



September 17, 2008

Mr. Nick Smith  
**A & E Salvage, Inc.**  
2001 Vantage View Drive  
Morristown, Tennessee 37814

**Subject: Debris Field Asbestos Survey Report**  
Former Liberty Fibers Site; Lowland, Tennessee  
**A.C.T. Services Proposal No. 08.17.002**

Dear Mr. Smith,

A.C.T. Services, LLC. (ACT) has completed the site investigation and analysis of suspect asbestos-containing building materials collected from the demolished structures debris field within the Former Liberty Fibers site located in Lowland, Tennessee as per your acceptance of our proposal number 08-025 dated May 9, 2008 and amended by proposal number 08-025-02 dated August 28, 2008.

The limited survey was performed to determine the presence of asbestos-containing building material debris in accordance with the U.S. Environmental Protection Agency (EPA), Region 4 Consent Agreement. The suspect building material debris sampled include thermal system insulation, fire door insulation, cementitious panel and piping, refractory materials, gaskets, packing, resilient floor covering, drywall construction, acoustical ceiling tile, window glazing, roofing membranes, deck board insulation, window glazing and various other miscellaneous building material debris that may be affected by the site cleanup activities.

The attached report presents descriptions and results of the material sampling procedures and laboratory analysis methodology. Relevant general project information is also provided, followed by our findings and recommendations. Sample analysis results are provided in the enclosed Appendices. Representative samples of suspect asbestos-containing materials that may be affected by the planned demolition were collected in general accordance with U.S. Environmental Protection Agency (EPA) guidelines.

We appreciate this opportunity to provide environmental consulting services to A&E Salvage, Inc. If you have any questions or require further information, please do not hesitate to call.

Sincerely,

**A.C.T. Services, LLC.**

A handwritten signature in black ink, appearing to read "M. J. Robarts", written over a horizontal line.

Michael J. Robarts  
Executive Vice President  
Inspector Management Planner Certification No. 10566

*Safety-Health-Environmental*  
A black cross symbol.  
*Consulting & Services*

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## 1.0 EXECUTIVE SUMMARY

The limited survey for asbestos-containing building material (ACBM) debris within previously demolished facility structures (debris fields) of the former Liberty Fibers Site located in Lowland, Tennessee, included visual observations, material sampling and laboratory analysis of friable and non-friable debris materials suspected of containing regulated asbestiform minerals.

The fieldwork and sample collection was completed during our extended site visit performed between July 28, 2008 through September 12, 2008. The complete inspection process was managed by Michael J. Roberts (Asbestos Inspector Certification No. 10566) with the additional professional support of six (6) accredited asbestos inspectors. The ACBM investigation was a surface-by-surface inspection of accessible debris mounds. Subsurface investigations and areas such as unstable basements, tanks or otherwise structurally inaccessible locations were excluded from this debris field sampling effort. Limited attempts were made to bore and/or dig into the debris mounds or demolish finishes to access suspect ACBM's.

The debris field inspection process began with a complete assessment of the debris field scope of work and other potential hazards that may affect our staff. Once all safety issues were defined and appropriate policies initiated, ACT's field staff began a tedious effort to completely delineate the debris field site with one-hundred foot by one-hundred foot (100'x100') grids. Three hundred eighteen (318) grids were delineated to encompass all debris fields at the site. All grids containing debris fields were then subdivided into sixteen (16) twenty-five foot by twenty-five foot (25'x25') subgrids. During this process all corner points were plotted via global positioning system (GPS) devices and surveyors flags placed to visually identify each grid. GPS grid point maps were developed for all grids.

A total of seven hundred eighteen (718) suspect asbestos-containing building material debris samples were obtained during ACT's site visit. Each of the debris samples were collected within the grid system and locations noted on individual sample location diagrams for future use. The grid system allowed our inspectors to meticulously identify, assess and sample where necessary all observed suspect regulated asbestos-containing materials throughout the debris fields within each subgrid coordinate. The suspect building material debris sampled include thermal system insulation, fire door insulation, cementitious panel and piping, refractory materials, gaskets, packing, resilient floor covering, drywall construction, acoustical ceiling tile, window glazing, roofing membranes, deck board insulation, window glazing and various other miscellaneous building material debris that may be affected by the site cleanup activities.

The US Environmental Protection Agency (EPA) and Tennessee Department of Environment and Conservation (TDEC) consider asbestos-containing building materials, which are or have not become friable during the course of demolition activities, regulated asbestos-containing materials and must be properly disposed of as asbestos-containing waste materials in accordance with the following regulatory guidelines.

Friable asbestos material means any material containing greater than one percent (>1%) asbestos as determined using the method specified in appendix E, subpart E, 40 CFR part 763, section 1, Polarized Light Microscopy, that, when dry, can be crumbled, pulverized, or reduced to powder by hand pressure. If the asbestos content is less than 10 percent as determined by a method other than point counting by polarized light microscopy (PLM), verify the asbestos content by point counting using PLM.

Regulated asbestos-containing material (RACM) means (a) Friable asbestos material, (b) Category I non-friable ACM that has become friable, (c) Category I non-friable ACM that will be or has been subjected to sanding, grinding, cutting, or abrading, or (d) Category II non-friable ACM that has a high probability of becoming or has become crumbled, pulverized, or reduced to powder by the forces expected to act on the material in the course of demolition or renovation operations regulated by this subpart.

Category I non-friable asbestos-containing material (ACM) means asbestos-containing packing, gaskets, resilient floor covering, and asphalt roofing products containing more than 1 percent asbestos as determined using the method specified in appendix E, subpart E, 40 CFR part 763, section 1, