shading - UCL Exceeded; Bold - Detected; U - Not Detected;
J - Estimated; R - Rejected; NA - Not Analyzed

Table 3-6
Summary of TBA EPH and SVOC Soil Sample Results
Former Tombarello Property
Lawrence, Massachusetts
Page 3 of 6

					Sample Location	FG-45S		LS-01	LS-02	MS-01	MS-02	NPA-01	NPA-03	NPA-04	NPA-05	NPA-06	NPA-07	P-13N	P-13W	SA-01
					Sample Depth (ft)	1 - 3		7 - 8	2 - 3	2 - 3	2 - 3	0.5 - 2	0.5 - 2	2 - 3	0.5 - 2	0.5 - 2	0.5 - 2	0 - 1	1 - 3	1 - 3
					Sample Date	06/08/16		06/09/16	06/09/16	06/10/16	06/10/16	06/10/16	06/10/16	06/10/16	06/10/16	06/10/16	06/10/16	06/08/16	06/08/16	06/09/16
					QC Identifier	FD	FD													
Semivolatiles	Units	S-1/GW-1	S-1/GW-2	S-1/GW-3	Soil UCL															
2-Methylnaphthalene	ug/kg	700	80000	300000	5000000	400 U	400 U	410 U	430 U	120 J	360 J	1400 U	35000 U	370	1200	24000 J	360 U	140 J	510 U	1700
Acenaphthene	ug/kg	4000	1000000	1000000	10000000	180 J	400 U	410 U	430 U	520	1800	370 J	25000 J	1400	5900	59000 J	110 J	290 J	510 U	560
Acenaphthylene	ug/kg	1000	600000	10000	10000000	400 U	400 U	410 U	430 U	210 J	370	560 J	35000 U	410	830	71000 U	230 J	410	620	190 J
Anthracene	ug/kg	1000000	1000000	1000000	10000000	400	190 J	410 U	430 U	1700	6800	1200 J	58000	4900	15000	160000	480	1200	1900	1700
Benzo(a)anthracene	ug/kg	7000	7000	7000	3000000	840 J	450 J	410 U	430 U	3600	12000	3400 J	120000	11000	29000	280000	1400	3700	5000	2300
Benzo(a)pyrene	ug/kg	2000	2000	2000	300000	780	470	410 U	430 U	3400	12000	3300 J	100000	10000	24000	250000	1500	2900	4300	2500
Benzo(b)fluoranthene	ug/kg	7000	7000	7000	3000000	1100 J	640 J	410 U	430 U	4600	15000	4400 J	130000	12000	32000	330000	1900	5200	6300	3400
Benzo(g,h,i)perylene	ug/kg	1000000	1000000	1000000	10000000	450	360 J	410 U	430 U	2000	7200	1700 J	44000	4900	12000	110000	1100	4200	3200	1100
Benzo(k)fluoranthene	ug/kg	70000	70000	70000	10000000	460	230 J	410 U	430 U	1800	4000 J	1800 J	61000	4800	5900	130000	900	2100	2900	1200
Chrysene	ug/kg	70000	70000	70000	10000000	860 J	470 J	410 U	430 U	3300	11000	3000 J	120000	10000	28000	250000	1400	3400	4500	2200
Dibenz(a,h)anthracene	ug/kg	700	700	700	300000	120 J	100 J	410 U	430 U	530	1800 J	480 J	16000 J	1700	4400	36000 J	280 J	930	760	310 J
Fluoranthene	ug/kg	1000000	1000000	1000000	10000000	1800 J	930 J	410 U	430 U	8500	30000	8000 J	280000	23000	68000	750000	2800	5500	12000	5500
Fluorene	ug/kg	1000000	1000000	1000000	10000000	180 J	400 U	410 U	430 U	670	2500	410 J	27000 J	2100	7200 J	68000 J	150 J	340 J	200 J	1000
Indeno(1,2,3-cd)pyrene	ug/kg	7000	7000	7000	3000000	440	380 J	410 U	430 U	2100	8200	1900 J	51000	5400	15000	130000	990	4100	3500	1300
Naphthalene	ug/kg	4000	20000	500000	10000000	160 J	400 U	410 U	430 U	200 J	470	1400 U	35000 U	760	2100	39000 J	360 U	190 J	510 U	1500
Phenanthrene	ug/kg	10000	500000	500000	10000000	1700 J	670 J	410 U	430 U	5700	22000	4300 J	230000	15000	58000	660000	1800	3300	6300	5700
Pyrene	ug/kg	1000000	1000000	1000000	10000000	1500 J	860 J	410 U	430 U	5800	20000	4900 J	200000	15000	46000	480000	2400	6000	8600	4600

Table 3-6
Summary of TBA EPH and SVOC Soil Sample Results
Former Tombarello Property
Lawrence, Massachusetts
Page 4 of 6

					Sample Location	FG-45S		LS-01	LS-02	MS-01	MS-02	NPA-01	NPA-03	NPA-04	NPA-05	NPA-06	NPA-07	P-13N	P-13W	SA-01
					Sample Depth (ft)	1 - 3		7 - 8	2 - 3	2 - 3	2 - 3	0.5 - 2	0.5 - 2	2 - 3	0.5 - 2	0.5 - 2	0.5 - 2	0 - 1	1 - 3	1 - 3
					Sample Date	06/08/16		06/09/16	06/09/16	06/10/16	06/10/16	06/10/16	06/10/16	06/10/16	06/10/16	06/10/16	06/10/16	06/08/16	06/08/16	06/09/16
					QC Identifier	FD	FD													
EPH	**Units**	**S-1/GW-1**	**S-1/GW-2**	**S-1/GW-3**	**Soil UCL**															
C11-C22 Aromatics	mg/kg	1000	1000	1000	10000	NA	NA	12.6 U	13.1 U	NA	**347**	NA	NA	NA	NA	NA	NA	NA	NA	**347**
C19-C36 Aliphatics	mg/kg	3000	3000	3000	20000	NA	NA	12.6 U	13.1 U	NA	53.8 U	NA	NA	NA	NA	NA	NA	NA	NA	**847 J**
C9-C18 Aliphatics	mg/kg	1000	1000	1000	20000	NA	NA	12.6 U	13.1 U	NA	53.8 U	NA	NA	NA	NA	NA	NA	NA	NA	**135**
2-Methylnaphthalene	mg/kg	0.7	80	300	5000	NA	NA	0.418 U	0.435 U	NA	1.79 U	NA	NA	NA	NA	NA	NA	NA	NA	**1.69**
Acenaphthene	mg/kg	4	1000	1000	10000	NA	NA	0.418 U	0.435 U	NA	1.79 U	NA	NA	NA	NA	NA	NA	NA	NA	0.396 U
Acenaphthylene	mg/kg	1	600	10	10000	NA	NA	0.418 U	0.435 U	NA	1.79 U	NA	NA	NA	NA	NA	NA	NA	NA	0.396 U
Anthracene	mg/kg	1000	1000	1000	10000	NA	NA	0.418 U	0.435 U	NA	**6.48**	NA	NA	NA	NA	NA	NA	NA	NA	**0.838**
Benzo(a)anthracene	mg/kg	7	7	7	3000	NA	NA	0.418 U	0.435 U	NA	**13.9**	NA	NA	NA	NA	NA	NA	NA	NA	**2.17**
Benzo(a)pyrene	mg/kg	2	2	2	300	NA	NA	0.418 U	0.435 U	NA	**13.1**	NA	NA	NA	NA	NA	NA	NA	NA	**2.5**
Benzo(b)fluoranthene	mg/kg	7	7	7	3000	NA	NA	0.418 U	0.435 U	NA	**7.31**	NA	NA	NA	NA	NA	NA	NA	NA	**1.8**
Benzo(g,h,i)perylene	mg/kg	1000	1000	1000	10000	NA	NA	0.418 U	0.435 U	NA	**8.3**	NA	NA	NA	NA	NA	NA	NA	NA	**1.64**
Benzo(k)fluoranthene	mg/kg	70	70	70	10000	NA	NA	0.418 U	0.435 U	NA	**10.1**	NA	NA	NA	NA	NA	NA	NA	NA	**1.76**
Chrysene	mg/kg	70	70	70	10000	NA	NA	0.418 U	0.435 U	NA	**11.8**	NA	NA	NA	NA	NA	NA	NA	NA	**1.96**
Dibenz(a,h)anthracene	mg/kg	0.7	0.7	0.7	300	NA	NA	0.418 U	0.435 U	NA	**2.11**	NA	NA	NA	NA	NA	NA	NA	NA	**0.417**
Fluoranthene	mg/kg	1000	1000	1000	10000	NA	NA	0.418 U	0.435 U	NA	**29.5**	NA	NA	NA	NA	NA	NA	NA	NA	**3.71**
Fluorene	mg/kg	1000	1000	1000	10000	NA	NA	0.418 U	0.435 U	NA	**2.37**	NA	NA	NA	NA	NA	NA	NA	NA	**0.511**
Indeno(1,2,3-cd)pyrene	mg/kg	7	7	7	3000	NA	NA	0.418 U	0.435 U	NA	**7.48**	NA	NA	NA	NA	NA	NA	NA	NA	**1.48**
Naphthalene	mg/kg	4	20	500	10000	NA	NA	0.418 U	0.435 U	NA	1.79 U	NA	NA	NA	NA	NA	NA	NA	NA	**1.23**
Phenanthrene	mg/kg	10	500	500	10000	NA	NA	0.418 U	0.435 U	NA	**22.9**	NA	NA	NA	NA	NA	NA	NA	NA	**3.13**
Pyrene	mg/kg	1000	1000	1000	10000	NA	NA	0.418 U	0.435 U	NA	**23.1**	NA	NA	NA	NA	NA	NA	NA	NA	**3.42**

Table 3-6
Summary of TBA EPH and SVOC Soil Sample Results
Former Tombarello Property
Lawrence, Massachusetts
Page 5 of 6

					Sample Location	SB-3E	SBB-3W	SS-01		SVA-01	SVA-02	SVA-03		SVA-04	SVA-05	SVA-06	SVA-07	SVA-08
					Sample Depth (ft)	0 - 1	1 - 3	1 - 2	7 - 8	0 - 1	1 - 3	1 - 3		1 - 3	1 - 3	1 - 3	1 - 3	1 - 3
					Sample Date	06/09/16	06/09/16	06/08/16	06/08/16	06/07/16	06/08/16	06/08/16		06/08/16	06/08/16	06/08/16	06/09/16	06/09/16
					QC Identifier							FD	FD					
Semivolatiles	**Units**	**S-1/GW-1**	**S-1/GW-2**	**S-1/GW-3**	**Soil UCL**													
2-Methylnaphthalene	ug/kg	700	80000	300000	5000000	330 U	350 U	370 U	550 U	160 J	150 J	130 J	140 J	110 J	670	2300	180 J	130 J
Acenaphthene	ug/kg	4000	1000000	1000000	10000000	330 U	240 J	260 J	150 J	550	180 J	130 J	140 J	420	1900	3700	190 J	330 J
Acenaphthylene	ug/kg	1000	600000	10000	10000000	330 U	240 J	180 J	430 J	380	460	150 J	350 J	230 J	850	2600	460	1000
Anthracene	ug/kg	1000000	1000000	1000000	10000000	330 U	990	1600	1100	2400	970	280 J	650	1000	5700	13000	1200	3700
Benzo(a)anthracene	ug/kg	7000	7000	7000	3000000	130 J	3400	3800	3300	4700	2500	790	1600	2700	11000	20000	3200	12000
Benzo(a)pyrene	ug/kg	2000	2000	2000	300000	150 J	3500	2300	2000	5200	2900	730	1300	2600	10000	18000	3500 J	11000
Benzo(b)fluoranthene	ug/kg	7000	7000	7000	3000000	200 J	5100	4300	4200	7600	3800	1400	2400	3400	14000	24000	4600 J	14000
Benzo(g,h,i)perylene	ug/kg	1000000	1000000	1000000	10000000	120 J	2500	2400	2100	5200	2100	1000	1800	1600	5600	8900	3100 J	6400
Benzo(k)fluoranthene	ug/kg	70000	70000	70000	10000000	84 J	1900	2000	1500	2800	1500	370 J	820	1400	4200	11000	1800 J	5100 J
Chrysene	ug/kg	70000	70000	70000	10000000	130 J	2800	3100	2900	4000	2400	850	1500	2700	10000	19000	2800	12000
Dibenz(a,h)anthracene	ug/kg	700	700	700	300000	330 U	630	640	560	1100	510	190 J	440	430	1900	2900	750 J	1900 J
Fluoranthene	ug/kg	1000000	1000000	1000000	10000000	220 J	5400	8100	5100	9500	3900	1400	2800	4600	24000	47000	5000	23000
Fluorene	ug/kg	1000000	1000000	1000000	10000000	330 U	270 J	540	230 J	630	380 J	420 U	270 J	540	2500	7900	430	1100
Indeno(1,2,3-cd)pyrene	ug/kg	7000	7000	7000	3000000	120 J	2600	2600	2400	4900	2200	970	1900	1800	6000	11000	3200 J	7400
Naphthalene	ug/kg	4000	20000	500000	10000000	330 U	350 U	370 U	550 U	260 J	280 J	400 J	480	120 J	1100	3400	170 J	180 J
Phenanthrene	ug/kg	10000	500000	500000	10000000	330 U	3200	4500	2400	5300	2800	980	2100	3900	19000	44000	3600	11000
Pyrene	ug/kg	1000000	1000000	1000000	10000000	210 J	5100	5700	4900	7800	3800	1400	2900	5000	17000	35000	5200	18000

Shading - UCL Exceeded; Bold - Detected; U - Not Detected;
J - Estimated; R - Rejected; NA - Not Analyzed

Table 3-6
Summary of TBA EPH and SVOC Soil Sample Results
Former Tombarello Property
Lawrence, Massachusetts
Page 6 of 6

					Sample Location	SB-3E	SBB-3W	SS-01		SVA-01	SVA-02	SVA-03		SVA-04	SVA-05	SVA-06	SVA-07	SVA-08
					Sample Depth (ft)	0 - 1	1 - 3	1 - 2	7 - 8	0 - 1	1 - 3	1 - 3		1 - 3	1 - 3	1 - 3	1 - 3	1 - 3
					Sample Date	06/09/16	06/09/16	06/08/16	06/08/16	06/07/16	06/08/16	06/08/16		06/08/16	06/08/16	06/08/16	06/09/16	06/09/16
					QC Identifier							FD	FD					
EPH	**Units**	**S-1/GW-1**	**S-1/GW-2**	**S-1/GW-3**	**Soil UCL**													
C11-C22 Aromatics	mg/kg	1000	1000	1000	10000	NA	NA	**55.9**	**67.9**	**135**	**101**	**286**	**295**	**107**	**156**	**465**	**145**	**285**
C19-C36 Aliphatics	mg/kg	3000	3000	3000	20000	NA	NA	**177**	**20.7**	**148**	**423**	**1030 J**	**847 J**	**318**	**433**	**1430 J**	**396**	**266**
C9-C18 Aliphatics	mg/kg	1000	1000	1000	20000	NA	NA	**17.4**	15.6 U	**10.5**	**23.2**	**227 J**	**93.9 J**	**26.1**	**29.3**	**232**	**43.1**	**27.9**
2-Methylnaphthalene	mg/kg	0.7	80	300	5000	NA	NA	0.347 U	0.52 U	0.347 U	0.398 U	0.397 U	0.398 U	0.406 U	0.371 U	**0.748**	0.379 U	0.37 U
Acenaphthene	mg/kg	4	1000	1000	10000	NA	NA	0.347 U	0.52 U	**0.696**	0.398 U	0.397 U	0.398 U	0.406 U	**0.598**	**1.26**	0.379 U	0.37 U
Acenaphthylene	mg/kg	1	600	10	10000	NA	NA	0.347 U	0.52 U	0.347 U	0.398 U	0.397 U	0.398 U	0.406 U	0.371 U	**0.413**	0.379 U	0.37 U
Anthracene	mg/kg	1000	1000	1000	10000	NA	NA	**0.44**	**0.719**	**3.2**	**0.477**	0.397 U	0.398 U	**0.505**	**2.18**	**4.38**	**0.438**	**1.66**
Benzo(a)anthracene	mg/kg	7	7	7	3000	NA	NA	**1.08**	**2.92**	**6.05**	**1.28**	**0.464**	**0.574**	**1.46**	**4.08**	**9.93**	**1.14**	**7.89**
Benzo(a)pyrene	mg/kg	2	2	2	300	NA	NA	**1.34**	**3.12**	**5.33**	**1.56**	**0.424**	**0.528**	**1.39**	**3.58**	**8.75**	**1.48**	**6.25**
Benzo(b)fluoranthene	mg/kg	7	7	7	3000	NA	NA	**0.865**	**2.73**	**3.89**	**1.24**	**0.423**	**0.469**	**0.908**	**2.09**	**9.21**	**0.827**	**5.77**
Benzo(g,h,i)perylene	mg/kg	1000	1000	1000	10000	NA	NA	**0.761**	**1.47**	**2.92**	**0.941**	0.397 U	0.398 U	**0.778**	**1.97**	**4.05**	**0.98**	**3.35**
Benzo(k)fluoranthene	mg/kg	70	70	70	10000	NA	NA	**0.952**	**2.39**	**4.81**	**1.31**	**0.434**	**0.515**	**1.21**	**3.39**	**6.28**	**1.3**	**5.5**
Chrysene	mg/kg	70	70	70	10000	NA	NA	**1.01**	**2.72**	**5.14**	**1.34**	**0.545**	**0.612**	**1.4**	**3.58**	**8.43**	**1.25**	**6.95**
Dibenz(a,h)anthracene	mg/kg	0.7	0.7	0.7	300	NA	NA	0.347 U	0.52 U	**0.911**	0.398 U	0.397 U	0.398 U	0.406 U	**0.618**	**1.36**	0.379 U	**0.918**
Fluoranthene	mg/kg	1000	1000	1000	10000	NA	NA	**1.98**	**4.74**	**12.5**	**2.22**	**0.752**	**0.864**	**2.45**	**8.11**	**18.3**	**2.29**	**12.4**
Fluorene	mg/kg	1000	1000	1000	10000	NA	NA	0.347 U	0.52 U	**1.12**	0.398 U	0.397 U	0.398 U	0.406 U	**1.04**	**2.38**	0.379 U	**0.507**
Indeno(1,2,3-cd)pyrene	mg/kg	7	7	7	3000	NA	NA	**0.743**	**1.54**	**2.75**	**0.855**	0.397 U	0.398 U	**0.74**	**1.86**	**4.28**	**0.896**	**3.28**
Naphthalene	mg/kg	4	20	500	10000	NA	NA	0.347 U	0.52 U	0.347 U	0.398 U	**0.474**	**0.418**	0.406 U	0.371 U	**0.727**	0.379 U	0.37 U
Phenanthrene	mg/kg	10	500	500	10000	NA	NA	**1.28**	**1.62**	**10.8**	**1.28**	**0.475**	**0.544**	**1.41**	**7.54**	**15.5**	**1.59**	**5.84**
Pyrene	mg/kg	1000	1000	1000	10000	NA	NA	**1.59**	**3.82**	**10.2**	**2.04**	**0.688**	**0.804**	**2.31**	**6.56**	**15**	**2.28**	**11.3**

Shading - UCL Exceeded; Bold - Detected; U - Not Detected;
J - Estimated; R - Rejected; NA - Not Analyzed

Table 3-7
Summary of TBA VOC Soil Sample Results
Former Tombarello Property
Lawrence, Massachusetts

