DRAFT

Analysis of Brownfields Cleanup Alternatives

Baltic Mills Site
Solid Waste Disposal Area (East Side)

27 Bushnell Hollow Road
Sprague, Connecticut

Prepared for:
Town of Sprague

Prepared by:
Paul Burgess, LLC
Stonington, CT

October 2010

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Paul Burgess, P.E., LEP
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1. Project Background

This is a supplemental report to the March 2008 Analysis of Brownfields Alternatives report. This report addresses the Solid Waste Disposal Area (East Side of Site).

1.1 Site Description

This report is prepared to comply with the United States Environmental Protection Agency (EPA) requirements for the Cleanup Grant received by the Town of Sprague.

The property is located at 29 Bushnell Hollow Road in Sprague, Connecticut. Some old records cite the street address as 2 Scotland Road. The Tax Assessor’s designation for the site is Map 26, Block 6, Lot 1, and another small parcel Map 26, Block 5, Lot 4. The site location is shown on Figure 1.

The main parcel (Map I.D. 26/6/1) is approximately 16.5 acres, according to Town Assessor’s records. Only one structure (Mill No. 10) and a concrete water tank remain on site. Remains of the old powerhouse building (not on subject property) also exist, along with building rubble associated with the main mill structure destroyed by fire. The building rubble is predominately granite and masonry, with some metal and wood. Site features are shown on Figure 2.

The headrace and tailrace, associated with providing waterpower to the mill, still exist. Some tree growth exists, particularly in the headrace. Otherwise, the area around the main mill complex does not contain significant vegetation.

East of the Mill No. 10 Building is an undeveloped area. This area abutting the northern side of the tailrace contains some fill material and solid waste. Mr. Hunt (previous property owner) confirmed that past-unauthorized solid waste disposal took place in this area.

A narrow strip of wooded land, between Bushnell Hollow Road and the Shetucket River, extends approximately 1000 feet east of the end of the tailrace. No evidence of fill or disposal was observed in this area other than typical roadside litter.

An undeveloped area of land exists between the tailrace and the Shetucket River, east of the Nutmeg Wire Co. This area is referred to as the peninsular. Apparent disturbance in this area can be seen in old photographs (1947). Above-grade fill material is visible in this area in the old photographs and is still visible on site (although now covered by vegetation).
1.2 Previous Reports

The following environmental reports have been completed for this property:

- Phase I Environmental Site Assessment, GEI Consultants, Inc. February 2005: This report identified a number of recognized environmental conditions (RECs) at the site. They included former oil tanks, the fire combustion byproducts, onsite fill and solid waste, visible slag, former gas works, and the tailrace sediments.
- Targeted Brownfields Assessment (Draft), Tetra Tech August 2006: This investigation included drilling test borings, installation of ground water monitoring wells, collection and analysis of soil and groundwater samples, and an asbestos survey of Building 10. The investigation did not include the peninsular. The investigation identified certain petroleum hydrocarbons, polyaromatic hydrocarbons (PAHs), metals in soils exceeding CTDEP criteria. PAHs, cobalt and benzene were detected in groundwater above CTDEP criteria. Asbestos and lead paint were found in building materials in Building 10.
- Analysis of Brownfields Cleanup Alternatives, Paul Burgess, LLC, March 2008
- The US Environmental Protection Agency (USEPA) completed a Draft Targeted Brownfields Assessment Report for the Baltic Mills site dated December 2009. The USEPA report evaluated the nature and extent of soil contamination by test pit excavations, soil sampling and chemical analysis. Coal ash-like material was observed in some test pits. The soil analytical results detected extractable total petroleum hydrocarbons (ETPH), PAHs, and lead above CTDEP criteria.
- Remedial Action Plan, Paul Burgess, LLC, October 2010.

1.3 Project Objectives

The objective of this project is to mitigate the risk and achieve CTDEP Remediation Standard Regulation and Solid Waste Regulation compliance associated with the Solid Waste Disposal Area (Eastern Side of Site). This REC is depicted on Figure 3.
2. Regulatory Summary

The Baltic Mills site is listed on Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) due to the removal assessment and removal action associated with EPA’s cleanup activities after the fire. EPA site activities included demolition of the main mill and Baltic Hardware, segregating and stockpiling asbestos-containing material (ACM) and non-ACM debris, removing and disposing ACM, and decontaminating and removal of a 550-gallon aboveground storage tank (AST) that contained petroleum liquids. The site is classified as No Further Response Action Planned (NFRAP) and is listed as “Archived.” The site is also included as a state Brownfields site.

The site is listed as a leaking underground storage tank (LUST) site regarding the previous two concrete 50,000-gallon, No. 6 fuel oil tanks. The incident date is listed as January 11, 1989, which is when the tanks and contaminated soil were removed. The status is listed as “completed.”

