# ANALYSIS OF BROWNFIELDS CLEANUP ALTERNATIVES (ABCA)
# PARCELS A AND B
# 0 MAPPLE STREET AND 6 RUBBER AVENUE
# NAUGATUCK, CONNECTICUT

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**FOR:**
Naugatuck Economic Development Corp.
270 Church Street
Naugatuck, CT

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**Nobis Project No. 90300.02**
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Nobis
Engineering a Sustainable Future

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## 1.0 INTRODUCTION

On behalf of the Borough of Naugatuck, Nobis Engineering, Inc. (Nobis), has prepared this Analysis of Brownfields Cleanup Alternatives (ABCA) for Parcels A and B located at 6 Rubber Avenue and 0 Maple Street in Naugatuck, Connecticut (Site). An Area Plan is provided as Figure 1 and a Site Plan is provided as Figure 2.

### 1.1 SCOPE AND PURPOSE

Recipient of EPA Brownfields Grants, must supply an ABCA that includes:

- Information about the site and contamination issues (i.e. exposure pathways, identification of contaminant sources, etc.), cleanup standards, applicable laws, alternatives considered, and the proposed cleanup.
- The evaluation of alternatives must include effectiveness, implementability, and the cost of the responses proposed.
- The evaluation of alternatives must also consider the resilience of the remedial options in light of reasonably foreseeable changing climate conditions (e.g. sea level rise, increased frequency and intensity of flooding, and/or extreme weather events, etc.)
- The alternatives may additionally consider reduced volume of waste generated/disposed, reduced volume of materials taken to landfills, and recycling and re-using materials generated during the cleanup process to the maximum extent practical.
- The evaluation will include an analysis of reasonable alternatives including no action.
- The cleanup method chosen must be based on this analysis.



A site-specific QAPP was approved by the EPA in March 2016 and included survey and analytical procedures for sampling building materials for asbestos, lead in paint, polychlorinated biphenyls in sealants and electrical equipment, and mercury fluorescent bulbs. A Community Relations Plan (CRP) is provided under separate cover. The CRP presents a plan for informing and obtaining input from the public at key milestones in the remediation process.

## 2.0 SITE DESCRIPTION AND HISTORY

The southern portion of the Site, Parcel A, is approximately 3.9-acres in size and occupied by a 375,000-square foot, four-story warehouse. The large masonry and synthetic stucco covered structure is currently unoccupied and used for storage including office furniture and equipment from former GDC operations. Additionally, the Naugatuck Historical Society and Naugatuck school system use the building for storage.

The building was originally constructed in the 1950's as a rubber and canvas shoe warehouse and retail sales storefront operated by the United States Rubber Company and then Uniroyal, Inc. In 1986, GDC moved to the Site. GDC designed, tested and manufactured electronic equipment used in data communications until vacating the property in June 2016.

The northern parcel, a 7.75-acre lot referred to as Parcel B, consists of a paved parking and driveway area extending from Rubber Avenue north to Maple Street. The only remaining structure is a 400-square foot brick building formerly used as a pump house. The pump house building stands 20 feet above grade and extends an additional 15 feet below grade. The piping system of

the pump house connects to a nearby underground canal/raceway system. The pump house was constructed in 1956 to provide flood control but is no longer operational.

An active Metro North Railroad right-of-way abuts the eastern Site boundary, Maple Street borders the Site to the north, Old Firehouse Road borders the western portion of Parcel B, and Elm Street forms the western boundary of Parcel A. Rubber Avenue separates Parcel A from Parcel B.

## 3.0 BACKGROUND

The following summarizes Hazardous Building Materials Assessments (HBMAs) completed for the former GDC building and Pump House located on-Site.

**Former GDC Building**

Of the 145 total samples analyzed, the following asbestos containing materials (ACM) have been identified in the building:

| Sample | Sample Location | Total Asbestos | Asbestos Type |
|---|---|---|---|
| **Samples Collected During Preliminary HBMA** | | | |
| BL-A-05 | Pipe Insulation - Boiler Room | 45 | Chrysotile |
| BL-A-06 | Breaching Insulation - Boiler Room | 55 | Amosite |
| BL-A-07 | Elbow Insulation - Boiler Room | 45 | Chrysotile |
| BL-A-17 | Pipe Insulation - Condensate Room | 20 | Blend |
| L1-A-03A | Tan Floor Tile 9'x9' - front entrance | 2 | Chrysotile |
| L1-A-03B | Mastic- front entrance | 8 | Chrysotile |
| L2-A-12 | Elbow Pipe Insulation - Adjacent to column | 60 | Chrysotile |
| L4-A-06 | White Elbow insulation - North end of building | 70 | Chrysotile |
| L4-A-12 | White Pipe Insulation | 55 | Blend |
| **Samples Collected During HBMA Addendum** | | | |
| L1-A-31a | Brown cove base mastic | 2 | Chrysotile |
| L1-A-39a | Vertical pipe insulation photo room | 20 | Chrysotile |
| L1-A-47a | Pipe insulation | 17 | Blend |
| L1-A-48a | Elbow insulation | 26 | Blend |
| L1-A-49a | Elbow insulation | 15 | Chrysotile |
| L1-A-50a | Pipe insulation | 21 | Blend |
| L2-A-18a | 3rd floor raised floor pedestal mastic | 3 | Chrysotile |
| L2-A-21a | Grey cementitious wall panel walk in freezer | 2 | Chrysotile |
| L2-A-29a | 2nd floor landing- yellow carpet mastic over black mastic | 2 | Chrysotile |
| L3-A-20a | Red 9x9 VFT | 5 | Chrysotile |
| L3-A-21a | Black mastic w/20a | 4 | Chrysotile |
| L3-A-25a | White layered insulation 4" pipe near south exit | 40 | Chrysotile |

- Analysis of similarly appearing thermal system insulation (e.g. white plaster pipe insulation and pipe fittings) were suggest that there is a mixture of ACM and non-ACM materials. This is consistent with our observations that significant repair and maintenance has been done over time. However, it is difficult to determine what individual pipes contain asbestos and which ones do not. Therefore, we recommend that all plaster or cementitious thermal system insulation be considered ACM.

- During the preliminary HBMA, one sample of tan 9-inch by 9-inch vinyl flooring and related mastic was obtained near the main building entrance on the first floor. The laboratory reported that both the floor tile and the mastic contained asbestos. The floor was generally intact and non-friable. The HBMA addendum additionally identified a small area of red 9-inch by 9-inch vinyl flooring and related mastic on the third floor as ACM as well.

- Brown 12-inch by 12-inch floor tile and associated mastic were determined to be non-ACM. This material was observed to be used in several large areas of the Floors 1, 2 and 3.

- The preliminary HBMA report identified vibration dampeners on HVAC units as a PACM. The dampeners were determined to be made of vinyl and identified as non-ACM during this survey.

**Parcel B Pump House**



On June 2, 2017, Nobis Engineering, Inc. (Nobis) performed a preliminary hazardous building materials assessment (HBMA) of the former Pump House located on Parcel B

A total of fifteen samples of miscellaneous building materials were obtained and analyzed for asbestos content. The samples consisted of concrete wall and roof deck, brick mortar, and roof flashing cement were submitted to EMSL Analytical of Wallingford, Connecticut for analysis of asbestos content by Polarized Light Microscopy (PLM).

The laboratory results are summarized on Table 1. The laboratory report is attached. The results can be summarized as follows:

- The black flashing around the roof opening was found to contain 8% chrysotile and be an asbestos containing material (ACM).

- No asbestos was detected in the twelve other samples analyzed.

**Underground Vault**

An underground vault approximately 12 feet deep is located on the northern portion of the Site that contains a condensate tank with suspect ACM thermal insulation and lagging. The vault has not been accessed to date due to confined space entry restrictions. Further sampling may be required to confirm the presence of ACM.

## 3.1 EXPOSURE PATHWAYS

The current threat to public health is the exposure to asbestos by individuals entering the GDC building. Under current conditions, risk pathways include ingestion or inhalation of potentially hazardous materials and substances by site visitors and/or trespassers. During any renovation or demolition activities, ACM remaining in the buildings will potentially pose an exposure risk to the site construction workers through ingestion or inhalation.

# 4.0 APPLICABLE LAWS AND REGULATIONS

Asbestos is regulated by the Asbestos Hazard Emergency Response Act (AHERA), the Toxic Substances Control Act (TSCA), the National Emission Standards for Hazardous Air Pollutants (NESHAP), and Regulations of Connecticut State Agencies (RCSA) Sections 19a-14, 19a-17, 19a-332 to 19a-333, and 20-435 to 20-442.

Further, to protect asbestos abatement workers, all asbestos abatement work must be performed in accordance with OSHA asbestos regulations as promulgated in Title 29 of the Code of Federal Regulations (29 CFR) Section 1926.1101.

The following work practices should be followed whenever demolition/renovation activities involving asbestos containing materials occur:

- Prepare abatement specifications by a Connecticut Department of Public Health (CT DPH) licensed Asbestos Designer;
- Notify the CT DPH of the intention to demolish/renovate by the required notification form and receive approval for abatement activities;
- Remove all ACM from the facility being demolished or renovated before any disruptive activity begins;
- Handle and dispose of all ACM in compliance with state and federal guidance;
- Monitor asbestos abatement activities by a Connecticut licensed Asbestos Project Monitor and Abatement Supervisor.
- Conduct air clearance testing upon completion of ACM abatement; and,
- Complete an asbestos abatement compliance report.



# 5.0 ANALYSIS OF CLEANUP ALTERNATIVES

Reasonable alternatives for asbestos abatement considered for the Site include Alternative 1: No Action, Alternative 2: Partial removal of ACM and management in-place, and Alternative 3: Complete asbestos abatement. A short summary of each alternative is provided below:

## 5.1 ALTERNATIVE #1 NO ACTION

In this alternative, no cleanup or redevelopment would occur and the site would remain under used.

Effectiveness: This alternative is not effective in controlling the potential exposure to those using the former GDC building for storage. This alternative is not feasible considering the future plans to redevelop the buildings and the Site and leaves a potential source of blight in the neighborhood.

Cost: There are no immediate costs associated with this alternative. Annual costs would be related to maintenance of the structures and to limit access and maintain controlled entry.

## 5.2 ALTERNATIVE #2 PARTIAL ASBESTOS ABATEMENT AND MANAGEMENT IN-PLACE

Alternative 2 would involve the repair and maintenance of deteriorated and friable ACM from the interior of the former GDC building to allow use of the building until renovation/demolition plans are finalized. Alternative 2 would also involve the abatement of asbestos in the Pump House building and Vault prior to demolition or renovations. Implementation of Alternative 2 would be performed by a certified asbestos abatement contractor.

Effectiveness: Alternative 2 would be effective at removing or managing high risk ACM related tto health hazards to individuals entering the buildings. Alternative 2 would be limited in that all remaining ACM will require eventual removal in order to fully renovate the former GDC building.



Cost: The cost for partial abatement and in-place management of ACM is estimated at approximately $75,000.

## 5.3 ALTERNATIVE #3 ABATEMENT OF ALL ACM

Alternative 3 would completely abate all ACM from the buildings and vault located on-Site. Implementation of Alternative 3 would be performed by a certified asbestos abatement contractor.

Effectiveness: Alternative 3 would be highly effective in achieving the goal of reduction of penitential exposures to asbestos for individuals entering the building. Alternative 3 would be effective for the goal of facilitating renovation or demolition of buildings on-Site.

Cost: The cost for the abatement of all ACM identified on-Site is estimated at approximately $700,000.

## 5.4 SELECTED REMEDIAL OPTION

The following summarized the evaluation of the three proposed abatement alternatives:

| Alternative | Effectiveness | Implementability | Estimated Costs |
|---|---|---|---|
| 1. No Action | Not Effective | Implementable | $0 |
| 2. Partial ACM Abatement/Repair and Management In-Place | Effective | Implementable | $75,000 |
| 3. Abatement of All ACM | Effective | Implementable | $700,000 +/- |

Based upon evaluation of these criteria, it is determined that Alternative 2 partial ACM abatement and management in-place is the preferred alternative. It meets implementability and effectiveness criteria at a cost that is compatible with the funds available.

## 5.0 AUTHORIZATION AND IMPLEMENTATION

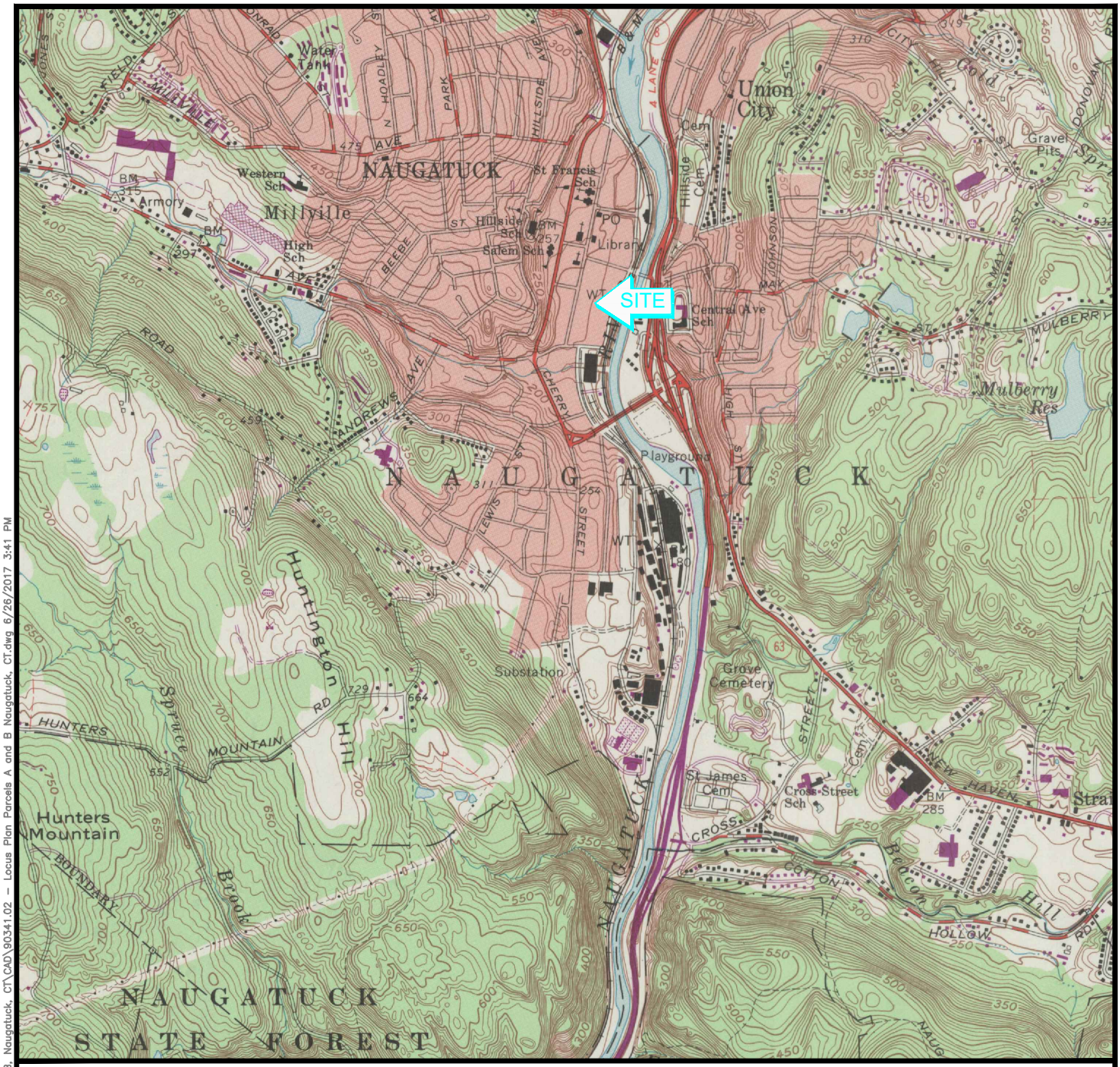
The selected alternative, Alternative # 2 – off-site disposal of PCBs greater than 10 mg/kg and ELUR will allow for redevelopment of the Site while meeting state and federal regulations and protecting human health and the environment. The implementation plan for the selected alternative consists of the following steps:

- Submit ABCA and CRP to EPA Region 1 for review and comment.
- Complete public notice requirements and consider public comments.
- Obtain bids from licensed asbestos abatement contractors
- Perform abatement of selected ACM.
- Manage in place remaining ACM in the former GDC building.
- Complete post abatement certification report.



The cleanup under the brownfield grant will conform to all applicable local, state, and federal laws. Connecticut certified asbestos inspectors, designers, and abatement contractors will be used to perform all abatement activities.

# FIGURES




NORTH

**USGS TOPOGRAPHIC MAP**

7.5 MINUTE QUADRANGLE:
NAUGATUCK, CT 1984

APPROX. SCALE IN FEET
0 2000' 4000'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QUADRANGLE LOCATION

# FIGURE 1

## LOCUS PLAN
**PARCELS A & B**
**RUBBER AVENUE**
**NAUGATUCK, CT 06770**

PROJECT NO. 90341.02 | DATE: JUNE 2017

J:\90341.00 – Parcels A & B Naugatuck CT\90341.02 – BF Parcels A & B, Naugatuck, CT\CAD\90341.02 – Locus Plan Parcels A and B Naugatuck, CT.dwg 6/26/2017 3:41 PM

NOTES:

1. THE BASE PLAN WAS BASED ON "PROPERTY OF GDC NAUGATUCK, INC. SHEET 1" AND "PROPERTY OF GDC NAUGATUCK, INC. SHEET 2" BY CLARENCE BLAIR DATED MAY 1993.
2. LOCATIONS AND SITE FEATURES DEPICTED ARE APPROXIMATE AND GIVEN FOR ILLUSTRATIVE PURPOSES.

COMMERCIAL BUSINESSES

EXISTING STORAGE BUILDING

LONG MEADOW BROOK

ELM STREET

RUBBER AVENUE

Parcel A GDC Building

COMMERCIAL BUSINESSES

MUNICIPAL PARKING LOT

COMMERCIAL BUSINESSES

NAUGATUCK FIRE DEPT.

OLD FIREHOUSE ROAD

CANAL

OLD FIREHOUSE ROAD

PARCEL I
EXISTING GENERAL DATA COMM BUILDING
PARCEL I

CANAL

NTP-1 NTP-2 NTP-3 NTP-4 NTP-5 NTP-6 NTP-7 NTP-8 NTP-9 NTP-10 NTP-11 NTP-12 NTP-13 NTP-14 NTP-15 NTP-16 NTP-17 NTP-18 NTP-19 NTP-20 NTP-21

NMW-1 NMW-2 NMW-3 NMW-4 NMW-5 NMW-6 NMW-7 NMW-8

MAPLE STREET

Existing Underground Vault

EXISTING CULVERT

NAUGATUCK RIVER

VACANT PARCEL

EXISTING BRICK BUILDING
(FORMER PUMP HOUSE)

PARCEL A
6 RUBBER AVENUE

PARCEL B
0 MAPLE STREET

Legend

- APPROXIMATE PROPERTY LINE
- APPROXIMATE LOCATION OF RAILROAD TRACKS
- FORMER BUILDINGS (1887-2011)
- HISTORIC CANALS, RACEWAYS, AND STREAMS (1887-2011)

0 150' 300'

GRAPHIC SCALE

J:\90341.00 — Parcels A & B Naugatuck CT\90341.02 — BF Parcels A & B, Naugatuck, CT\CAD\90341.02 — Site Plan Parcels A & B.dwg 7/13/2017 11:10 AM


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FIGURE 2

SITE PLAN WITH HISTORIC FEATURES
SAMPLE LOCATIONS - 2017
PARCELS A & B
6 RUBBER AVENUE
NAUGATUCK, CONNECTICUT

| | | | |
|---|---|---|---|
| DRAWN BY: | JDV | CHECKED BY: | TFC |
| PROJECT NO. | 90341.02 | DATE: | JULY 2017 |