					Sample Location	BPA-01	BPA-02	FB-01	FB-02		FB-03	FB-04	LS-01	LS-02	M-7E	MS-01	NPA-02
					Sample Depth (ft)	2 - 3	2 - 3	5 - 7	1 - 2	2 - 3	2 - 3	1 - 2	7 - 8	2 - 3	1 - 3	12 - 13	6 - 7
					Sample Date	06/07/16	06/07/16	06/06/16	06/07/16	06/07/16	06/06/16	06/06/16	06/09/16	06/09/16	06/07/16	06/10/16	06/10/16
					QC Identifier												
Volatiles	**Units**	**S-1/GW-1**	**S-1/GW-2**	**S-1/GW-3**	**Soil UCL**												
1,1,1,2-Tetrachloroethane	ug/kg	100	100	80000	5000000	5.9 U	5.3 U	6.2 U	4.6 U	3 U	4.1 U	5 U	5.1 U	7.8 U	4.2 U	4.5 U	4.2 U
1,1,1-Trichloroethane	ug/kg	30000	500000	500000	10000000	5.9 U	5.3 U	6.2 U	4.6 U	3 U	4.1 U	5 U	5.1 U	7.8 U	4.2 U	4.5 U	4.2 U
1,1,2,2-Tetrachloroethane	ug/kg	5	20	10000	4000000	5.9 U	5.3 U	6.2 U	4.6 U	3 U	4.1 U	5 U	5.1 U	7.8 U	4.2 U	4.5 U	4.2 U
1,1,2-Trichloroethane	ug/kg	100	2000	40000	5000000	5.9 U	5.3 U	6.2 U	4.6 U	3 U	4.1 U	5 U	5.1 U	7.8 U	4.2 U	4.5 U	4.2 U
1,1-Dichloroethane	ug/kg	400	9000	500000	10000000	5.9 U	5.3 U	6.2 U	4.6 U	3 U	4.1 U	5 U	5.1 U	**2.4 J**	4.2 U	4.5 U	4.2 U
1,1-Dichloroethene	ug/kg	3000	40000	500000	10000000	5.9 U	5.3 U	6.2 U	4.6 U	3 U	4.1 U	5 U	5.1 U	7.8 U	4.2 U	4.5 U	4.2 U
1,1-Dichloropropene	ug/kg	--	--	--	--	5.9 U	5.3 U	6.2 U	4.6 U	3 U	4.1 U	5 U	5.1 U	7.8 U	4.2 U	4.5 U	4.2 U
1,2,3-Trichlorobenzene	ug/kg	--	--	--	--	5.9 U	5.3 U	6.2 U	4.6 U	3 U	4.1 U	5 U	5.1 U	7.8 U	4.2 U	4.5 U	4.2 U
1,2,3-Trichloropropane	ug/kg	--	--	--	--	5.9 U	5.3 U	6.2 U	4.6 U	3 U	4.1 U	5 U	5.1 U	7.8 U	4.2 U	4.5 U	4.2 U
1,2,4-Trichlorobenzene	ug/kg	2000	6000	700000	10000000	5.9 U	5.3 U	6.2 U	4.6 U	3 U	4.1 U	5 U	5.1 U	7.8 U	4.2 U	4.5 U	4.2 U
1,2,4-Trimethylbenzene	ug/kg	--	--	--	--	**4.3 J**	5.3 U	6.2 U	4.6 U	3 U	4.1 U	5 U	5.1 U	7.8 U	**57**	4.5 U	4.2 U
1,2-Dibromo-3-chloropropane	ug/kg	--	--	--	--	5.9 U	5.3 U	6.2 U	4.6 U	3 U	4.1 U	5 U	5.1 U	7.8 U	4.2 U	4.5 U	4.2 U
1,2-Dibromoethane	ug/kg	100	100	1000	400000	5.9 U	5.3 U	6.2 U	4.6 U	3 U	4.1 U	5 U	5.1 U	7.8 U	4.2 U	4.5 U	4.2 U
1,2-Dichlorobenzene	ug/kg	9000	100000	300000	10000000	5.9 U	5.3 U	6.2 U	4.6 U	3 U	4.1 U	5 U	5.1 U	7.8 U	**1 J**	4.5 U	4.2 U
1,2-Dichloroethane	ug/kg	100	100	20000	9000000	5.9 U	5.3 U	6.2 U	4.6 U	3 U	4.1 U	5 U	5.1 U	7.8 U	4.2 U	4.5 U	4.2 U
1,2-Dichloropropane	ug/kg	100	100	30000	10000000	5.9 U	5.3 U	6.2 U	4.6 U	3 U	4.1 U	5 U	5.1 U	7.8 U	4.2 U	4.5 U	4.2 U
1,3,5-Trimethylbenzene	ug/kg	--	--	--	--	5.9 U	5.3 U	6.2 U	4.6 U	3 U	4.1 U	5 U	5.1 U	7.8 U	**2.9 J**	4.5 U	4.2 U
1,3-Dichlorobenzene	ug/kg	3000	100000	100000	5000000	5.9 U	5.3 U	6.2 U	4.6 U	3 U	4.1 U	5 U	5.1 U	7.8 U	4.2 U	4.5 U	4.2 U
1,3-Dichloropropane	ug/kg	--	--	--	--	5.9 U	5.3 U	6.2 U	4.6 U	3 U	4.1 U	5 U	5.1 U	7.8 U	4.2 U	4.5 U	4.2 U
1,4-Dichlorobenzene	ug/kg	700	1000	80000	10000000	5.9 U	5.3 U	6.2 U	4.6 U	3 U	4.1 U	5 U	5.1 U	7.8 U	4.2 U	4.5 U	4.2 U
1,4-Dioxane	ug/kg	200	6000	20000	5000000	120 U	110 U	120 U	92 U	59 U	83 U	100 U	100 U	160 U	85 U	91 U	83 U
2,2-Dichloropropane	ug/kg	--	--	--	--	5.9 U	5.3 U	6.2 U	4.6 U	3 U	4.1 U	5 U	5.1 U	7.8 U	4.2 U	4.5 U	4.2 U
2-Butanone	ug/kg	4000	50000	400000	10000000	**41**	**6.4**	6.2 U	4.6 U	3 U	4.1 U	5 U	5.1 U	7.8 U	**10**	4.5 U	4.2 U
2-Chlorotoluene	ug/kg	--	--	--	--	5.9 U	5.3 U	6.2 U	4.6 U	3 U	4.1 U	5 U	5.1 U	7.8 U	4.2 U	4.5 U	4.2 U
2-Hexanone	ug/kg	--	--	--	--	5.9 U	5.3 U	6.2 U	4.6 U	3 U	4.1 U	5 U	5.1 U	7.8 U	4.2 U	4.5 U	4.2 U
4-Chlorotoluene	ug/kg	--	--	--	--	5.9 U	5.3 U	6.2 U	4.6 U	3 U	4.1 U	5 U	5.1 U	7.8 U	4.2 U	4.5 U	4.2 U
4-Isopropyltoluene	ug/kg	--	--	--	--	5.9 U	5.3 U	6.2 U	4.6 U	3 U	4.1 U	5 U	5.1 U	7.8 U	4.2 U	4.5 U	4.2 U
4-Methyl-2-pentanone	ug/kg	400	50000	400000	10000000	5.9 U	5.3 U	6.2 U	4.6 U	3 U	4.1 U	5 U	5.1 U	7.8 U	4.2 U	4.5 U	4.2 U
Acetone	ug/kg	6000	50000	400000	10000000	**140**	**17**	**17**	**14**	3 U	4.1 U	5 U	5.1 U	**6.3 J**	**44**	4.5 U	4.2 U
Benzene	ug/kg	2000	40000	40000	10000000	**8.6**	5.3 U	6.2 U	4.6 U	3 U	4.1 U	5 U	5.1 U	7.8 U	**13**	4.5 U	4.2 U
Bromobenzene	ug/kg	--	--	--	--	5.9 U	5.3 U	6.2 U	4.6 U	3 U	4.1 U	5 U	5.1 U	7.8 U	4.2 U	4.5 U	4.2 U
Bromochloromethane	ug/kg	--	--	--	--	5.9 U	5.3 U	6.2 U	4.6 U	3 U	4.1 U	5 U	5.1 U	7.8 U	4.2 U	4.5 U	4.2 U
Bromodichloromethane	ug/kg	100	100	30000	5000000	5.9 U	5.3 U	6.2 U	4.6 U	3 U	4.1 U	5 U	5.1 U	7.8 U	4.2 U	4.5 U	4.2 U
Bromoform	ug/kg	100	1000	300000	10000000	5.9 U	5.3 U	6.2 U	4.6 U	3 U	4.1 U	5 U	5.1 U	7.8 U	4.2 U	4.5 U	4.2 U
Bromomethane	ug/kg	500	500	30000	6000000	5.9 U	5.3 U	6.2 U	4.6 U	3 U	4.1 U	5 U	5.1 U	7.8 U	4.2 U	4.5 U	4.2 U
Carbon disulfide	ug/kg	--	--	--	--	5.9 U	5.3 U	6.2 U	4.6 U	3 U	4.1 U	5 U	5.1 U	7.8 U	4.2 U	4.5 U	4.2 U

Red Shading - UCL Exceeded; Black Shading - Method 1 Std Exeeded; Bold - Detected; U - Not Detected;
J - Estimated; R - Rejected; NA - Not Analyzed

Table 3-7
Summary of TBA VOC Soil Sample Results
Former Tombarello Property
Lawrence, Massachusetts
Page 2 of 4

					Sample Location	SA-01	SS-01		SVA-01	SVA-02	SVA-03		SVA-04	SVA-05	SVA-06	SVA-07	SVA-08
					Sample Depth (ft)	1 - 3	1 - 2	7 - 8	0 - 1	1 - 3	1 - 3		1 - 3	1 - 3	1 - 3	1 - 3	1 - 3
					Sample Date	06/09/16	06/08/16	06/08/16	06/07/16	06/08/16	06/08/16		06/08/16	06/08/16	06/08/16	06/09/16	06/09/16
					QC Identifier						FD	FD					
Volatiles	**Units**	**S-1/GW-1**	**S-1/GW-2**	**S-1/GW-3**	**Soil UCL**												
1,1,1,2-Tetrachloroethane	ug/kg	100	100	80000	5000000	7.1 U	4.6 U	9.2 U	5.4 U	5.6 U	5.1 U	9.1 U	6.6 U	4.1 U	3.7 U	5.9 U	7.6 U
1,1,1-Trichloroethane	ug/kg	30000	500000	500000	10000000	7.1 U	4.6 U	9.2 U	5.4 U	5.6 U	5.1 U	9.1 U	6.6 U	4.1 U	3.7 U	5.9 U	7.6 U
1,1,2,2-Tetrachloroethane	ug/kg	5	20	10000	4000000	7.1 U	4.6 U	9.2 U	5.4 U	5.6 U	5.1 U	9.1 U	6.6 U	4.1 U	3.7 U	5.9 U	7.6 U
1,1,2-Trichloroethane	ug/kg	100	2000	40000	5000000	7.1 U	4.6 U	9.2 U	5.4 U	5.6 U	5.1 U	9.1 U	6.6 U	4.1 U	3.7 U	5.9 U	7.6 U
1,1-Dichloroethane	ug/kg	400	9000	500000	10000000	7.1 U	4.6 U	**130**	5.4 U	**4.4 J**	**1 J**	**3.3 J**	6.6 U	4.1 U	3.7 U	5.9 U	7.6 U
1,1-Dichloroethene	ug/kg	3000	40000	500000	10000000	7.1 U	4.6 U	9.2 U	5.4 U	5.6 U	5.1 U	9.1 U	6.6 U	4.1 U	3.7 U	5.9 U	7.6 U
1,1-Dichloropropene	ug/kg	--	--	--	--	7.1 U	4.6 U	9.2 U	5.4 U	5.6 U	5.1 U	9.1 U	6.6 U	4.1 U	3.7 U	5.9 U	7.6 U
1,2,3-Trichlorobenzene	ug/kg	--	--	--	--	7.1 U	4.6 U	9.2 U	5.4 U	5.6 U	5.1 U	9.1 U	6.6 U	4.1 U	3.7 U	5.9 U	7.6 U
1,2,3-Trichloropropane	ug/kg	--	--	--	--	7.1 U	4.6 U	9.2 U	5.4 U	5.6 U	5.1 U	9.1 U	6.6 U	4.1 U	3.7 U	5.9 U	7.6 U
1,2,4-Trichlorobenzene	ug/kg	2000	6000	700000	10000000	7.1 U	4.6 U	9.2 U	5.4 U	5.6 U	5.1 U	9.1 U	6.6 U	4.1 U	3.7 U	5.9 U	7.6 U
1,2,4-Trimethylbenzene	ug/kg	--	--	--	--	**21**	4.6 U	9.2 U	5.4 U	5.6 U	**2.4 J**	**8 J**	6.6 U	4.1 U	**87**	5.9 U	7.6 U
1,2-Dibromo-3-chloropropane	ug/kg	--	--	--	--	7.1 U	4.6 U	9.2 U	5.4 U	5.6 U	5.1 U	9.1 U	6.6 U	4.1 U	3.7 U	5.9 U	7.6 U
1,2-Dibromoethane	ug/kg	100	100	1000	400000	7.1 U	4.6 U	9.2 U	5.4 U	5.6 U	5.1 U	9.1 U	6.6 U	4.1 U	3.7 U	5.9 U	7.6 U
1,2-Dichlorobenzene	ug/kg	9000	100000	300000	10000000	7.1 U	4.6 U	9.2 U	5.4 U	5.6 U	5.1 U	9.1 U	6.6 U	4.1 U	3.7 U	5.9 U	7.6 U
1,2-Dichloroethane	ug/kg	100	100	20000	9000000	**4.9 J**	4.6 U	9.2 U	5.4 U	5.6 U	5.1 U	9.1 U	6.6 U	4.1 U	3.7 U	5.9 U	7.6 U
1,2-Dichloropropane	ug/kg	100	100	30000	10000000	7.1 U	4.6 U	9.2 U	5.4 U	5.6 U	5.1 U	9.1 U	6.6 U	4.1 U	3.7 U	5.9 U	7.6 U
1,3,5-Trimethylbenzene	ug/kg	--	--	--	--	**4.1 J**	4.6 U	9.2 U	5.4 U	5.6 U	**1.3 J**	**3.8 J**	6.6 U	4.1 U	**11**	5.9 U	7.6 U
1,3-Dichlorobenzene	ug/kg	3000	100000	100000	5000000	7.1 U	4.6 U	9.2 U	5.4 U	5.6 U	5.1 U	9.1 U	6.6 U	4.1 U	3.7 U	5.9 U	7.6 U
1,3-Dichloropropane	ug/kg	--	--	--	--	7.1 U	4.6 U	9.2 U	5.4 U	5.6 U	5.1 U	9.1 U	6.6 U	4.1 U	3.7 U	5.9 U	7.6 U
1,4-Dichlorobenzene	ug/kg	700	1000	80000	10000000	7.1 U	4.6 U	9.2 U	5.4 U	5.6 U	5.1 U	9.1 U	6.6 U	4.1 U	3.7 U	5.9 U	7.6 U
1,4-Dioxane	ug/kg	200	6000	20000	5000000	140 U	91 U	180 U	110 U	110 U	100 U	180 U	130 U	81 U	74 U	120 U	150 U
2,2-Dichloropropane	ug/kg	--	--	--	--	7.1 U	4.6 U	9.2 U	5.4 U	5.6 U	5.1 U	9.1 U	6.6 U	4.1 U	3.7 U	5.9 U	7.6 U
2-Butanone	ug/kg	4000	50000	400000	10000000	**18**	4.6 U	9.2 U	5.4 U	5.6 U	5.1 U	**18**	**24**	4.1 U	3.7 U	5.9 U	7.6 U
2-Chlorotoluene	ug/kg	--	--	--	--	7.1 U	4.6 U	9.2 U	5.4 U	5.6 U	5.1 U	9.1 U	6.6 U	4.1 U	3.7 U	5.9 U	7.6 U
2-Hexanone	ug/kg	--	--	--	--	**15**	4.6 U	9.2 U	5.4 U	5.6 U	5.1 U	9.1 U	6.6 U	4.1 U	3.7 U	5.9 U	7.6 U
4-Chlorotoluene	ug/kg	--	--	--	--	7.1 U	4.6 U	9.2 U	5.4 U	5.6 U	5.1 U	9.1 U	6.6 U	4.1 U	3.7 U	5.9 U	7.6 U
4-Isopropyltoluene	ug/kg	--	--	--	--	**2.6 J**	4.6 U	9.2 U	5.4 U	5.6 U	5.1 U	**3.2 J**	6.6 U	4.1 U	**1.2 J**	5.9 U	7.6 U
4-Methyl-2-pentanone	ug/kg	400	50000	400000	10000000	7.1 U	4.6 U	9.2 U	5.4 U	5.6 U	5.1 U	9.1 U	6.6 U	4.1 U	3.7 U	5.9 U	7.6 U
Acetone	ug/kg	6000	50000	400000	10000000	**63**	4.6 U	9.2 U	5.4 U	**7.4**	**23 J**	**92 J**	**88**	4.1 U	**13**	**23**	**27**
Benzene	ug/kg	2000	40000	40000	10000000	**17**	4.6 U	9.2 U	5.4 U	5.6 U	**1.1 J**	9.1 U	6.6 U	4.1 U	**4.1**	**1.3 J**	**3.4 J**
Bromobenzene	ug/kg	--	--	--	--	7.1 U	4.6 U	9.2 U	5.4 U	5.6 U	5.1 U	9.1 U	6.6 U	4.1 U	3.7 U	5.9 U	7.6 U
Bromochloromethane	ug/kg	--	--	--	--	7.1 U	4.6 U	9.2 U	5.4 U	5.6 U	5.1 U	9.1 U	6.6 U	4.1 U	3.7 U	5.9 U	7.6 U
Bromodichloromethane	ug/kg	100	100	30000	5000000	7.1 U	4.6 U	9.2 U	5.4 U	5.6 U	5.1 U	9.1 U	6.6 U	4.1 U	3.7 U	5.9 U	7.6 U
Bromoform	ug/kg	100	1000	300000	10000000	7.1 U	4.6 U	9.2 U	5.4 U	5.6 U	5.1 U	9.1 U	6.6 U	4.1 U	3.7 U	5.9 U	7.6 U
Bromomethane	ug/kg	500	500	30000	6000000	7.1 U	4.6 U	9.2 U	5.4 U	5.6 U	5.1 U	9.1 U	6.6 U	4.1 U	3.7 U	5.9 U	7.6 U
Carbon disulfide	ug/kg	--	--	--	--	7.1 U	4.6 U	9.2 U	5.4 U	5.6 U	5.1 U	9.1 U	6.6 U	4.1 U	3.7 U	5.9 U	7.6 U

Red Shading - UCL Exceeded; Black Shading - Method 1 Std Exeeded; Bold - Detected; U - Not Detected;
J - Estimated; R - Rejected; NA - Not Analyzed

Table 3-7
Summary of TBA VOC Soil Sample Results
Former Tombarello Property
Lawrence, Massachusetts
Page 3 of 4