The site has enrolled into the Connecticut Department of Environmental Protection (CTDEP) Voluntary Remediation program under Connecticut General Statutes 22a-133x as of March 2008.
3. Solid Waste Disposal Area (East Side of Site)

3.1 Description
Various solid waste materials are present above and below the ground surface within the area shown on Figure 3. This includes concrete brick, metal, tires, wood, and general trash. Unauthorized disposal of solid waste violates CTDEP solid waste statutes.

3.2 Summary of Chemical Data
Soil analysis has detected low concentrations of PAHs and metals, below CTDEP RDEC and PMC criteria. Groundwater monitoring well MW-5 is located within this REC. Low concentrations of benzene and PAHs were detected below applicable CTDEP groundwater criteria.

3.3 Remediation Goal
The remediation goal is to mitigate exposure of solid waste and achieve compliance with applicable environmental laws and regulations.
4. Analysis of Alternatives

4.1 Public Health Threats

Improperly disposed solid wastes exist within this area. This results in a potential human exposure contact with this material. Polluted soil (below CTDEP criteria) also exists intermixed with the solid waste.

4.2 Environmental Response Objectives

The response objective is to mitigate exposure solid waste and achieve compliance with applicable environmental laws and regulations.

4.3 Remedial Alternatives

Three remedial alternatives were evaluated as follows:

- Remove and properly dispose solid waste intermixed with polluted soil.
- Cap the material in accordance with CTDEP solid waste closure requirements (CT General Statute’s 22a-208a(c). Perform cap monitoring and maintenance.
- No action.

4.3.1 Remove and Dispose Solid Waste

This alternative involves excavation of solid waste intermixed with polluted soil and disposal at an authorized landfill. Post excavation soil confirmation samples will be collected. This alternative addresses the public health and regulatory issues by removing the solid waste from the site. It also does not restrict subsequent site redevelopment on this portion of the site.

The cost for this alternative is $43,000 as summarized in Table 1.

4.3.2 Cap Solid Waste

A CTDEP Solid Waste Disruption Permit would be required. This alternative would require re-grading this area to create a suitable grade for capping and site drainage. A protective geotextile warning layer and a minimum of 2 feet of low permeable soil would be placed over the solid waste to form a cap. This material would be stabilized with topsoil and grass. Long term monitoring and maintenance of the cap would be required. This would include a cap inspection schedule and protocol. Any deficiencies in the cap such as erosion/stabilization would require correction. The capital cost for this alternative is $45,000.
as summarized in Table 2. The annual cap monitoring and maintenance cost is estimated to be $1,500.

4.3.3 No Action

The no action alternative is not acceptable because it would not be protective of public health and the environment, and would not be in compliance with CT state statutes.

4.4 Recommended Alternatives

Both the Remove and Dispose Solid Waste and the Cap alternatives have essential the same capital cost estimates. The Cap alternative has long term operation and maintenance requirements, and associated additional costs. For these reasons, the Removal and Dispose Solid Waste alternative is the preferred alternative.
TABLES
### Table 1
Remedial Action Plan Cost Estimate
Solid Waste Excavation and Disposal
Solid Waste Disposal Area (East Side)
Baltic Mills

<table>
<thead>
<tr>
<th>ITEM DESCRIPTION</th>
<th>QUANTITY</th>
<th>UNITS</th>
<th>UNIT COST</th>
<th>EXTENDED COST</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tree Removal</td>
<td>1</td>
<td>L.S.</td>
<td>$2,000.00</td>
<td>$2,000.00</td>
</tr>
<tr>
<td>Soil Excavitation</td>
<td>1,115</td>
<td>C.Y.</td>
<td>$13.00</td>
<td>$14,495.00</td>
</tr>
<tr>
<td>Solid Waste Removal/Disposal</td>
<td>100</td>
<td>C.Y.</td>
<td>$20.00</td>
<td>$2,000.00</td>
</tr>
<tr>
<td>Soil Disposal</td>
<td>400</td>
<td>Ton</td>
<td>$50.00</td>
<td>$20,000.00</td>
</tr>
<tr>
<td>Site Restoration</td>
<td>1</td>
<td>LS</td>
<td>$1,000.00</td>
<td>$1,000.00</td>
</tr>
</tbody>
</table>

Subtotal: $39,495.00

10% Contingency: $3,949.50

Total: $43,444.50

Rounded: $43,000.00

**Notes:**
1.) L.S. means Lump Sum; L.F. means linear foot; C.Y. means cubic yard; S.Y. means square yard

2.) **Limitations:** The engineer's opinions of probable construction costs represent the engineer's best judgment as a professional generally familiar with the construction industry. Because the engineer has no control over the cost of labor, material, equipment, or services furnished by others; over the contractor's methods of determining prices; or over competitive bidding or marketing conditions, the engineer cannot and does not guarantee that actual construction costs will not vary from this estimate. The estimate is also based on our professional opinion regarding the quantity of contaminated soil, which can only be fully known upon excavation and final confirmation sampling and analysis.
# Table 2
**Remedial Action Plan Cost Estimate**