					Sample Location	BPA-01	BPA-02	FB-01	FB-02		FB-03	FB-04	LS-01	LS-02	M-7E	MS-01	NPA-02
					Sample Depth (ft)	2 - 3	2 - 3	5 - 7	1 - 2	2 - 3	2 - 3	1 - 2	7 - 8	2 - 3	1 - 3	12 - 13	6 - 7
					Sample Date	06/07/16	06/07/16	06/06/16	06/07/16	06/07/16	06/06/16	06/06/16	06/09/16	06/09/16	06/07/16	06/10/16	06/10/16
					QC Identifier												
Volatiles (cont.)	**Units**	**S-1/GW-1**	**S-1/GW-2**	**S-1/GW-3**	**Soil UCL**												
Carbon tetrachloride	ug/kg	10000	5000	30000	10000000	5.9 U	5.3 U	6.2 U	4.6 U	3 U	4.1 U	5 U	5.1 U	7.8 U	4.2 U	4.5 U	4.2 U
Chlorobenzene	ug/kg	1000	3000	100000	10000000	5.9 U	5.3 U	6.2 U	4.6 U	3 U	4.1 U	5 U	5.1 U	7.8 U	**2.2 J**	4.5 U	4.2 U
Chloroethane	ug/kg	--	--	--	--	5.9 U	5.3 U	6.2 U	4.6 U	3 U	4.1 U	5 U	5.1 U	7.8 U	4.2 U	4.5 U	4.2 U
Chloroform	ug/kg	400	200	500000	10000000	5.9 U	5.3 U	6.2 U	4.6 U	3 U	4.1 U	5 U	5.1 U	7.8 U	4.2 U	4.5 U	4.2 U
Chloromethane	ug/kg	--	--	--	--	5.9 U	5.3 U	6.2 U	4.6 U	3 U	4.1 U	5 U	5.1 U	7.8 U	4.2 U	4.5 U	4.2 U
cis-1,2-Dichloroethene	ug/kg	300	100	100000	5000000	5.9 U	5.3 U	6.2 U	4.6 U	3 U	4.1 U	5 U	5.1 U	7.8 U	4.2 U	4.5 U	**0.89 J**
cis-1,3-Dichloropropene	ug/kg	--	--	--	--	5.9 U	5.3 U	6.2 U	4.6 U	3 U	4.1 U	5 U	5.1 U	7.8 U	4.2 U	4.5 U	4.2 U
Dibromochloromethane	ug/kg	5	30	20000	5000000	5.9 U	5.3 U	6.2 U	4.6 U	3 U	4.1 U	5 U	5.1 U	7.8 U	4.2 U	4.5 U	4.2 U
Dibromomethane	ug/kg	--	--	--	--	5.9 U	5.3 U	6.2 U	4.6 U	3 U	4.1 U	5 U	5.1 U	7.8 U	4.2 U	4.5 U	4.2 U
Dichlorodifluoromethane	ug/kg	--	--	--	--	5.9 U	5.3 U	6.2 U	4.6 U	3 U	4.1 U	5 U	5.1 U	7.8 U	4.2 U	4.5 U	4.2 U
Diethyl ether	ug/kg	--	--	--	--	5.9 U	5.3 U	6.2 U	4.6 U	3 U	4.1 U	5 U	5.1 U	7.8 U	4.2 U	4.5 U	4.2 U
Diisopropyl Ether	ug/kg	--	--	--	--	5.9 U	5.3 U	6.2 U	4.6 U	3 U	4.1 U	5 U	5.1 U	7.8 U	4.2 U	4.5 U	4.2 U
Ethylbenzene	ug/kg	40000	500000	500000	10000000	5.9 U	5.3 U	6.2 U	4.6 U	3 U	4.1 U	5 U	5.1 U	7.8 U	**6.5**	4.5 U	4.2 U
Hexachlorobutadiene	ug/kg	30000	30000	30000	1000000	5.9 U	5.3 U	6.2 U	4.6 U	3 U	4.1 U	5 U	5.1 U	7.8 U	4.2 U	4.5 U	4.2 U
Isopropylbenzene	ug/kg	--	--	--	--	**2.5 J**	5.3 U	6.2 U	4.6 U	3 U	4.1 U	5 U	5.1 U	7.8 U	**2.8 J**	4.5 U	4.2 U
m,p-Xylene	ug/kg	--	--	--	--	5.9 U	5.3 U	6.2 U	4.6 U	3 U	4.1 U	5 U	5.1 U	7.8 U	**18**	4.5 U	4.2 U
Methyl tert-butyl ether	ug/kg	100	100000	100000	5000000	5.9 U	5.3 U	6.2 U	4.6 U	3 U	4.1 U	5 U	5.1 U	**6.4 J**	4.2 U	4.5 U	4.2 U
Methylene chloride	ug/kg	100	4000	400000	7000000	5.9 U	5.3 U	6.2 U	4.6 U	3 U	4.1 U	5 U	5.1 U	7.8 U	4.2 U	4.5 U	4.2 U
Naphthalene	ug/kg	4000	20000	500000	10000000	**23**	5.3 U	6.2 U	4.6 U	3 U	4.1 U	**7.8**	5.1 U	7.8 U	**4.1 J**	4.5 U	4.2 U
n-Butylbenzene	ug/kg	--	--	--	--	5.9 U	5.3 U	6.2 U	4.6 U	3 U	4.1 U	5 U	5.1 U	7.8 U	4.2 U	4.5 U	4.2 U
n-Propylbenzene	ug/kg	--	--	--	--	5.9 U	5.3 U	6.2 U	4.6 U	3 U	4.1 U	5 U	5.1 U	7.8 U	**3.4 J**	4.5 U	4.2 U
o-Xylene	ug/kg	--	--	--	--	**2.8 J**	5.3 U	6.2 U	4.6 U	3 U	4.1 U	5 U	5.1 U	7.8 U	**3.1 J**	4.5 U	4.2 U
sec-Butylbenzene	ug/kg	--	--	--	--	5.9 U	5.3 U	6.2 U	4.6 U	3 U	4.1 U	5 U	5.1 U	7.8 U	4.2 U	4.5 U	4.2 U
Styrene	ug/kg	3000	4000	70000	10000000	5.9 U	5.3 U	6.2 U	4.6 U	3 U	4.1 U	5 U	5.1 U	7.8 U	4.2 U	4.5 U	4.2 U
tert-Amyl methyl ether	ug/kg	--	--	--	--	5.9 U	5.3 U	6.2 U	4.6 U	3 U	4.1 U	5 U	5.1 U	7.8 U	4.2 U	4.5 U	4.2 U
Tert-Butyl Ethyl Ether	ug/kg	--	--	--	--	5.9 U	5.3 U	6.2 U	4.6 U	3 U	4.1 U	5 U	5.1 U	7.8 U	4.2 U	4.5 U	4.2 U
tert-Butylbenzene	ug/kg	--	--	--	--	5.9 U	5.3 U	6.2 U	4.6 U	3 U	4.1 U	5 U	5.1 U	7.8 U	4.2 U	4.5 U	4.2 U
Tetrachloroethene	ug/kg	1000	10000	30000	10000000	5.9 U	5.3 U	6.2 U	4.6 U	3 U	4.1 U	5 U	**2.9 J**	7.8 U	4.2 U	4.5 U	4.2 U
Tetrahydrofuran	ug/kg	--	--	--	--	12 U	11 U	12 U	9.2 U	5.9 U	8.3 U	10 U	10 U	16 U	8.5 U	9.1 U	8.3 U
Toluene	ug/kg	30000	500000	500000	10000000	5.9 U	5.3 U	6.2 U	4.6 U	3 U	4.1 U	5 U	5.1 U	7.8 U	**2.8 J**	4.5 U	4.2 U
trans-1,2-Dichloroethene	ug/kg	1000	1000	500000	10000000	5.9 U	5.3 U	6.2 U	4.6 U	3 U	4.1 U	5 U	5.1 U	7.8 U	4.2 U	4.5 U	4.2 U
trans-1,3-Dichloropropene	ug/kg	--	--	--	--	5.9 U	5.3 U	6.2 U	4.6 U	3 U	4.1 U	5 U	5.1 U	7.8 U	4.2 U	4.5 U	4.2 U
Trichloroethene	ug/kg	300	300	30000	600000	5.9 U	5.3 U	6.2 U	4.6 U	3 U	4.1 U	5 U	5.1 U	7.8 U	4.2 U	4.5 U	**1.8 J**
Trichlorofluoromethane	ug/kg	--	--	--	--	5.9 U	5.3 U	6.2 U	4.6 U	3 U	4.1 U	5 U	5.1 U	7.8 U	4.2 U	4.5 U	4.2 U
Vinyl chloride	ug/kg	900	700	1000	600000	5.9 U	5.3 U	6.2 U	4.6 U	3 U	4.1 U	5 U	5.1 U	7.8 U	4.2 U	4.5 U	4.2 U
Xylene (total)	ug/kg	400000	100000	500000	10000000	**2.8 J**	5.3 U	6.2 U	4.6 U	3 U	4.1 U	5 U	5.1 U	7.8 U	**21**	4.5 U	4.2 U

Red Shading - UCL Exceeded; Black Shading - Method 1 Std Exeeded; Bold - Detected; U - Not Detected;
J - Estimated; R - Rejected; NA - Not Analyzed

Table 3-7
Summary of TBA VOC Soil Sample Results
Former Tombarello Property
Lawrence, Massachusetts
Page 4 of 4

					Sample Location	SA-01	SS-01		SVA-01	SVA-02	SVA-03		SVA-04	SVA-05	SVA-06	SVA-07	SVA-08
					Sample Depth (ft)	1 - 3	1 - 2	7 - 8	0 - 1	1 - 3	1 - 3		1 - 3	1 - 3	1 - 3	1 - 3	1 - 3
					Sample Date	06/09/16	06/08/16	06/08/16	06/07/16	06/08/16	06/08/16		06/08/16	06/08/16	06/08/16	06/09/16	06/09/16
					QC Identifier						FD	FD					
Volatiles (cont.)	**Units**	**S-1/GW-1**	**S-1/GW-2**	**S-1/GW-3**	**Soil UCL**												
Carbon tetrachloride	ug/kg	10000	5000	30000	10000000	7.1 U	4.6 U	9.2 U	5.4 U	5.6 U	5.1 U	9.1 U	6.6 U	4.1 U	3.7 U	5.9 U	7.6 U
Chlorobenzene	ug/kg	1000	3000	100000	10000000	7.1 U	4.6 U	9.2 U	5.4 U	5.6 U	5.1 U	9.1 U	6.6 U	4.1 U	3.7 U	5.9 U	7.6 U
Chloroethane	ug/kg	--	--	--	--	7.1 U	4.6 U	9.2 U	5.4 U	5.6 U	5.1 U	9.1 U	6.6 U	4.1 U	3.7 U	5.9 U	7.6 U
Chloroform	ug/kg	400	200	500000	10000000	7.1 U	4.6 U	9.2 U	5.4 U	5.6 U	5.1 U	9.1 U	6.6 U	4.1 U	3.7 U	5.9 U	7.6 U
Chloromethane	ug/kg	--	--	--	--	7.1 U	4.6 U	9.2 U	5.4 U	5.6 U	5.1 U	9.1 U	6.6 U	4.1 U	3.7 U	5.9 U	7.6 U
cis-1,2-Dichloroethene	ug/kg	300	100	100000	5000000	7.1 U	4.6 U	**27**	5.4 U	5.6 U	5.1 U	9.1 U	**6.5 J**	4.1 U	3.7 U	5.9 U	7.6 U
cis-1,3-Dichloropropene	ug/kg	--	--	--	--	7.1 U	4.6 U	9.2 U	5.4 U	5.6 U	5.1 U	9.1 U	6.6 U	4.1 U	3.7 U	5.9 U	7.6 U
Dibromochloromethane	ug/kg	5	30	20000	5000000	7.1 U	4.6 U	9.2 U	5.4 U	5.6 U	5.1 U	9.1 U	6.6 U	4.1 U	3.7 U	5.9 U	7.6 U
Dibromomethane	ug/kg	--	--	--	--	7.1 U	4.6 U	9.2 U	5.4 U	5.6 U	5.1 U	9.1 U	6.6 U	4.1 U	3.7 U	5.9 U	7.6 U
Dichlorodifluoromethane	ug/kg	--	--	--	--	7.1 U	4.6 U	9.2 U	5.4 U	5.6 U	5.1 U	9.1 U	6.6 U	4.1 U	3.7 U	5.9 U	7.6 U
Diethyl ether	ug/kg	--	--	--	--	7.1 U	4.6 U	9.2 U	5.4 U	5.6 U	5.1 U	9.1 U	6.6 U	4.1 U	3.7 U	5.9 U	7.6 U
Diisopropyl Ether	ug/kg	--	--	--	--	7.1 U	4.6 U	9.2 U	5.4 U	5.6 U	5.1 U	9.1 U	6.6 U	4.1 U	3.7 U	5.9 U	7.6 U
Ethylbenzene	ug/kg	40000	500000	500000	10000000	**11**	4.6 U	9.2 U	5.4 U	5.6 U	5.1 U	9.1 U	6.6 U	4.1 U	**22**	5.9 U	7.6 U
Hexachlorobutadiene	ug/kg	30000	30000	30000	1000000	7.1 U	4.6 U	9.2 U	5.4 U	5.6 U	5.1 U	9.1 U	6.6 U	4.1 U	3.7 U	5.9 U	7.6 U
Isopropylbenzene	ug/kg	--	--	--	--	**7.2**	4.6 U	9.2 U	5.4 U	5.6 U	5.1 U	**5 J**	6.6 U	4.1 U	**3.4 J**	5.9 U	7.6 U
m,p-Xylene	ug/kg	--	--	--	--	**18**	4.6 U	9.2 U	5.4 U	5.6 U	5.1 U	**6.8 J**	6.6 U	4.1 U	**11**	5.9 U	7.6 U
Methyl tert-butyl ether	ug/kg	100	100000	100000	5000000	7.1 U	4.6 U	**3.2 J**	5.4 U	5.6 U	5.1 U	9.1 U	6.6 U	4.1 U	3.7 U	5.9 U	7.6 U
Methylene chloride	ug/kg	100	4000	400000	7000000	7.1 U	4.6 U	9.2 U	5.4 U	5.6 U	5.1 U	9.1 U	6.6 U	4.1 U	3.7 U	5.9 U	7.6 U
Naphthalene	ug/kg	4000	20000	500000	10000000	**280**	4.6 U	9.2 U	5.4 U	5.6 U	**3.9 J**	**9.3**	6.6 U	**0.88 J**	**7.2**	5.9 U	7.6 U
n-Butylbenzene	ug/kg	--	--	--	--	**43**	4.6 U	9.2 U	5.4 U	5.6 U	5.1 U	**7.5 J**	6.6 U	4.1 U	**3.6 J**	5.9 U	7.6 U
n-Propylbenzene	ug/kg	--	--	--	--	**23**	4.6 U	9.2 U	5.4 U	5.6 U	5.1 U	**5 J**	6.6 U	4.1 U	**6.1**	5.9 U	7.6 U
o-Xylene	ug/kg	--	--	--	--	**6.8 J**	4.6 U	9.2 U	5.4 U	5.6 U	**1.3 J**	**2.8 J**	6.6 U	4.1 U	**2.4 J**	5.9 U	7.6 U
sec-Butylbenzene	ug/kg	--	--	--	--	**17**	4.6 U	9.2 U	5.4 U	5.6 U	5.1 U	**12**	6.6 U	4.1 U	**1 J**	5.9 U	7.6 U
Styrene	ug/kg	3000	4000	70000	10000000	7.1 U	4.6 U	9.2 U	5.4 U	5.6 U	5.1 U	9.1 U	6.6 U	4.1 U	3.7 U	5.9 U	7.6 U
tert-Amyl methyl ether	ug/kg	--	--	--	--	7.1 U	4.6 U	9.2 U	5.4 U	5.6 U	5.1 U	9.1 U	6.6 U	4.1 U	3.7 U	5.9 U	7.6 U
Tert-Butyl Ethyl Ether	ug/kg	--	--	--	--	7.1 U	4.6 U	9.2 U	5.4 U	5.6 U	5.1 U	9.1 U	6.6 U	4.1 U	3.7 U	5.9 U	7.6 U
tert-Butylbenzene	ug/kg	--	--	--	--	7.1 U	4.6 U	9.2 U	5.4 U	5.6 U	5.1 U	**2.5 J**	6.6 U	4.1 U	3.7 U	5.9 U	7.6 U
Tetrachloroethene	ug/kg	1000	10000	30000	10000000	7.1 U	4.6 U	9.2 U	**1.8 J**	5.6 U	5.1 U	9.1 U	6.6 U	**1.5 J**	3.7 U	5.9 U	7.6 U
Tetrahydrofuran	ug/kg	--	--	--	--	14 U	9.1 U	18 U	11 U	11 U	10 U	18 U	13 U	8.1 U	7.4 U	12 U	15 U
Toluene	ug/kg	30000	500000	500000	10000000	**22**	4.6 U	9.2 U	5.4 U	5.6 U	5.1 U	9.1 U	6.6 U	4.1 U	**1.7 J**	**1.2 J**	7.6 U
trans-1,2-Dichloroethene	ug/kg	1000	1000	500000	10000000	7.1 U	4.6 U	9.2 U	5.4 U	5.6 U	5.1 U	9.1 U	6.6 U	4.1 U	3.7 U	5.9 U	7.6 U
trans-1,3-Dichloropropene	ug/kg	--	--	--	--	7.1 U	4.6 U	9.2 U	5.4 U	5.6 U	5.1 U	9.1 U	6.6 U	4.1 U	3.7 U	5.9 U	7.6 U
Trichloroethene	ug/kg	300	300	30000	600000	7.1 U	4.6 U	**2.5 J**	5.4 U	5.6 U	5.1 U	9.1 U	6.6 U	**1 J**	3.7 U	5.9 U	7.6 U
Trichlorofluoromethane	ug/kg	--	--	--	--	7.1 U	4.6 U	9.2 U	5.4 U	5.6 U	5.1 U	9.1 U	6.6 U	**4.6**	3.7 U	5.9 U	7.6 U
Vinyl chloride	ug/kg	900	700	1000	600000	7.1 U	4.6 U	9.2 U	5.4 U	5.6 U	5.1 U	9.1 U	6.6 U	4.1 U	3.7 U	5.9 U	7.6 U
Xylene (total)	ug/kg	400000	100000	500000	10000000	**25**	4.6 U	9.2 U	5.4 U	5.6 U	**1.3 J**	**9.6**	6.6 U	4.1 U	**13**	5.9 U	7.6 U

Red Shading - UCL Exceeded; Black Shading - Method 1 Std Exeeded; Bold - Detected; U - Not Detected;
J - Estimated; R - Rejected; NA - Not Analyzed

Table 3-8
Summary of Historical and TBA Groundwater Analytical Results
Former Tombarello Property
Lawrence, Massachusetts
Page 1 of 8

				Sample Location	MW-1				MW-2	MW-2A	MW-3	MW-3A	MW-4	MW-5		MW-6	
				Sample Date	07/09/98	06/10/99	02/13/03	06/16/16	07/09/98	07/30/98	07/09/98	07/30/98	07/09/98	06/10/99	02/13/03	06/10/99	02/13/03
				QC Identifier													
Volatiles	**Units**	**GW-2**	**GW-3**	**GW UCL**													
1,1,1,2-Tetrachloroethane	ug/L	10	50000	100000	NA	NA	NA	1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-Trichloroethane	ug/L	4000	20000	100000	NA	NA	NA	1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2,2-Tetrachloroethane	ug/L	9	50000	100000	NA	NA	NA	1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2-Trichloroethane	ug/L	900	50000	100000	NA	NA	NA	1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane	ug/L	2000	20000	100000	NA	NA	NA	1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethene	ug/L	80	30000	100000	NA	NA	NA	1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloropropene	ug/L	--	--	--	NA	NA	NA	1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trichlorobenzene	ug/L	--	--	--	NA	NA	NA	1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,3-Trichloropropane	ug/L	--	--	--	NA	NA	NA	1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trichlorobenzene	ug/L	200	50000	100000	NA	NA	NA	1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	ug/L	--	--	--	NA	NA	NA	1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromo-3-chloropropane	ug/L	--	--	--	NA	NA	NA	1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	ug/L	2	50000	100000	NA	NA	NA	1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene	ug/L	8000	2000	80000	NA	NA	NA	1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	ug/L	5	20000	100000	NA	NA	NA	1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloropropane	ug/L	3	50000	100000	NA	NA	NA	1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	ug/L	--	--	--	NA	NA	NA	1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	ug/L	6000	50000	100000	NA	NA	NA	1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Dichloropropane	ug/L	--	--	--	NA	NA	NA	1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	ug/L	60	8000	80000	NA	NA	NA	1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dioxane	ug/L	6000	50000	100000	NA	NA	NA	100 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,2-Dichloropropane	ug/L	--	--	--	NA	NA	NA	1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Butanone	ug/L	50000	50000	100000	NA	NA	NA	5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chlorotoluene	ug/L	--	--	--	NA	NA	NA	1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Hexanone	ug/L	--	--	--	NA	NA	NA	5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chlorotoluene	ug/L	--	--	--	NA	NA	NA	1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Isopropyltoluene	ug/L	--	--	--	NA	NA	NA	5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone	ug/L	50000	50000	100000	NA	NA	NA	5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	ug/L	50000	50000	100000	NA	NA	NA	5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	ug/L	1000	10000	100000	NA	NA	NA	1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromobenzene	ug/L	--	--	--	NA	NA	NA	1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromochloromethane	ug/L	--	--	--	NA	NA	NA	1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	ug/L	6	50000	100000	NA	NA	NA	1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromoform	ug/L	700	50000	100000	NA	NA	NA	1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromomethane	ug/L	7	800	8000	NA	NA	NA	1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon disulfide	ug/L	--	--	--	NA	NA	NA	1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA

Red Shading - UCL Exceeded; Black Shading - Method 1 Std Exceeded; Bold - Detected; U - Not Detected;
J - Estimated; R - Rejected; NA - Not Analyzed

Table 3-8
Summary of Historical and TBA Groundwater Analytical Results
Former Tombarello Property
Lawrence, Massachusetts

				Sample Location	MW-7		MW-8	MW-9	MW-11	MW-11F	MW-12	MW-13		MW-15	MW-16
				Sample Date	06/10/99	02/13/03	06/13/16	06/13/16	06/13/16	06/17/16	06/14/16	06/14/16		06/16/16	06/13/16
				QC Identifier								FD	FD		
Volatiles	**Units**	**GW-2**	**GW-3**	**GW UCL**											
1,1,1,2-Tetrachloroethane	ug/L	10	50000	100000	NA	NA	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U
1,1,1-Trichloroethane	ug/L	4000	20000	100000	NA	NA	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U
1,1,2,2-Tetrachloroethane	ug/L	9	50000	100000	NA	NA	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U
1,1,2-Trichloroethane	ug/L	900	50000	100000	NA	NA	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U
1,1-Dichloroethane	ug/L	2000	20000	100000	NA	NA	1 U	1 U	**2.3**	NA	1 U	1 U	1 U	1 U	1 U
1,1-Dichloroethene	ug/L	80	30000	100000	NA	NA	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U
1,1-Dichloropropene	ug/L	--	--	--	NA	NA	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U
1,2,3-Trichlorobenzene	ug/L	--	--	--	NA	NA	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U
1,2,3-Trichloropropane	ug/L	--	--	--	NA	NA	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U
1,2,4-Trichlorobenzene	ug/L	200	50000	100000	NA	NA	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U
1,2,4-Trimethylbenzene	ug/L	--	--	--	NA	NA	**10**	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U
1,2-Dibromo-3-chloropropane	ug/L	--	--	--	NA	NA	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U
1,2-Dibromoethane	ug/L	2	50000	100000	NA	NA	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U
1,2-Dichlorobenzene	ug/L	8000	2000	80000	NA	NA	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U
1,2-Dichloroethane	ug/L	5	20000	100000	NA	NA	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U
1,2-Dichloropropane	ug/L	3	50000	100000	NA	NA	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U
1,3,5-Trimethylbenzene	ug/L	--	--	--	NA	NA	**2.5**	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U
1,3-Dichlorobenzene	ug/L	6000	50000	100000	NA	NA	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U
1,3-Dichloropropane	ug/L	--	--	--	NA	NA	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U
1,4-Dichlorobenzene	ug/L	60	8000	80000	NA	NA	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U
1,4-Dioxane	ug/L	6000	50000	100000	NA	NA	100 U	100 U	100 U	NA	100 U	100 U	100 U	100 U	100 U
2,2-Dichloropropane	ug/L	--	--	--	NA	NA	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U
2-Butanone	ug/L	50000	50000	100000	NA	NA	5 U	5 U	5 U	NA	5 U	5 U	5 U	5 U	5 U
2-Chlorotoluene	ug/L	--	--	--	NA	NA	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U
2-Hexanone	ug/L	--	--	--	NA	NA	5 U	5 U	5 U	NA	5 U	5 U	5 U	5 U	5 U
4-Chlorotoluene	ug/L	--	--	--	NA	NA	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U
4-Isopropyltoluene	ug/L	--	--	--	NA	NA	5 U	5 U	5 U	NA	5 U	5 U	5 U	5 U	5 U
4-Methyl-2-pentanone	ug/L	50000	50000	100000	NA	NA	5 U	5 U	5 U	NA	5 U	5 U	5 U	5 U	5 U
Acetone	ug/L	50000	50000	100000	NA	NA	5 U	5 U	5 U	NA	5 U	5 U	5 U	5 U	5 U
Benzene	ug/L	1000	10000	100000	NA	NA	**1.9**	1 U	**1.3**	NA	1 U	**1.8**	**1.9**	1 U	1 U
Bromobenzene	ug/L	--	--	--	NA	NA	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U
Bromochloromethane	ug/L	--	--	--	NA	NA	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U
Bromodichloromethane	ug/L	6	50000	100000	NA	NA	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U
Bromoform	ug/L	700	50000	100000	NA	NA	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U
Bromomethane	ug/L	7	800	8000	NA	NA	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U
Carbon disulfide	ug/L	--	--	--	NA	NA	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U

Red Shading - UCL Exceeded; Black Shading - Method 1 Std Exceeded; Bold - Detected; U - Not Detected;
J - Estimated; R - Rejected; NA - Not Analyzed

Table 3-8
Summary of Historical and TBA Groundwater Analytical Results
Former Tombarello Property
Lawrence, Massachusetts

				Sample Location	MW-1				MW-2	MW-2A	MW-3	MW-3A	MW-4	MW-5		MW-6	
				Sample Date	07/09/98	06/10/99	02/13/03	06/16/16	07/09/98	07/30/98	07/09/98	07/30/98	07/09/98	06/10/99	02/13/03	06/10/99	02/13/03
				QC Identifier													
Volatiles (cont.)	**Units**	**GW-2**	**GW-3**	**GW UCL**													
Carbon tetrachloride	ug/L	2	5000	50000	NA	NA	NA	1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	ug/L	200	1000	10000	NA	NA	NA	1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroethane	ug/L	--	--	--	NA	NA	NA	1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	ug/L	50	20000	100000	NA	NA	NA	1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	ug/L	--	--	--	NA	NA	NA	1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene	ug/L	20	50000	100000	NA	NA	NA	1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,3-Dichloropropene	ug/L	--	--	--	NA	NA	NA	1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibromochloromethane	ug/L	20	50000	100000	NA	NA	NA	1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibromomethane	ug/L	--	--	--	NA	NA	NA	1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dichlorodifluoromethane	ug/L	--	--	--	NA	NA	NA	1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethyl ether	ug/L	--	--	--	NA	NA	NA	1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diisopropyl Ether	ug/L	--	--	--	NA	NA	NA	1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	ug/L	20000	5000	100000	NA	NA	NA	1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorobutadiene	ug/L	50	3000	30000	NA	NA	NA	1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropylbenzene	ug/L	--	--	--	NA	NA	NA	1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
m,p-Xylene	ug/L	--	--	--	NA	NA	NA	1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl tert-butyl ether	ug/L	50000	50000	100000	NA	NA	NA	1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	ug/L	2000	50000	100000	NA	NA	NA	1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	ug/L	700	20000	100000	NA	NA	NA	1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Butylbenzene	ug/L	--	--	--	NA	NA	NA	1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	ug/L	--	--	--	NA	NA	NA	1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	ug/L	--	--	--	NA	NA	NA	1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	ug/L	--	--	--	NA	NA	NA	1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	ug/L	100	6000	60000	NA	NA	NA	1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Amyl methyl ether	ug/L	--	--	--	NA	NA	NA	1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tert-Butyl Ethyl Ether	ug/L	--	--	--	NA	NA	NA	1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	ug/L	--	--	--	NA	NA	NA	1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	ug/L	50	30000	100000	NA	NA	NA	1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrahydrofuran	ug/L	--	--	--	NA	NA	NA	5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	ug/L	50000	40000	100000	NA	NA	NA	1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,2-Dichloroethene	ug/L	80	50000	100000	NA	NA	NA	1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,3-Dichloropropene	ug/L	--	--	--	NA	NA	NA	1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichloroethene	ug/L	5	5000	50000	NA	NA	NA	1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichlorofluoromethane	ug/L	--	--	--	NA	NA	NA	1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl chloride	ug/L	2	50000	100000	NA	NA	NA	1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Xylene (total)	ug/L	3000	5000	100000	NA	NA	NA	5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA

Red Shading - UCL Exceeded; Black Shading - Method 1 Std Exceeded; Bold - Detected; U - Not Detected;
J - Estimated; R - Rejected; NA - Not Analyzed

Table 3-8
Summary of Historical and TBA Groundwater Analytical Results
Former Tombarello Property
Lawrence, Massachusetts

				Sample Location	MW-7		MW-8	MW-9	MW-11	MW-11F	MW-12	MW-13		MW-15	MW-16
				Sample Date	06/10/99	02/13/03	06/13/16	06/13/16	06/13/16	06/17/16	06/14/16	06/14/16		06/16/16	06/13/16
				QC Identifier								FD	FD		
Volatiles (cont.)	**Units**	**GW-2**	**GW-3**	**GW UCL**											
Carbon tetrachloride	ug/L	2	5000	50000	NA	NA	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U
Chlorobenzene	ug/L	200	1000	10000	NA	NA	1 U	1 U	1 U	NA	1 U	**140**	**150**	1 U	1 U
Chloroethane	ug/L	--	--	--	NA	NA	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U
Chloroform	ug/L	50	20000	100000	NA	NA	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U
Chloromethane	ug/L	--	--	--	NA	NA	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U
cis-1,2-Dichloroethene	ug/L	20	50000	100000	NA	NA	**1.6**	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U
cis-1,3-Dichloropropene	ug/L	--	--	--	NA	NA	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U
Dibromochloromethane	ug/L	20	50000	100000	NA	NA	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U
Dibromomethane	ug/L	--	--	--	NA	NA	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U
Dichlorodifluoromethane	ug/L	--	--	--	NA	NA	1 U	**17**	1 U	NA	1 U	1 U	1 U	1 U	1 U
Diethyl ether	ug/L	--	--	--	NA	NA	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U
Diisopropyl Ether	ug/L	--	--	--	NA	NA	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U
Ethylbenzene	ug/L	20000	5000	100000	NA	NA	**2.6**	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U
Hexachlorobutadiene	ug/L	50	3000	30000	NA	NA	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U
Isopropylbenzene	ug/L	--	--	--	NA	NA	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U
m,p-Xylene	ug/L	--	--	--	NA	NA	**10**	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U
Methyl tert-butyl ether	ug/L	50000	50000	100000	NA	NA	**4.6**	**1.6**	1 U	NA	1 U	1 U	1 U	1 U	1 U
Methylene chloride	ug/L	2000	50000	100000	NA	NA	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U
Naphthalene	ug/L	700	20000	100000	NA	NA	**3.1**	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U
n-Butylbenzene	ug/L	--	--	--	NA	NA	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U
n-Propylbenzene	ug/L	--	--	--	NA	NA	**1.5**	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U
o-Xylene	ug/L	--	--	--	NA	NA	**5.3**	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U
sec-Butylbenzene	ug/L	--	--	--	NA	NA	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U
Styrene	ug/L	100	6000	60000	NA	NA	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U
tert-Amyl methyl ether	ug/L	--	--	--	NA	NA	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U
Tert-Butyl Ethyl Ether	ug/L	--	--	--	NA	NA	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U
tert-Butylbenzene	ug/L	--	--	--	NA	NA	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U
Tetrachloroethene	ug/L	50	30000	100000	NA	NA	1 U	**10**	1 U	NA	1 U	1 U	1 U	1 U	1 U
Tetrahydrofuran	ug/L	--	--	--	NA	NA	5 U	5 U	5 U	NA	5 U	5 U	5 U	5 U	5 U
Toluene	ug/L	50000	40000	100000	NA	NA	**3.6**	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U
trans-1,2-Dichloroethene	ug/L	80	50000	100000	NA	NA	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U
trans-1,3-Dichloropropene	ug/L	--	--	--	NA	NA	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U
Trichloroethene	ug/L	5	5000	50000	NA	NA	**2.7**	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U
Trichlorofluoromethane	ug/L	--	--	--	NA	NA	1 U	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U
Vinyl chloride	ug/L	2	50000	100000	NA	NA	**1**	1 U	1 U	NA	1 U	1 U	1 U	1 U	1 U
Xylene (total)	ug/L	3000	5000	100000	NA	NA	**15**	5 U	5 U	NA	5 U	5 U	5 U	5 U	5 U

Red Shading - UCL Exceeded; Black Shading - Method 1 Std Exceeded; Bold - Detected; U - Not Detected;
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Table 3-8
Summary of Historical and TBA Groundwater Analytical Results
Former Tombarello Property
Lawrence, Massachusetts

				Sample Location	MW-1				MW-2	MW-2A	MW-3	MW-3A	MW-4	MW-5		MW-6	
				Sample Date	07/09/98	06/10/99	02/13/03	06/16/16	07/09/98	07/30/98	07/09/98	07/30/98	07/09/98	06/10/99	02/13/03	06/10/99	02/13/03
				QC Identifier													
PAHs	**Units**	**GW-2**	**GW-3**	**GW UCL**													
1,4-Dioxane	ug/L	6000	50000	100000	NA	NA	NA	0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	ug/L	2000	20000	100000	NA	NA	NA	0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	ug/L	--	10000	100000	NA	NA	NA	0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	ug/L	10000	40	100000	NA	NA	NA	0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	ug/L	--	30	600	NA	NA	NA	0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	ug/L	--	1000	10000	NA	NA	NA	0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	ug/L	--	500	5000	NA	NA	NA	0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	ug/L	--	400	4000	NA	NA	NA	0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	ug/L	--	20	500	NA	NA	NA	0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	ug/L	--	100	1000	NA	NA	NA	0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	ug/L	--	70	700	NA	NA	NA	0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	ug/L	--	40	400	NA	NA	NA	0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	ug/L	--	200	2000	NA	NA	NA	0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	ug/L	--	40	400	NA	NA	NA	0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	ug/L	--	100	1000	NA	NA	NA	0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	ug/L	700	20000	100000	NA	NA	NA	0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	ug/L	--	10000	100000	NA	NA	NA	**0.17**	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	ug/L	--	20	600	NA	NA	NA	0.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
EPH																	
2-Methylnaphthalene	ug/L	2000	20000	100000	NA	NA	NA	6.25 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	ug/L	--	10000	100000	NA	NA	NA	6.25 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	ug/L	10000	40	100000	NA	NA	NA	6.25 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	ug/L	--	30	600	NA	NA	NA	6.25 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	ug/L	--	1000	10000	NA	NA	NA	6.25 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	ug/L	--	500	5000	NA	NA	NA	6.25 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	ug/L	--	400	4000	NA	NA	NA	6.25 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	ug/L	--	20	500	NA	NA	NA	6.25 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	ug/L	--	100	1000	NA	NA	NA	6.25 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
C11-C22 Aromatics	ug/L	50000	5000	100000	NA	NA	NA	125 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
C19-C36 Aliphatics	ug/L	--	50000	100000	NA	NA	NA	125 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
C9-C18 Aliphatics	ug/L	5000	50000	100000	NA	NA	NA	125 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	ug/L	--	70	700	NA	NA	NA	6.25 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	ug/L	--	40	400	NA	NA	NA	6.25 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	ug/L	--	200	2000	NA	NA	NA	6.25 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	ug/L	--	40	400	NA	NA	NA	6.25 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	ug/L	--	100	1000	NA	NA	NA	6.25 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	ug/L	700	20000	100000	NA	NA	NA	6.25 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	ug/L	--	10000	100000	NA	NA	NA	6.25 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	ug/L	--	20	600	NA	NA	NA	6.25 U	NA	NA	NA	NA	NA	NA	NA	NA	NA

Red Shading - UCL Exceeded; Black Shading - Method 1 Std Exceeded; Bold - Detected; U - Not Detected;
J - Estimated; R - Rejected; NA - Not Analyzed

Table 3-8
Summary of Historical and TBA Groundwater Analytical Results
Former Tombarello Property
Lawrence, Massachusetts