**Solid Waste Cap**

**Solid Waste Disposal Area (East Side)**

Baltic Mills

<table>
<thead>
<tr>
<th>ITEM DESCRIPTION</th>
<th>QUANTITY</th>
<th>UNITS</th>
<th>UNIT COST</th>
<th>EXTENDED COST</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solid Waste Permitting</td>
<td>1</td>
<td>L.S.</td>
<td>$3,000.00</td>
<td>$3,000.00</td>
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<tr>
<td>Tree Removal</td>
<td>1</td>
<td>LS</td>
<td>$2,000.00</td>
<td>$2,000.00</td>
</tr>
<tr>
<td>Site Regrading</td>
<td>1</td>
<td>LS</td>
<td>$2,000.00</td>
<td>$2,000.00</td>
</tr>
<tr>
<td>Cap</td>
<td>890</td>
<td>C.Y.</td>
<td>$30.00</td>
<td>$26,700.00</td>
</tr>
<tr>
<td>Topsoil</td>
<td>225</td>
<td>C.Y.</td>
<td>$25.00</td>
<td>$5,625.00</td>
</tr>
<tr>
<td>Site Restoration</td>
<td>1</td>
<td>LS</td>
<td>$1,000.00</td>
<td>$1,000.00</td>
</tr>
</tbody>
</table>

Subtotal: $40,325.00

10% Contingency $4,032.50

Total: $45,357.50

Rounded: $45,000.00

**Annual Maintenance & Monitoring** $1,500

Notes:

1.) L.S. means Lump Sum; L.F. means linear foot; C.Y. means cubic yard; S.Y. means square yard

2.) **Limitations**: The engineer's opinions of probable construction costs represent the engineer's best judgment as a professional generally familiar with the construction industry. Because the engineer has no control over the cost of labor, material, equipment, or services furnished by others; over the contractor's methods of determining prices; or over competitive bidding or marketing conditions, the engineer cannot and does not guarantee that actual construction costs will not vary from this estimate. The estimate is also based on our professional opinion regarding the quantity of contaminated soil, which can only be fully known upon excavation and final confirmation sampling and analysis.
Remediation Quantity Estimates
Baltic Mills- Solid Waste Disposal Area (East Side)

Soil Excavation

400 FT x 30 FT x 2.5 FT x 1/27                   1115 CY

Solid Waste

Assume 100 CY                               100 CY

Polluted Soil Intermixed with Soil Waste

25 % of Soil Excavation 0.25 x 1115 CY x 1.5 TONS/CY  400 TONS

Landfill Cover Alternative

400 FT x 30 FT x 2 FT x 1/27                  890 CY

Topsoil

400 FT x 30 FT x 0.5 FT x 1/27                225 CY
FIGURES
1. Site Assessor's maps, scale: 1"=100 and 1"=200.


4. Plan of a portion of property of Baltic Mills, Route 138, Baltic, Conn., prepared by King & Mullen Land Surveyors, date: July 1, 1985 (pertaining to 27 Bushnell Hollow Road).

5. ABS Figure 3 Sample locations, December 16, 2009.

Sources:

**Legend**

- REC: Recognized Environmental Condition
- P: Property Line

**Figure 2**

Site Schematic Plan

Baltic Mills Site

29 Bushnell Hollow Road

Sprague, Connecticut

Paul Burgess, LLC

36 Elm Street

Strawberry, CT 06378

Figure 2

Site sewer plan

Baltic, Conn., prepared by King & Mullen Land Surveyors, date: December 16, 2009.
1. SITE ASSESSOR'S MAPS, SCALE: 1"=100' AND 1"=200'.


4. PLAN OF A PORTION OF PROPERTY OF BALTIC MILLS, ROUTE 138, BALTIC, CONN., PREPARED BY KING & MULLEN LAND SURVEYORS, DATE: JULY 1, 1985 (PERTAINING TO 27 BUSHNELL HOLLOW ROAD).

5. ASS FIGURE 3 SAMPLE LOCATIONS, DECEMBER 16, 2009.

6. AES FIGURE 3 SAMPLE LOCATIONS, DECEMBER 16, 2009.

SUMMARY OF SOIL ANALYTICAL DATA

1. SITE ASSESSOR'S MAPS, SCALE: 1"=100' AND 1"=200'.


4. PLAN OF A PORTION OF PROPERTY OF BALTIC MILLS, ROUTE 138, BALTIC, CONN., PREPARED BY KING & MULLEN LAND SURVEYORS, DATE: JULY 1, 1985 (PERTAINING TO 27 BUSHNELL HOLLOW ROAD).

5. AES FIGURE 3 SAMPLE LOCATIONS, DECEMBER 16, 2009.