				Sample Location	MW-7		MW-8	MW-9	MW-11	MW-11F	MW-12	MW-13		MW-15	MW-16
				Sample Date	06/10/99	02/13/03	06/13/16	06/13/16	06/13/16	06/17/16	06/14/16	06/14/16		06/16/16	06/13/16
				QC Identifier								FD	FD		
PAHs	**Units**	**GW-2**	**GW-3**	**GW UCL**											
1,4-Dioxane	ug/L	6000	50000	100000	NA	NA	0.1 U	0.1 U	**0.26**	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
2-Methylnaphthalene	ug/L	2000	20000	100000	NA	NA	**0.67**	0.1 U	0.1 U	NA	**0.25**	0.1 U	0.1 U	0.1 U	0.1 U
Acenaphthene	ug/L	--	10000	100000	NA	NA	**0.16**	0.1 U	0.1 U	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Acenaphthylene	ug/L	10000	40	100000	NA	NA	0.1 U	0.1 U	0.1 U	NA	**0.19**	0.1 U	0.1 U	0.1 U	0.1 U
Anthracene	ug/L	--	30	600	NA	NA	**0.13**	0.1 U	0.1 U	NA	**0.14**	**0.13**	**0.12**	0.1 U	0.1 U
Benzo(a)anthracene	ug/L	--	1000	10000	NA	NA	**0.12**	0.1 U	0.1 U	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Benzo(a)pyrene	ug/L	--	500	5000	NA	NA	**0.17**	0.1 U	0.1 U	NA	0.1 U	0.1 U	0.1 U	**0.13**	0.1 U
Benzo(b)fluoranthene	ug/L	--	400	4000	NA	NA	**0.14**	0.1 U	0.1 U	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Benzo(g,h,i)perylene	ug/L	--	20	500	NA	NA	**0.11**	0.1 U	0.1 U	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Benzo(k)fluoranthene	ug/L	--	100	1000	NA	NA	0.1 U	0.1 U	0.1 U	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Chrysene	ug/L	--	70	700	NA	NA	**0.11**	0.1 U	0.1 U	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Dibenz(a,h)anthracene	ug/L	--	40	400	NA	NA	0.1 U	0.1 U	0.1 U	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Fluoranthene	ug/L	--	200	2000	NA	NA	**0.31**	0.1 U	0.1 U	NA	**0.11**	0.1 U	0.1 U	**0.19**	0.1 U
Fluorene	ug/L	--	40	400	NA	NA	**0.13**	0.1 U	0.1 U	NA	**0.1**	0.1 U	0.1 U	0.1 U	0.1 U
Indeno(1,2,3-cd)pyrene	ug/L	--	100	1000	NA	NA	0.1 U	0.1 U	0.1 U	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Naphthalene	ug/L	700	20000	100000	NA	NA	**1.4**	0.1 U	0.1 U	NA	**0.67**	**0.64**	**0.77**	0.1 U	0.1 U
Phenanthrene	ug/L	--	10000	100000	NA	NA	**0.37**	0.1 U	0.1 U	NA	**0.36**	0.1 U	0.1 U	**0.19**	**0.16**
Pyrene	ug/L	--	20	600	NA	NA	**0.25**	0.1 U	0.1 U	NA	0.1 U	0.1 U	0.1 U	**0.14**	0.1 U
EPH															
2-Methylnaphthalene	ug/L	2000	20000	100000	NA	NA	6.33 U	6.76 U	6.49 U	NA	5.88 UJ	6.17 U	6.58 U	5.62 U	6.25 U
Acenaphthene	ug/L	--	10000	100000	NA	NA	6.33 U	6.76 U	6.49 U	NA	5.88 UJ	6.17 U	6.58 U	5.62 U	6.25 U
Acenaphthylene	ug/L	10000	40	100000	NA	NA	6.33 U	6.76 U	6.49 U	NA	5.88 UJ	6.17 U	6.58 U	5.62 U	6.25 U
Anthracene	ug/L	--	30	600	NA	NA	6.33 U	6.76 U	6.49 U	NA	5.88 U	6.17 U	6.58 U	5.62 U	6.25 U
Benzo(a)anthracene	ug/L	--	1000	10000	NA	NA	6.33 U	6.76 U	6.49 U	NA	5.88 U	6.17 U	6.58 U	5.62 U	6.25 U
Benzo(a)pyrene	ug/L	--	500	5000	NA	NA	6.33 U	6.76 U	6.49 U	NA	5.88 UJ	6.17 U	6.58 U	5.62 U	6.25 U
Benzo(b)fluoranthene	ug/L	--	400	4000	NA	NA	6.33 U	6.76 U	6.49 U	NA	5.88 UJ	6.17 U	6.58 U	5.62 U	6.25 U
Benzo(g,h,i)perylene	ug/L	--	20	500	NA	NA	6.33 U	6.76 U	6.49 U	NA	5.88 U	6.17 U	6.58 U	5.62 U	6.25 U
Benzo(k)fluoranthene	ug/L	--	100	1000	NA	NA	6.33 U	6.76 U	6.49 U	NA	5.88 U	6.17 U	6.58 U	5.62 U	6.25 U
C11-C22 Aromatics	ug/L	50000	5000	100000	NA	NA	127 U	135 U	130 U	NA	118 U	123 U	132 U	112 U	125 U
C19-C36 Aliphatics	ug/L	--	50000	100000	NA	NA	127 U	135 U	130 U	NA	118 U	123 U	132 U	112 U	125 U
C9-C18 Aliphatics	ug/L	5000	50000	100000	NA	NA	127 U	135 U	130 U	NA	118 UJ	123 U	132 U	112 U	125 U
Chrysene	ug/L	--	70	700	NA	NA	6.33 U	6.76 U	6.49 U	NA	5.88 U	6.17 U	6.58 U	5.62 U	6.25 U
Dibenz(a,h)anthracene	ug/L	--	40	400	NA	NA	6.33 U	6.76 U	6.49 U	NA	5.88 UJ	6.17 U	6.58 U	5.62 U	6.25 U
Fluoranthene	ug/L	--	200	2000	NA	NA	6.33 U	6.76 U	6.49 U	NA	5.88 U	6.17 U	6.58 U	5.62 U	6.25 U
Fluorene	ug/L	--	40	400	NA	NA	6.33 U	6.76 U	6.49 U	NA	5.88 UJ	6.17 U	6.58 U	5.62 U	6.25 U
Indeno(1,2,3-cd)pyrene	ug/L	--	100	1000	NA	NA	6.33 U	6.76 U	6.49 U	NA	5.88 UJ	6.17 U	6.58 U	5.62 U	6.25 U
Naphthalene	ug/L	700	20000	100000	NA	NA	6.33 U	6.76 U	6.49 U	NA	5.88 UJ	6.17 U	6.58 U	5.62 U	6.25 U
Phenanthrene	ug/L	--	10000	100000	NA	NA	6.33 U	6.76 U	6.49 U	NA	5.88 U	6.17 U	6.58 U	5.62 U	6.25 U
Pyrene	ug/L	--	20	600	NA	NA	6.33 U	6.76 U	6.49 U	NA	5.88 U	6.17 U	6.58 U	5.62 U	6.25 U

Red Shading - UCL Exceeded; Black Shading - Method 1 Std Exceeded; Bold - Detected; U - Not Detected;
J - Estimated; R - Rejected; NA - Not Analyzed

Table 3-8
Summary of Historical and TBA Groundwater Analytical Results
Former Tombarello Property
Lawrence, Massachusetts

				Sample Location	MW-1				MW-2	MW-2A	MW-3	MW-3A	MW-4	MW-5		MW-6	
				Sample Date	07/09/98	06/10/99	02/13/03	06/16/16	07/09/98	07/30/98	07/09/98	07/30/98	07/09/98	06/10/99	02/13/03	06/10/99	02/13/03
				QC Identifier													
Metals	**Units**	**GW-2**	**GW-3**	**GW UCL**													
Arsenic	ug/L	--	900	9000	**6**	10 U	NA	**0.05 J**	5 U	**53**	**24**	**143**	**21**	10 U	NA	10 U	NA
Barium	ug/L	--	50000	100000	**54**	NA	NA	**14.5 J**	**177**	**329**	**180**	**915**	**996**	NA	NA	NA	NA
Cadmium	ug/L	--	4	50	1 U	NA	NA	**0.042 J**	1 U	1 U	1 U	**1**	**3.6**	NA	NA	NA	NA
Chromium	ug/L	--	300	3000	5 U	NA	NA	5.2 U	5 U	**145**	**33**	**477**	**27**	NA	NA	**13**	NA
Lead	ug/L	--	10	150	**5**	5 U	NA	0.5 U	**5**	**25**	**31**	**58**	**1560**	5 U	NA	5 U	NA
Mercury	ug/L	--	20	200	2 U	NA	NA	NA	0.2 U	0.2 U	0.2 U	0.2 U	**0.64**	NA	NA	NA	NA
Selenium	ug/L	--	100	1000	5 U	NA	NA	**0.44 J**	5 U	5 U	**9**	**6**	5 U	NA	NA	NA	NA
Silver	ug/L	--	7	1000	5 U	NA	NA	0.5 U	5 U	5 U	5 U	5 U	5 U	NA	NA	NA	NA
Dissolved Metals																	
Arsenic	ug/L	--	900	9000	5 U	NA	50 U	NA	5 U	5 U	5 U	5 U	5 U	NA	50 U	NA	50 U
Barium	ug/L	--	50000	100000	**39**	NA	50 U	NA	**177**	**49**	**70**	**48**	**108**	NA	**70**	NA	**70**
Cadmium	ug/L	--	4	50	1 U	NA	50 U	NA	1 U	1 U	1 U	1 U	1 U	NA	50 U	NA	50 U
Chromium	ug/L	--	300	3000	5 U	NA	20 U	NA	5 U	5 U	5 U	5 U	5 U	NA	20 U	NA	20 U
Lead	ug/L	--	10	150	3 U	NA	5 U	NA	5 U	3 U	3 U	3 U	**6**	NA	**6**	NA	5 U
Mercury	ug/L	--	20	200	2 U	NA	0.5 U	NA	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	NA	0.5 U	NA	0.5 U
Selenium	ug/L	--	100	1000	5 U	NA	10 U	NA	5 U	5 U	5 U	5 U	5 U	NA	10 U	NA	10 U
Silver	ug/L	--	7	1000	5 U	NA	5 U	NA	5 U	5 U	5 U	5 U	5 U	NA	5 U	NA	5 U
Pesticides/PCBs																	
Aroclor 1016	ug/L	5	10	100	NA	NA	NA	0.5 UJ	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1221	ug/L	5	10	100	NA	NA	NA	0.5 UJ	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1232	ug/L	5	10	100	NA	NA	NA	0.5 UJ	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1242	ug/L	5	10	100	NA	NA	NA	0.5 UJ	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1248	ug/L	5	10	100	NA	NA	NA	0.5 UJ	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1254	ug/L	5	10	100	NA	NA	NA	0.5 UJ	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1260	ug/L	5	10	100	NA	NA	NA	0.5 UJ	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1262	ug/L	5	10	100	NA	NA	NA	0.5 UJ	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1268	ug/L	5	10	100	NA	NA	NA	0.5 UJ	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor, Total	ug/L	5	10	100	3.6 U	NA	NA	0.5 UJ	3.6 U	3.6 U	3.6 U	3.6 U	3.5 U	NA	NA	NA	NA
General Chemistry																	
Cyanide	ug/L	--	30	2000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cyanide (PAC)	ug/L	--	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Red Shading - UCL Exceeded; Black Shading - Method 1 Std Exceeded; Bold - Detected; U - Not Detected;
J - Estimated; R - Rejected; NA - Not Analyzed

Table 3-8
Summary of Historical and TBA Groundwater Analytical Results
Former Tombarello Property
Lawrence, Massachusetts

				Sample Location	MW-7		MW-8	MW-9	MW-11	MW-11F	MW-12	MW-13		MW-15	MW-16
				Sample Date	06/10/99	02/13/03	06/13/16	06/13/16	06/13/16	06/17/16	06/14/16	06/14/16		06/16/16	06/13/16
				QC Identifier								FD	FD		
Metals	**Units**	**GW-2**	**GW-3**	**GW UCL**											
Arsenic	ug/L	--	900	9000	10 U	NA	**12**	**3.3**	**10**	**2.4**	0.5 U	**5.44**	**5.13**	**1.78**	**0.32 J**
Barium	ug/L	--	50000	100000	NA	NA	**100**	**40**	**1400**	**100**	**45.2**	**46.3**	**46.2**	**24.4 J**	**36**
Cadmium	ug/L	--	4	50	NA	NA	**0.53 J**	1 U	**2.2**	**0.31 J**	**0.049 J**	**0.061 J**	**0.063 J**	**0.049 J**	1 U
Chromium	ug/L	--	300	3000	**16**	NA	**0.6 J**	2 U	**0.62 J**	2 U	5.2 U	5.2 U	5.2 U	5.2 U	2 U
Lead	ug/L	--	10	150	5 U	NA	**69**	**0.4 J**	**25**	**0.36 J**	0.5 U	0.5 U	0.5 U	**1.31**	**0.29 J**
Mercury	ug/L	--	20	200	NA	NA	0.2 U	0.2 U	0.2 U	**0.03 J**	0.2 U	**0.031 J**	0.2 U	NA	0.2 U
Selenium	ug/L	--	100	1000	NA	NA	**0.39 J**	**0.74 J**	**1.9 J**	5 U	0.5 U	**0.23 J**	0.5 U	0.5 U	5 U
Silver	ug/L	--	7	1000	NA	NA	**0.046 J**	**0.051 J**	**0.029 J**	1 U	0.5 U	0.5 U	0.5 U	**0.03 J**	**0.059 J**
Dissolved Metals															
Arsenic	ug/L	--	900	9000	NA	50 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	ug/L	--	50000	100000	NA	50 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	ug/L	--	4	50	NA	50 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	ug/L	--	300	3000	NA	20 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	ug/L	--	10	150	NA	5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	ug/L	--	20	200	NA	0.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	ug/L	--	100	1000	NA	10 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver	ug/L	--	7	1000	NA	5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides/PCBs															
Aroclor 1016	ug/L	5	10	100	NA	NA	0.5 UJ	0.5 UJ	0.5 U	NA	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ
Aroclor 1221	ug/L	5	10	100	NA	NA	0.5 UJ	0.5 UJ	0.5 U	NA	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ
Aroclor 1232	ug/L	5	10	100	NA	NA	0.5 UJ	0.5 UJ	0.5 U	NA	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ
Aroclor 1242	ug/L	5	10	100	NA	NA	0.5 UJ	0.5 UJ	0.5 U	NA	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ
Aroclor 1248	ug/L	5	10	100	NA	NA	0.5 UJ	0.5 UJ	0.5 U	NA	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ
Aroclor 1254	ug/L	5	10	100	NA	NA	0.5 UJ	0.5 UJ	0.5 U	NA	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ
Aroclor 1260	ug/L	5	10	100	NA	NA	0.5 UJ	0.5 UJ	0.5 U	NA	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ
Aroclor 1262	ug/L	5	10	100	NA	NA	0.5 UJ	0.5 UJ	0.5 U	NA	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ
Aroclor 1268	ug/L	5	10	100	NA	NA	0.5 UJ	0.5 UJ	0.5 U	NA	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ
Aroclor, Total	ug/L	5	10	100	NA	NA	0.5 UJ	0.5 UJ	0.5 U	NA	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ
General Chemistry															
Cyanide	ug/L	--	30	2000	NA	NA	NA	NA	NA	NA	5 U	5 U	5 U	NA	NA
Cyanide (PAC)	ug/L	--	--	--	NA	NA	NA	NA	NA	NA	5 U	5 U	5 U	NA	NA

Red Shading - UCL Exceeded; Black Shading - Method 1 Std Exceeded; Bold - Detected; U - Not Detected;
J - Estimated; R - Rejected; NA - Not Analyzed

Table 3-9
Summary of Dust Monitoring Sample Results
Former Tombarello Property
Lawrence, Massachusetts

	Sample Location	AMS-1	AMS-1	AMS-1	AMS-01	AMS-01	AMS-01	AMS-2	AMS-2
	Sample Date	06/09/2016	06/09/2016	06/09/2016	06/15/2016	06/15/2016	06/15/2016	06/09/2016	06/09/2016
Analysis									
NIOSH 0500	**Units**								
DUST	Total mg	0.05 U	NT	NT	0.05 U	NT	NT	0.05 U	NT
NIOSH 5503									
PCB 1016	Total µg	NT	0.1 U	NT	NT	0.1 U	NT	NT	0.1 U
PCB 1221	Total µg	NT	0.1 U	NT	NT	0.1 U	NT	NT	0.1 U
PCB 1232	Total µg	NT	0.1 U	NT	NT	0.1 U	NT	NT	0.1 U
PCB 1242	Total µg	NT	0.1 U	NT	NT	0.1 U	NT	NT	0.1 U
PCB 1248	Total µg	NT	0.1 U	NT	NT	0.1 U	NT	NT	0.1 U
PCB 1254	Total µg	NT	0.1 U	NT	NT	0.1 U	NT	NT	0.1 U
PCB 1260	Total µg	NT	0.1 U	NT	NT	0.1 U	NT	NT	0.1 U
PCB 1262	Total µg	NT	0.1 U	NT	NT	0.1 U	NT	NT	0.1 U
PCB 1268	Total µg	NT	0.1 U	NT	NT	0.1 U	NT	NT	0.1 U
NIOSH 7303									
LEAD	Total µg	NT	NT	1.2 U	NT	NT	1.2 U	NT	NT

NOTES:
1. U = Not detected above the lab reporting limits shown in parenthesis.
2. NT = Not tested.
3. mg = milligram
4. µg = microgram

Table 3-9
Summary of Dust Monitoring Sample Results
Former Tombarello Property
Lawrence, Massachusetts

	Sample Location	AMS-2	AMS-02	AMS-02	AMS-02	AMS-3	AMS-3	AMS-3	AMS-03
	Sample Date	**06/09/2016**	**06/15/2016**	**06/15/2016**	**06/15/2016**	**06/09/2016**	**06/09/2016**	**06/09/2016**	**06/15/2016**
Analysis									
NIOSH 0500	**Units**								
DUST	Total mg	NT	0.05 U	NT	NT	0.05 U	NT	NT	0.05 U
NIOSH 5503									
PCB 1016	Total µg	NT	NT	0.1 U	NT	NT	0.1 U	NT	NT
PCB 1221	Total µg	NT	NT	0.1 U	NT	NT	0.1 U	NT	NT
PCB 1232	Total µg	NT	NT	0.1 U	NT	NT	0.1 U	NT	NT
PCB 1242	Total µg	NT	NT	0.1 U	NT	NT	0.1 U	NT	NT
PCB 1248	Total µg	NT	NT	0.1 U	NT	NT	0.1 U	NT	NT
PCB 1254	Total µg	NT	NT	0.1 U	NT	NT	0.1 U	NT	NT
PCB 1260	Total µg	NT	NT	0.1 U	NT	NT	0.1 U	NT	NT
PCB 1262	Total µg	NT	NT	0.1 U	NT	NT	0.1 U	NT	NT
PCB 1268	Total µg	NT	NT	0.1 U	NT	NT	0.1 U	NT	NT
NIOSH 7303									
LEAD	Total µg	1.2 U	NT	NT	1.2 U	NT	NT	1.2 U	NT

NOTES:
1. U = Not detected above the lab reporting limits shown in parenthesis.
2. NT = Not tested.
3. mg = milligram
4. µg = microgram

Table 3-9
Summary of Dust Monitoring Sample Results
Former Tombarello Property
Lawrence, Massachusetts

	Sample Location	AMS-03	AMS-03	AMS-4	AMS-04	AMS-5	AMS-5	AMS-5	AMS-06
	Sample Date	06/15/2016	06/15/2016	06/09/2016	06/15/2016	06/09/2016	06/09/2016	06/09/2016	06/15/2016
Analysis									
NIOSH 0500	**Units**								
DUST	Total mg	NT	NT	NT	NT	0.05 U	NT	NT	0.05 U
NIOSH 5503									
PCB 1016	Total µg	0.1 U	NT	0.1 U	0.1 U	NT	0.1 U	NT	NT
PCB 1221	Total µg	0.1 U	NT	0.1 U	0.1 U	NT	0.1 U	NT	NT
PCB 1232	Total µg	0.1 U	NT	0.1 U	0.1 U	NT	0.1 U	NT	NT
PCB 1242	Total µg	0.1 U	NT	0.1 U	0.1 U	NT	0.1 U	NT	NT
PCB 1248	Total µg	0.1 U	NT	0.1 U	0.1 U	NT	0.1 U	NT	NT
PCB 1254	Total µg	0.1 U	NT	0.1 U	0.1 U	NT	0.1 U	NT	NT
PCB 1260	Total µg	0.1 U	NT	0.1 U	0.1 U	NT	0.1 U	NT	NT
PCB 1262	Total µg	0.1 U	NT	0.1 U	0.1 U	NT	0.1 U	NT	NT
PCB 1268	Total µg	0.1 U	NT	0.1 U	0.1 U	NT	0.1 U	NT	NT
NIOSH 7303									
LEAD	Total µg	NT	1.2 U	NT	NT	NT	NT	1.2 U	NT

NOTES:
1. U = Not detected above the lab reporting limits shown in parenthesis.
2. NT = Not tested.
3. mg = milligram
4. µg = microgram

Table 3-9
Summary of Dust Monitoring Sample Results
Former Tombarello Property
Lawrence, Massachusetts

	Sample Location	AMS-06	AMS-06	Blank-061516	Dust 1	Dust 2	Lead 1	Lead 2
	Sample Date	06/15/2016	06/15/2016	06/15/2016	06/15/2016	06/15/2016	06/15/2016	06/15/2016
Analysis								
NIOSH 0500	**Units**							
DUST	Total mg	NT	NT	NT	0.05 U	0.05 U	NT	NT
NIOSH 5503								
PCB 1016	Total µg	0.1 U	NT	0.1 U	NT	NT	NT	NT
PCB 1221	Total µg	0.1 U	NT	0.1 U	NT	NT	NT	NT
PCB 1232	Total µg	0.1 U	NT	0.1 U	NT	NT	NT	NT
PCB 1242	Total µg	0.1 U	NT	0.1 U	NT	NT	NT	NT
PCB 1248	Total µg	0.1 U	NT	0.1 U	NT	NT	NT	NT
PCB 1254	Total µg	0.1 U	NT	0.1 U	NT	NT	NT	NT
PCB 1260	Total µg	0.1 U	NT	0.1 U	NT	NT	NT	NT
PCB 1262	Total µg	0.1 U	NT	0.1 U	NT	NT	NT	NT
PCB 1268	Total µg	0.1 U	NT	0.1 U	NT	NT	NT	NT
NIOSH 7303								
LEAD	Total µg	NT	1.2 U	NT	NT	NT	1.2 U	1.2 U

NOTES:
1. U = Not detected above the lab reporting limits shown in parenthesis.
2. NT = Not tested.
3. mg = milligram
4. µg = microgram

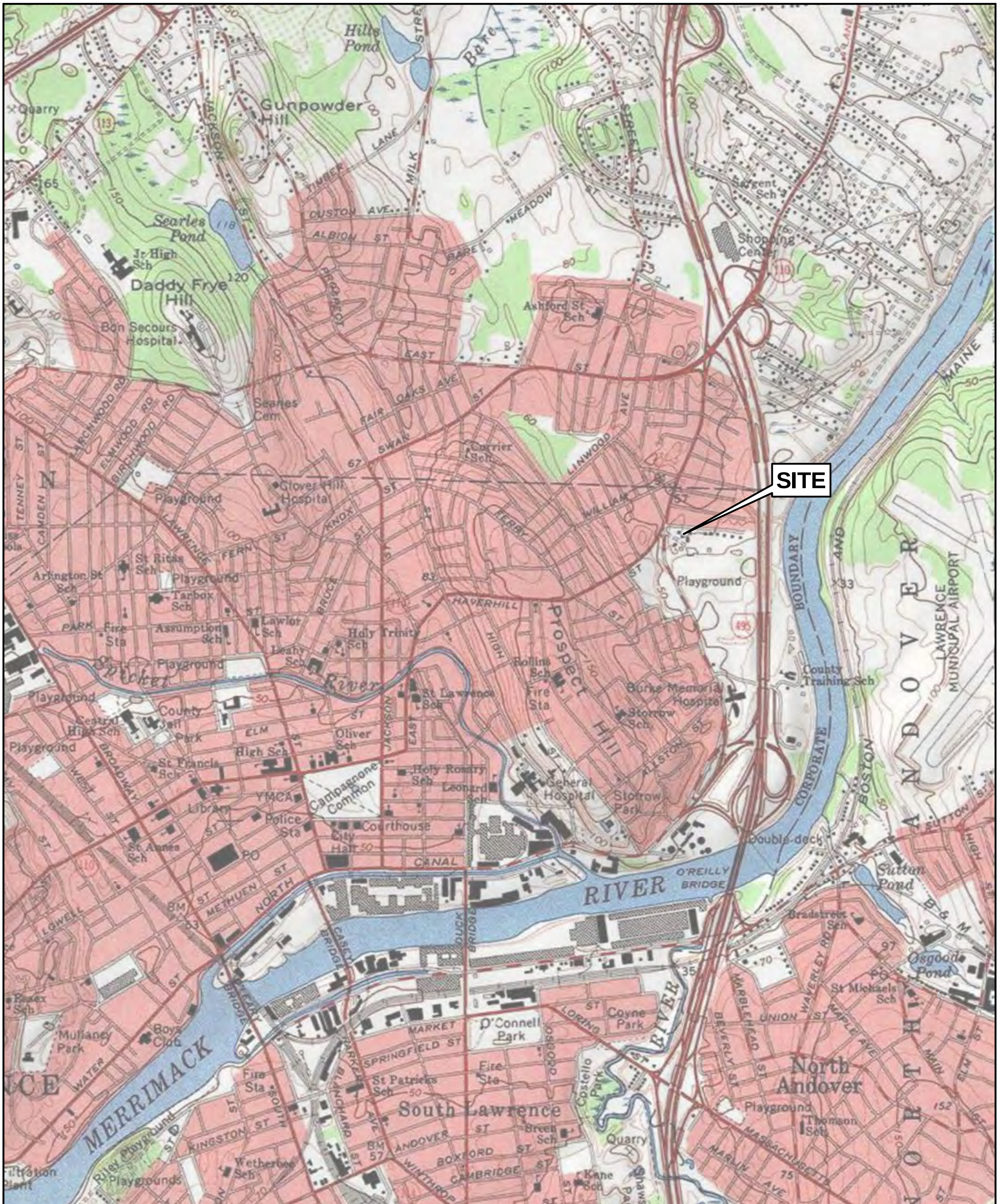
Table 5-1
Summary of Capital and O/M Costs for Remedial Alternatives
Former Tombarello Property
Lawrence, Massachusetts

Alternative	PCB Cleanup Goal	UCLs Removed	Soil Volume	Barrier	Capital Cost Range	Annual O&M Cost Range
1A	10 mg/kg	Yes	75,000 CY	Cap	$45M to $70M	$20K to $25K
1B	10 mg/kg	Yes	75,000 CY	Cover	$45M to $65M	$10K to $15K
2A	50 mg/kg	Yes	10,000 CY	Cover	$7.5M to $11M	$10K to $15K
2B	50 mg/kg	No	9,000 CY	Cap	$9M to $13M	$20K to $25K
2C	50 mg/kg	No	9,000 CY	Cover	$7M to $10M	$10K to $15K
3A	100 mg/kg	Yes	4,000 CY	Cover	$4M to $6M	$10K to $15K
3B	100 mg/kg	No	2,000 CY	Cap	$4.5M to $7M	$20K to $25K
3C	100 mg/kg	No	2,000 CY	Cover	$3M to $4M	$10K to $15K

Note:

O&M Costs based on Year 1 estimates. Costs expected to increase with inflation.

FIGURES



USGS Topographic Map
Lawrence, Mass. - N.H.
Revised 1966

0 500 1,000 2,000
Feet
1 inch = 2,000 feet

N

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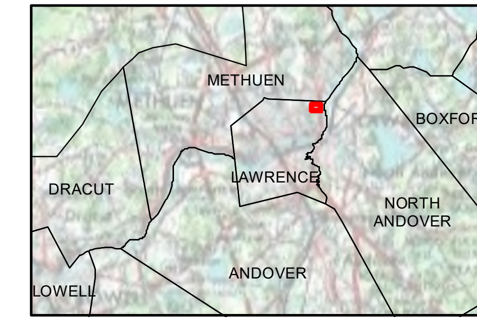
FIGURE 1-1

LOCUS MAP
FORMER TOMBARELLO PROPERTY
LAWRENCE, MASSACHUSETTS

PREPARED BY: JH	CHECKED BY: SV
PROJECT NO. 80108.04	DATE: AUGUST 2016

Path: R:\80000 Task Orders\80108 Brownfields Multi-Site\GIS\MLRR\Figures\Figure 1-1 Tombarello Locus.mxd **Date Printed:** 8/18/2016



Map Location

Notes:

1. Source: Figure 4, Comprehensive Phase II Site Investigation Services, Former Tombarello Property, by Tighe & Bond.

2. Property lines from MassGIS, Aerial photo from MassGIS, 2013.

3. Location of site features depicted hereon is approximate and given for illustrative purposes only.

Legend

- 2011 Excavation Area
- Soil Consolidation Area
- Existing Building
- Former Building
- Property Lines

N

0 50 100 200

Feet

1 inch = 100 feet

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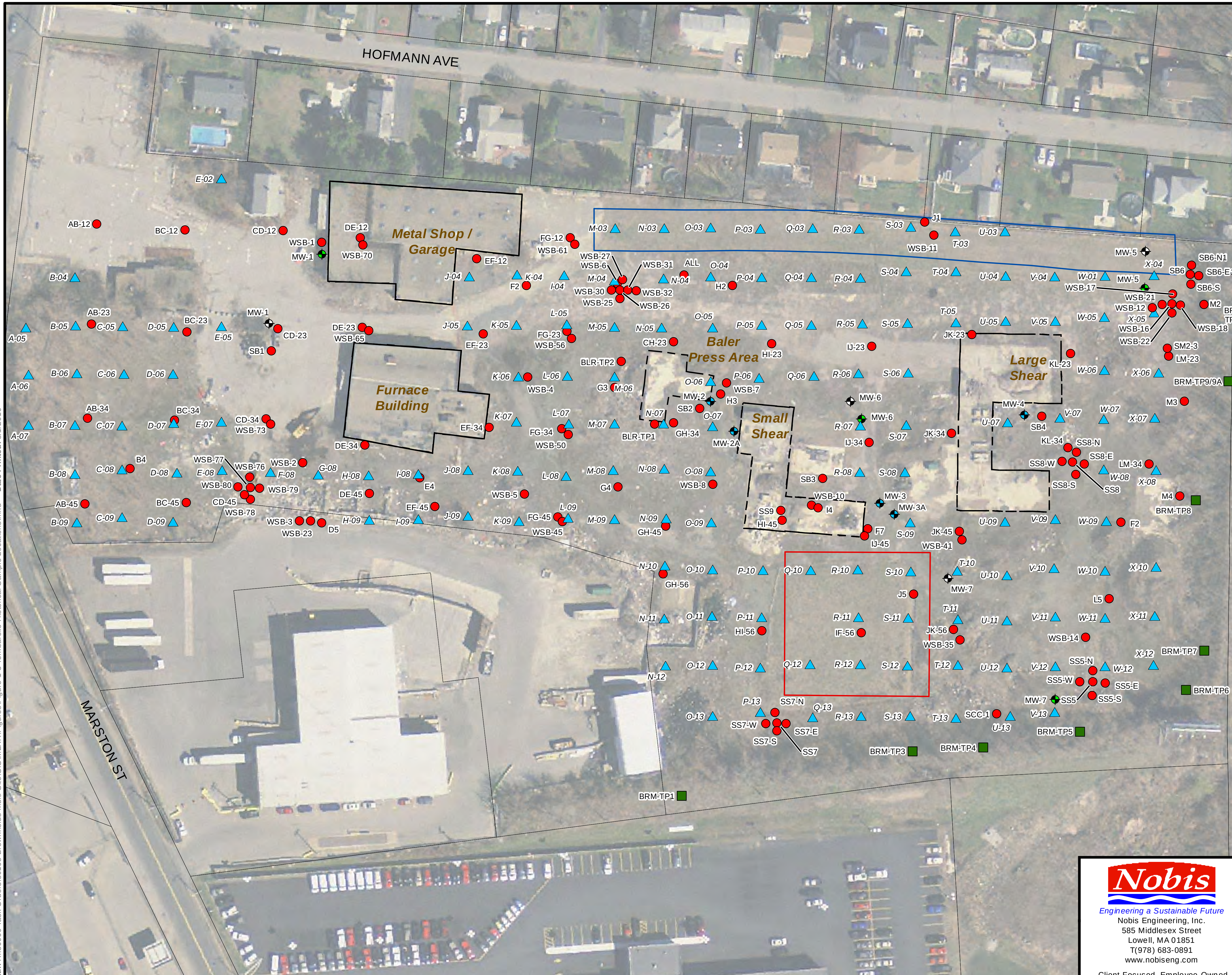
FIGURE 1-2

SITE PLAN
FORMER TOMBARELLO PROPERTY
LAWRENCE, MASSACHUSETTS

PREPARED BY: JH	CHECKED BY: SV
PROJECT NO. 80108.04	DATE: AUGUST 2016

Path: R:\80000 Task Orders\80108 Brownfields Multi-Site\GIS\MLRR\Figures\Figure 1-2 Tombarello Site Plan.mxd Date Printed: 8/18/2016



Notes:

1. Source: Figure 4, Comprehensive Phase II Site Investigation Services, Former Tombarello Property, by Tighe & Bond.

2. Property lines from MassGIS, Aerial photo from MassGIS, 2013.

3. Locations of site features depicted hereon are approximate and given for illustrative purposes only.

Legend

- Soil Boring
- Soil Sample, EPA 2010
- Test Pit

Historical Monitoring Wells

- HEA June 1999
- Weston Feb 2003
- Weston July 2003
- Property Lines
- Existing Building
- Former Building
- 2011 Excavation Area
- Soil Consolidation Area

N

0 50 100 200

Feet

1 inch = 100 feet

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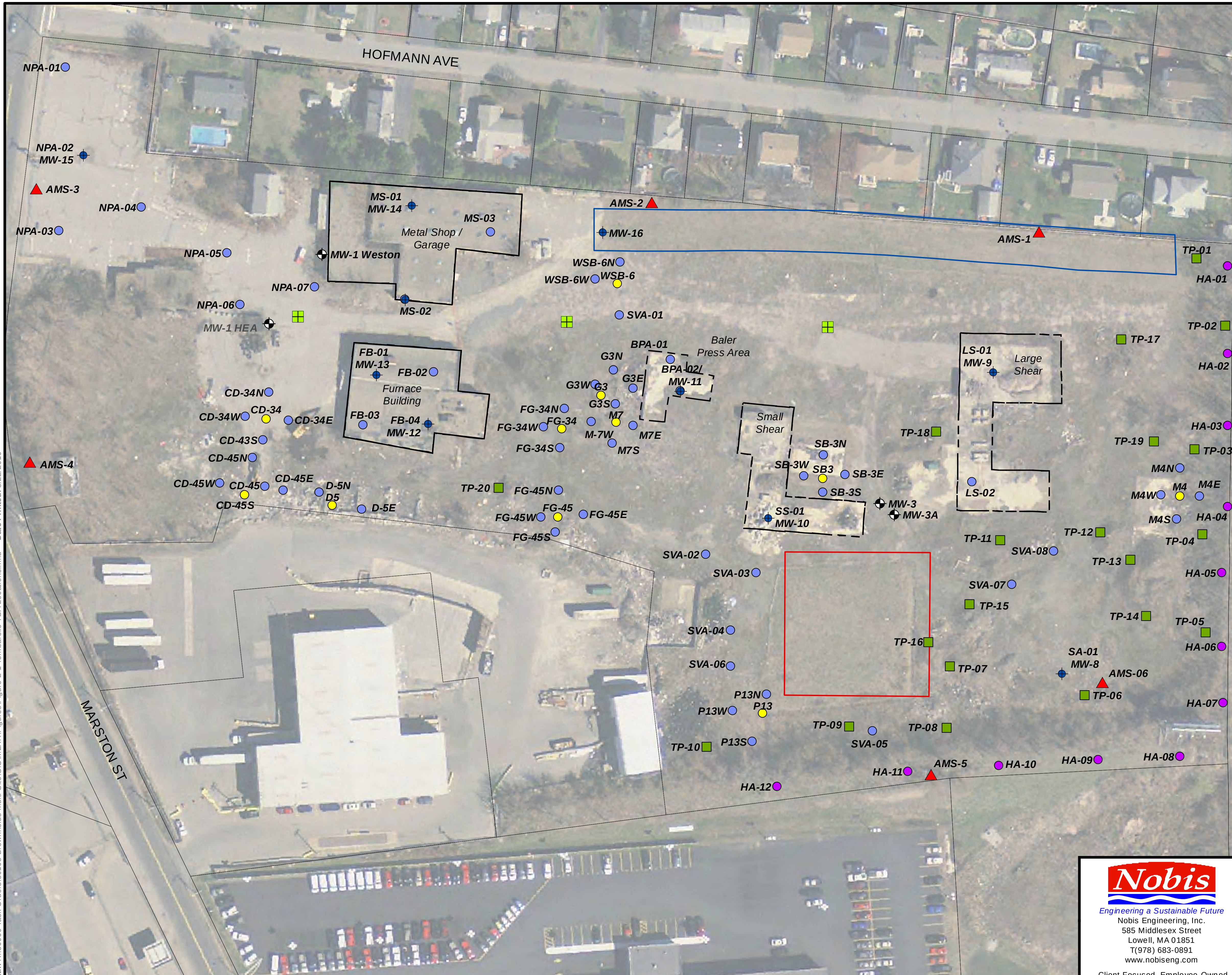
FIGURE 1-3

HISTORICAL SAMPLE LOCATIONS
FORMER TOMBARELLO PROPERTY
LAWRENCE, MASSACHUSETTS

PREPARED BY: JH	CHECKED BY: AR
PROJECT NO. 80108.04	DATE: JULY 2016

Path: R:\80000 Task Orders\80108 Brownfields Multi-Site\GIS\MLRR\Figures\Figure 1-3 Tombarello Historical Sample Locations.mxd Date Printed: 8/1/2016



Notes:

1. Source: Figure 4, Comprehensive Phase II Site Investigation Services, Former Tombarello Property, by Tighe & Bond, And Nobis survey, June 2016.

2. Property lines from MassGIS, Aerial photo from MassGIS, 2013.

3. Locations of site features depicted hereon are approximate and given for illustrative purposes only.

Legend

- Air Monitoring Location
- June 2016 Soil Borings
- Hand Auger Borings
- Monitoring Well
- Test Pit Location
- Existing Borings
- Existing Monitoring Wells
- Catch Basin
- Property Lines
- Existing Building
- Former Building
- 2011 Excavation Area
- Soil Consolidation Area

N

0 50 100 200

Feet

1 inch = 100 feet

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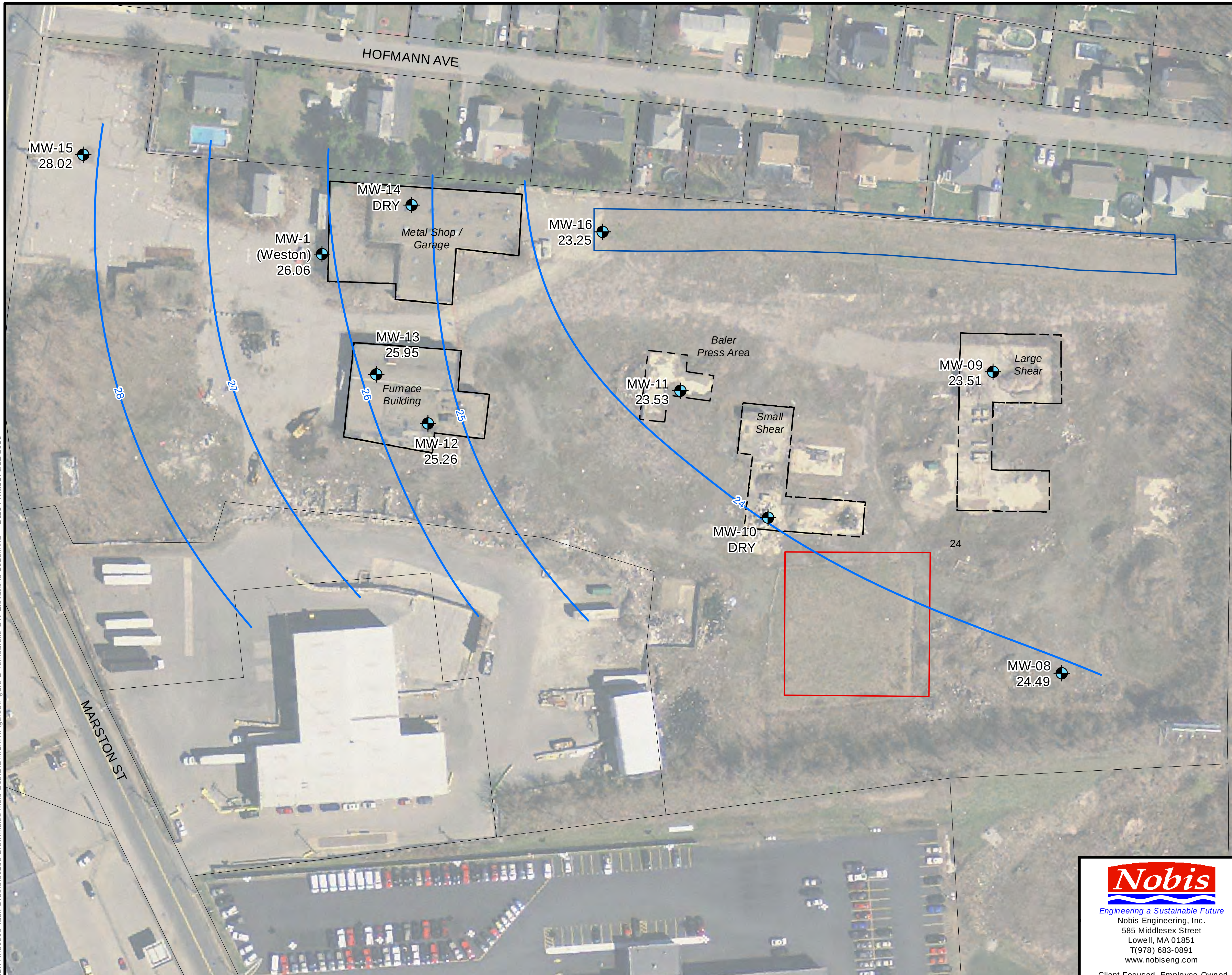
FIGURE 2-1

TBA SAMPLE LOCATIONS
FORMER TOMBARELLO PROPERTY
LAWRENCE, MASSACHUSETTS

PREPARED BY: JH	CHECKED BY: SV
PROJECT NO. 80108.04	DATE: JULY 2016

Path: R:\80000 Task Orders\80108 Brownfields Multi-Site\GIS\MLRR\Figures\Figure 2-1 Tombarello TBA Locations.mxd Date Printed: 8/22/2016



Notes:

1. Groundwater contours are interpolated based on elevation data obtained on the dates indicated. Other interpretations are possible.

2. Source: Figure 4, Comprehensive Phase II Site Investigation Services, Former Tombarello Property, by Tighe & Bond, And Nobis survey, June 2016.

3. Property lines from MassGIS, Aerial photo from MassGIS, 2013.

4. Locations of site features depicted hereon are approximate and given for illustrative purposes only.

Legend

- Monitoring Well with Groundwater Elevation (6/17/16)
- Groundwater Contours (6/17/16)
- Property Lines
- Existing Building
- Former Building
- 2011 Excavation Area
- Soil Consolidation Area

0 50 100 200

Feet

1 inch = 100 feet

N

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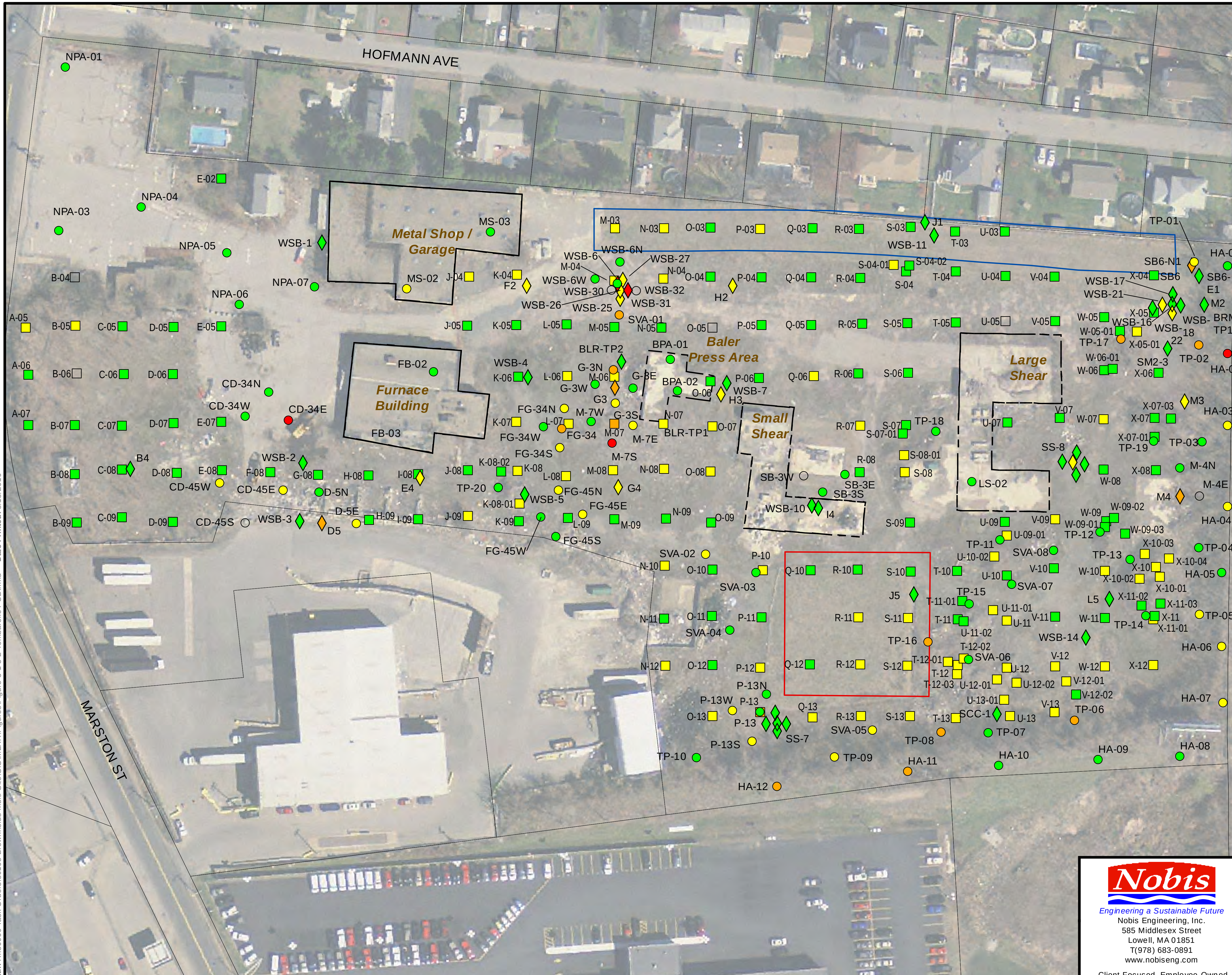
FIGURE 2-2

GROUNDWATER POTENTIOMETRIC SURFACE
FORMER TOMBARELLO PROPERTY
LAWRENCE, MASSACHUSETTS

PREPARED BY: JH	CHECKED BY: AR
PROJECT NO. 80108.04	DATE: AUGUST 2016

Path: R:\80000 Task Orders\80108 Brownfields Multi-Site\GIS\MLRR\Figures\Figure B Tombarello GW Elevations 2016.mxd Date Printed: 8/22/2016



Notes:

1. Soil samples are from multiple events from 1998-2016. PCB results are total Aroclors, in milligrams per Kilogram (mg/Kg), Where duplicate/multiple samples occur, the higher result is shown.

2. Samples within the range 0 to 2 feet bgs by Nobis, 2016 are included in the surface soil results.

3. Source: Figure 4, Comprehensive Phase II Site Investigation Services, Former Tombarello Property, by Tighe & Bond.

4. Property lines from MassGIS, Aerial photo from MassGIS, 2013.

5. Locations of site features depicted hereon are approximate and given for illustrative purposes only.

Legend

Surface Soil PCB (0-1 ft bgs, ppm)[2]

- > 100
- 50 - 100
- 10 - 50
- < 10
- No PCBs Detected

Shape Indicator

- Sampled by Nobis, 2016
- Sampled by EPA, 2010
- Sampled by others, Prior to 2010
- Property Lines
- Existing Building
- Former Building
- 2011 Excavation Area
- Soil Consolidation Area

N

0 50 100 200

Feet

1 inch = 100 feet

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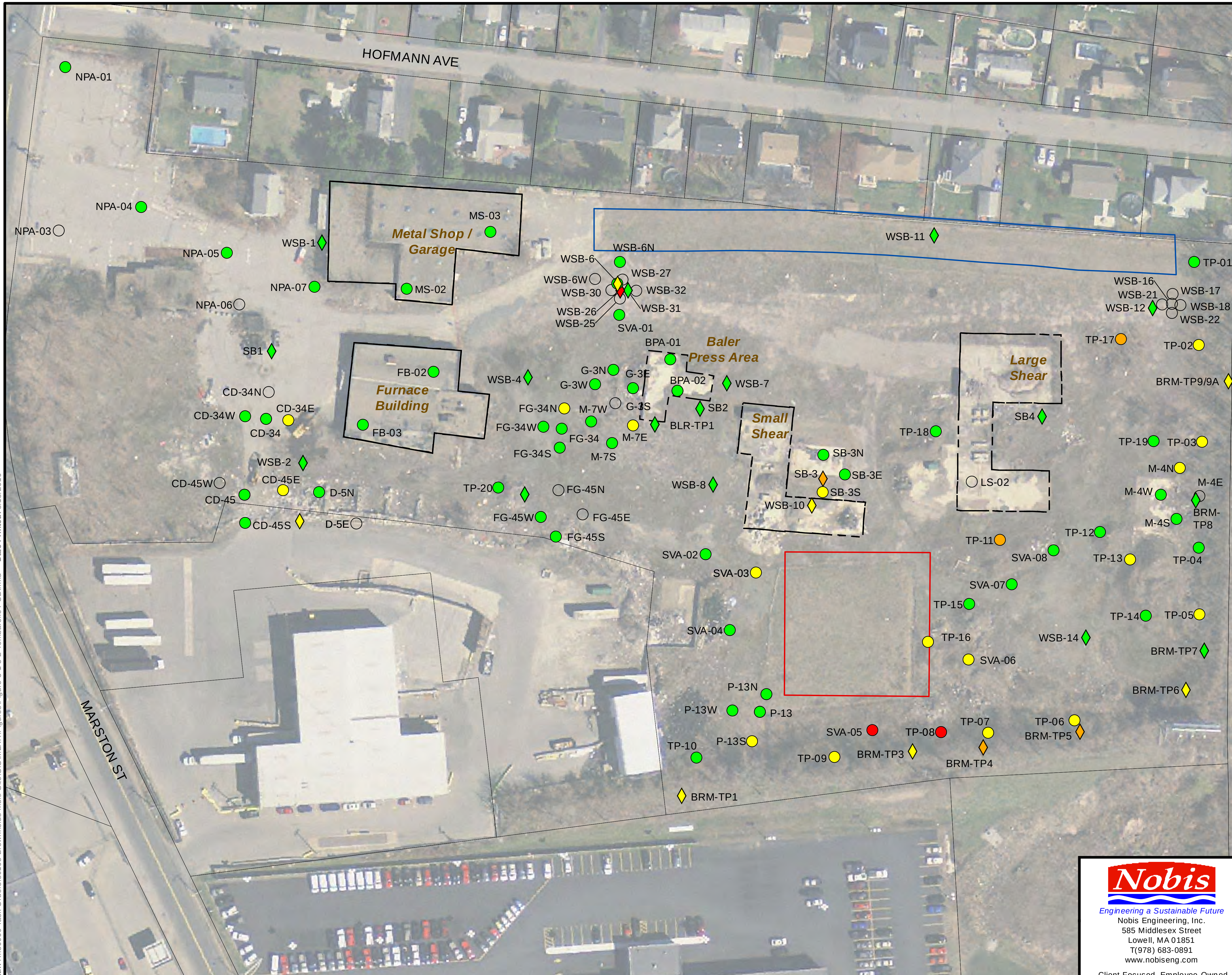
FIGURE 3-1

SUMMARY OF SURFACE SOIL
PCB SAMPLE RESULTS
FORMER TOMBARELLO PROPERTY
LAWRENCE, MASSACHUSETTS

PREPARED BY: JH	CHECKED BY: AR
PROJECT NO. 80108.04	DATE: AUGUST 2016

Path: R:\80000 Task Orders\80108 Brownfields Multi-Site\GIS\MLRR\Figures\Figure 3-1 3-2 Tombarello PCB.mxd Date Printed: 8/18/2016



Notes:

1. Soil samples are from multiple events from 1998-2016. PCB results are total Aroclors, in milligrams per Kilogram (mg/Kg), Where duplicate/multiple samples occur, the higher result is shown.
2. Samples within the range 0 to 2 feet bgs by Nobis, 2016 are included in the surface soil results.
3. Source: Figure 4, Comprehensive Phase II Site Investigation Services, Former Tombarello Property, by Tighe & Bond.
4. Property lines from MassGIS, Aerial photo from MassGIS, 2013.
5. Locations of site features depicted hereon are approximate and given for illustrative purposes only.

Legend

Subsurface Soil PCB (>1 ft bgs, ppm)[2]

- > 100
- 50 - 100
- 10 - 50
- < 10

Shape Indicator

- Sampled by Nobis, 2016
- Sampled by others, prior to 2010
- Property Lines
- Existing Building
- Former Building
- 2011 Excavation Area
- Soil Consolidation Area

0 50 100 200

Feet

1 inch = 100 feet

N

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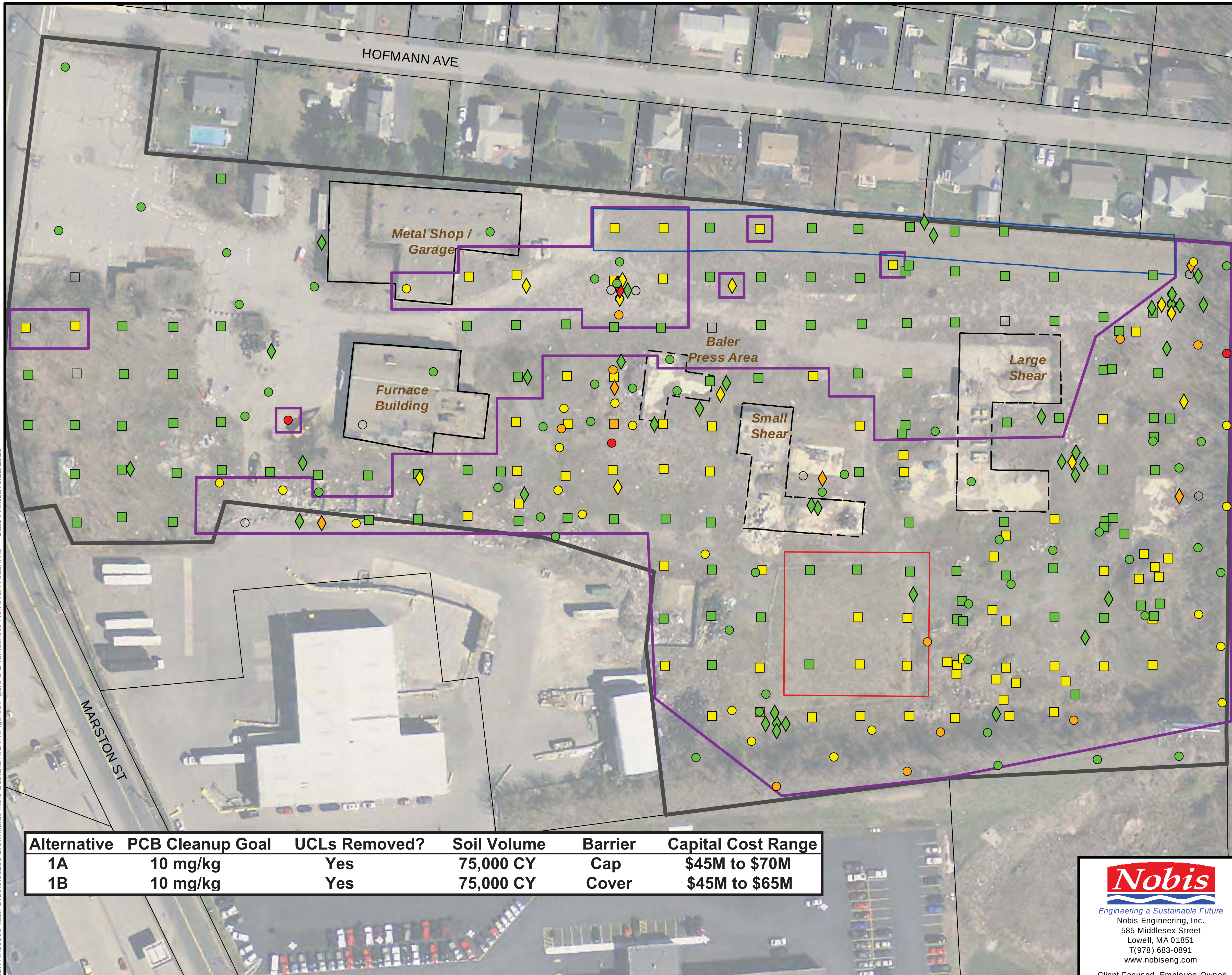
FIGURE 3-2

SUMMARY OF SUBSURFACE SOIL PCB SAMPLE RESULTS
FORMER TOMBARELLO PROPERTY
LAWRENCE, MASSACHUSETTS

PREPARED BY: JH	CHECKED BY: AR
PROJECT NO. 80108.04	DATE: AUGUST 2016

Path: R:\80000 Task Orders\80108 Brownfields Multi-Site\GIS\MLRR\Figures\Figure 3-1 3-2 Tombarello PCB.mxd Date Printed: 8/18/2016



Alternative	PCB Cleanup Goal	UCLs Removed?	Soil Volume	Barrier	Capital Cost Range
1A	10 mg/kg	Yes	75,000 CY	Cap	$45M to $70M
1B	10 mg/kg	Yes	75,000 CY	Cover	$45M to $65M

Notes:

1. Source: Figure 4, Comprehensive Phase II Site Investigation Services, Former Tombarello Property, by Tighe & Bond.

2. Property lines from MassGIS, Aerial photo from MassGIS, 2013.

3. Locations of site features depicted hereon are approximate and given for illustrative purposes only.

Legend

Surface Soil PCB (0-2 ft bgs, ppm)

- > 100
- 50 - 100
- 10 - 50
- < 10
- No PCBs Detected

Shape Indicator

- Sampled by Nobis, 2016
- Sampled by EPA, 2010
- Sampled by others, Prior to 2010
- Proposed Excavation Area
- Extent of Cap/Cover
- 2011 Excavation Area
- Soil Consolidation Area
- Property Lines
- Existing Building
- Former Building

0 50 100 200

Feet

1 inch = 100 feet

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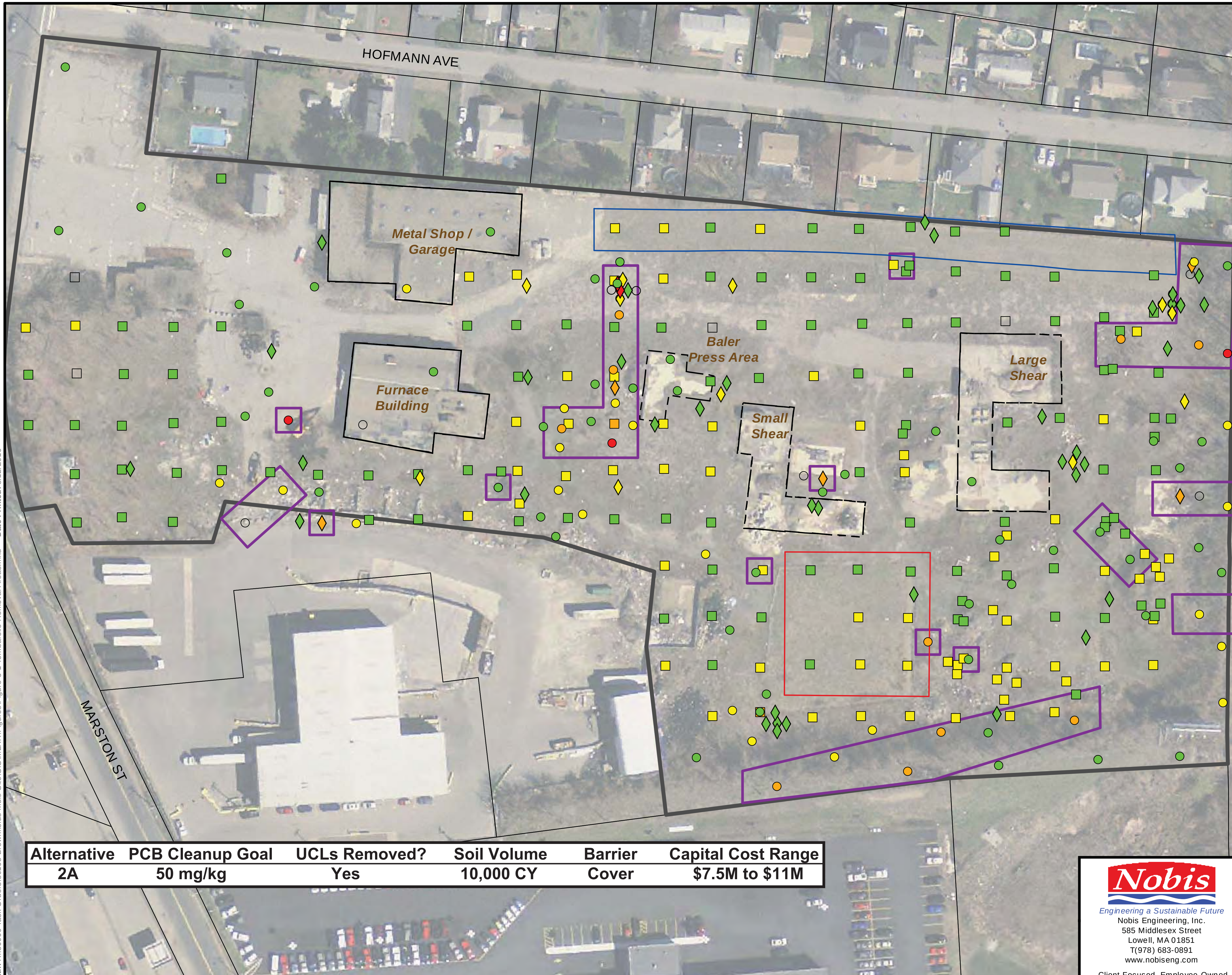
FIGURE 5-1

ALTERNATIVES 1A & 1B
PROPOSED SOIL REMOVAL AREAS
FORMER TOMBARELLO PROPERTY
LAWRENCE, MASSACHUSETTS

PREPARED BY: JH	CHECKED BY: SV
PROJECT NO. 80108.04	DATE: AUGUST 2016

Path: R:\80000 Task Orders\80108 Brownfields Multi-Site\GIS\MLRR\Figures\Figure 5-1 Tombarello Removal Areas.mxd Date Printed: 8/12/2016



Alternative	PCB Cleanup Goal	UCLs Removed?	Soil Volume	Barrier	Capital Cost Range
2A	50 mg/kg	Yes	10,000 CY	Cover	$7.5M to $11M

Notes:

1. Source: Figure 4, Comprehensive Phase II Site Investigation Services, Former Tombarello Property, by Tighe & Bond.

2. Property lines from MassGIS, Aerial photo from MassGIS, 2013.

3. Locations of site features depicted hereon are approximate and given for illustrative purposes only.

Legend

Surface Soil PCB (0-2 ft bgs, ppm)

- > 100
- 50 - 100
- 10 - 50
- < 10
- No PCBs Detected

Shape Indicator

- Sampled by Nobis, 2016
- Sampled by EPA, 2010
- Sampled by others, Prior to 2010
- Proposed Excavation Area
- Extent of Cap/Cover
- 2011 Excavation Area
- Soil Consolidation Area
- Property Lines
- Existing Building
- Former Building

0 50 100 200

Feet

1 inch = 100 feet

N

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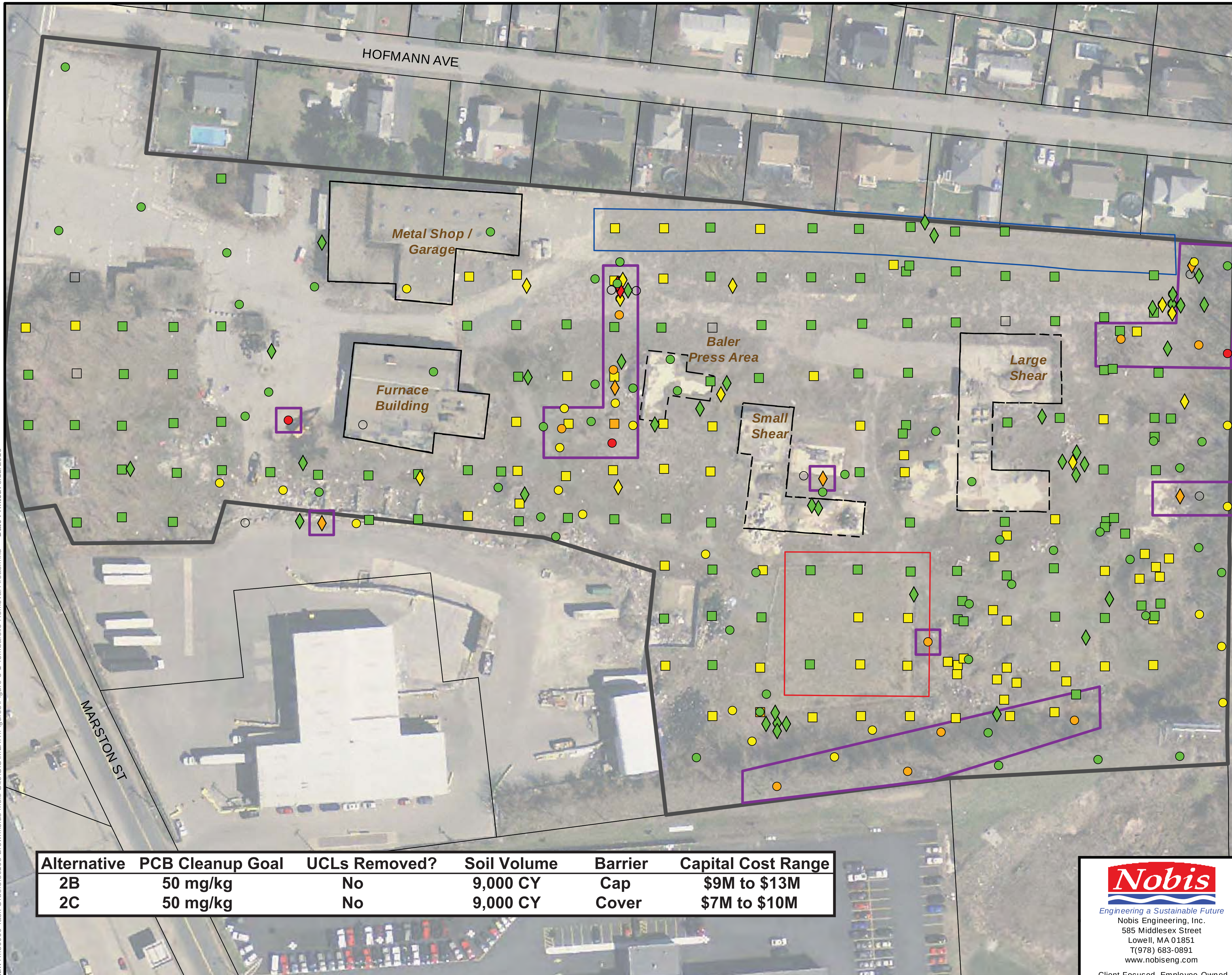
FIGURE 5-2 A

ALTERNATIVE 2A
PROPOSED SOIL REMOVAL AREAS
FORMER TOMBARELLO PROPERTY
LAWRENCE, MASSACHUSETTS

PREPARED BY: JH	CHECKED BY: SV
PROJECT NO. 80108.04	DATE: AUGUST 2016

Path: R:\80000 Task Orders\80108 Brownfields Multi-Site\GIS\MLRR\Figures\Figure 5-1 Tombarello Removal Areas.mxd Date Printed: 8/12/2016



Alternative	PCB Cleanup Goal	UCLs Removed?	Soil Volume	Barrier	Capital Cost Range
2B	50 mg/kg	No	9,000 CY	Cap	$9M to $13M
2C	50 mg/kg	No	9,000 CY	Cover	$7M to $10M

Notes:

1. Source: Figure 4, Comprehensive Phase II Site Investigation Services, Former Tombarello Property, by Tighe & Bond.

2. Property lines from MassGIS, Aerial photo from MassGIS, 2013.

3. Locations of site features depicted hereon are approximate and given for illustrative purposes only.

Legend

Surface Soil PCB (0-2 ft bgs, ppm)

- > 100
- 50 - 100
- 10 - 50
- < 10
- No PCBs Detected

Shape Indicator

- Sampled by Nobis, 2016
- Sampled by EPA, 2010
- Sampled by others, Prior to 2010
- Proposed Excavation Area
- Extent of Cap/Cover
- 2011 Excavation Area
- Soil Consolidation Area
- Property Lines
- Existing Building
- Former Building

0 50 100 200
Feet
1 inch = 100 feet
N

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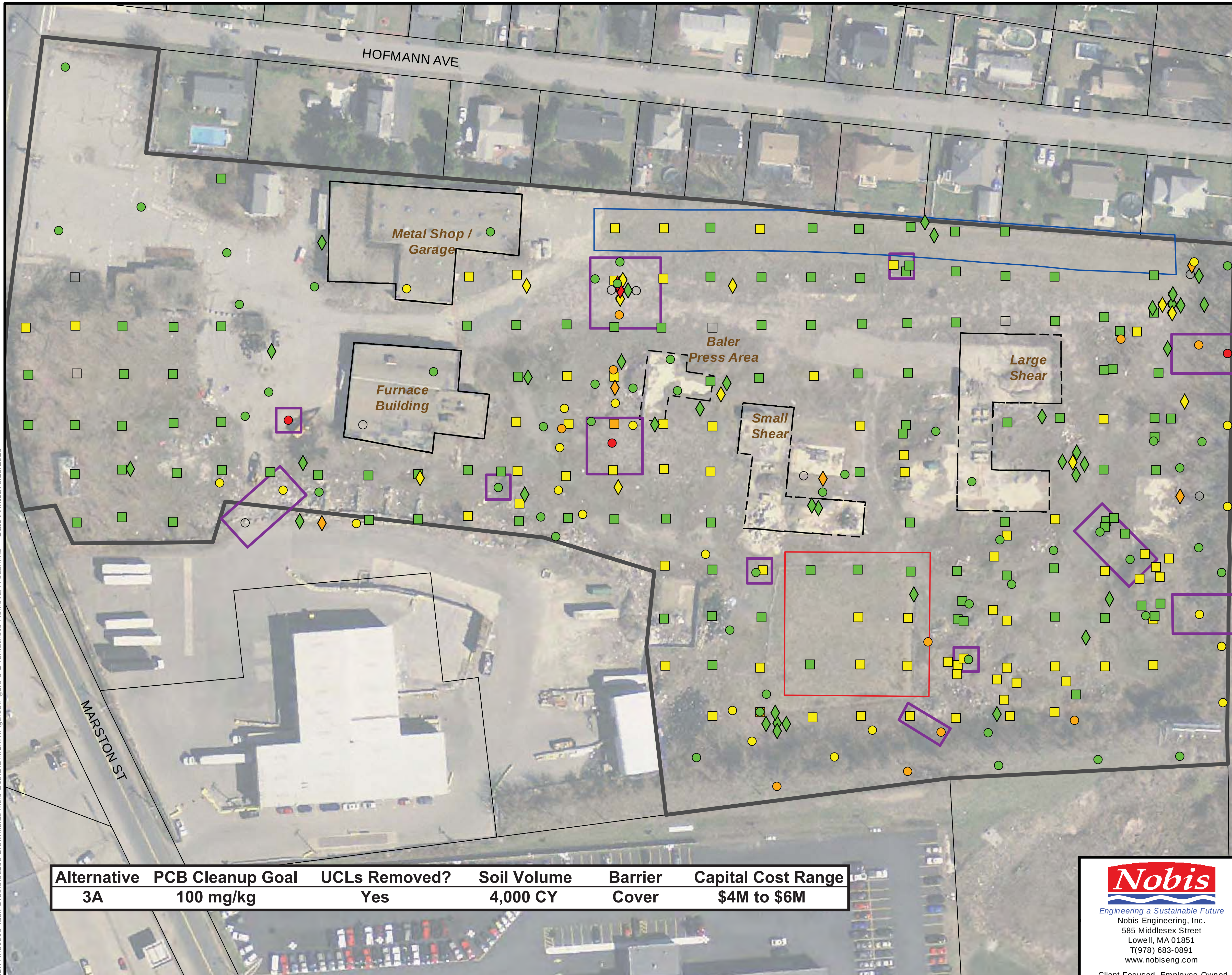
FIGURE 5-2 B

ALTERNATIVES 2B & 2C
PROPOSED SOIL REMOVAL AREAS
FORMER TOMBARELLO PROPERTY
LAWRENCE, MASSACHUSETTS

PREPARED BY: JH	CHECKED BY: SV
PROJECT NO. 80108.04	DATE: AUGUST 2016



Alternative	PCB Cleanup Goal	UCLs Removed?	Soil Volume	Barrier	Capital Cost Range
3A	100 mg/kg	Yes	4,000 CY	Cover	$4M to $6M

Notes:

1. Source: Figure 4, Comprehensive Phase II Site Investigation Services, Former Tombarello Property, by Tighe & Bond.

2. Property lines from MassGIS, Aerial photo from MassGIS, 2013.

3. Locations of site features depicted hereon are approximate and given for illustrative purposes only.

Legend

Surface Soil PCB (0-2 ft bgs, ppm)

- > 100
- 50 - 100
- 10 - 50
- < 10
- No PCBs Detected

Shape Indicator

- Sampled by Nobis, 2016
- Sampled by EPA, 2010
- Sampled by others, Prior to 2010
- Proposed Excavation Area
- Extent of Cap/Cover
- 2011 Excavation Area
- Soil Consolidation Area
- Property Lines
- Existing Building
- Former Building

0 50 100 200

Feet

1 inch = 100 feet

N

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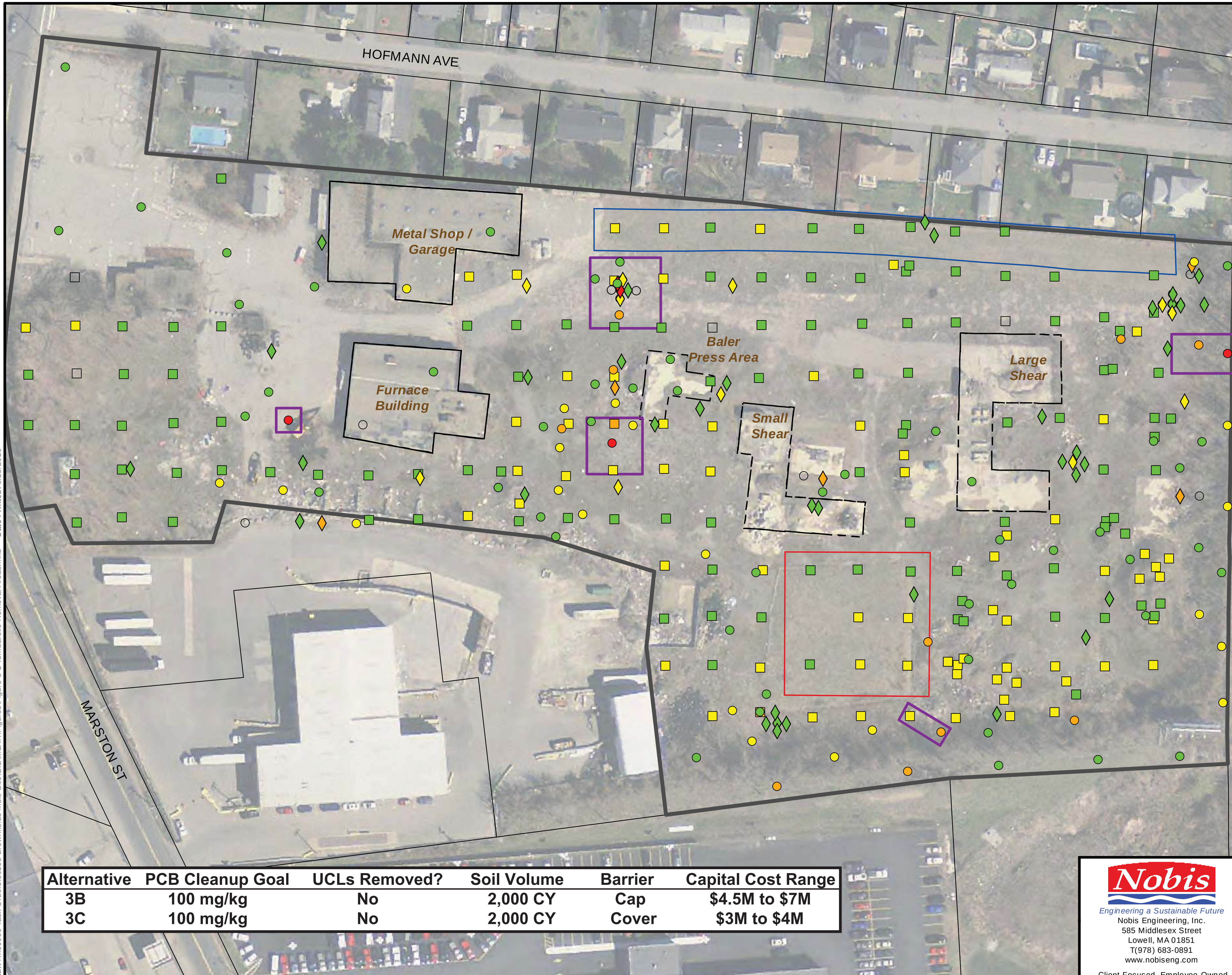
FIGURE 5-3 A

ALTERNATIVE 3A
PROPOSED SOIL REMOVAL AREAS
FORMER TOMBARELLO PROPERTY
LAWRENCE, MASSACHUSETTS

PREPARED BY: JH	CHECKED BY: SV
PROJECT NO. 80108.04	DATE: AUGUST 2016

Path: R:\80000 Task Orders\80108 Brownfields Multi-Site\GIS\MLRR\Figures\Figure 5-1 Tombarello Removal Areas.mxd Date Printed: 8/15/2016



Alternative	PCB Cleanup Goal	UCLs Removed?	Soil Volume	Barrier	Capital Cost Range
3B	100 mg/kg	No	2,000 CY	Cap	$4.5M to $7M
3C	100 mg/kg	No	2,000 CY	Cover	$3M to $4M

Notes:

1. Source: Figure 4, Comprehensive Phase II Site Investigation Services, Former Tombarello Property, by Tighe & Bond.
2. Property lines from MassGIS, Aerial photo from MassGIS, 2013.
3. Locations of site features depicted hereon are approximate and given for illustrative purposes only.

Legend

Surface Soil PCB (0-2 ft bgs, ppm)

- > 100
- 50 - 100
- 10 - 50
- < 10
- No PCBs Detected

Shape Indicator

- Sampled by Nobis, 2016
- Sampled by EPA, 2010
- Sampled by others, Prior to 2010
- Proposed Excavation Area
- Extent of Cap/Cover
- 2011 Excavation Area
- Soil Consolidation Area
- Property Lines
- Existing Building
- Former Building

0 50 100 200
Feet
1 inch = 100 feet
N

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FIGURE 5-3 B

ALTERNATIVES 3B & 3C
PROPOSED SOIL REMOVAL AREAS
FORMER TOMBARELLO PROPERTY
LAWRENCE, MASSACHUSETTS

PREPARED BY: JH	CHECKED BY: SV
PROJECT NO. 80108.04	DATE: AUGUST 2016

APPENDICES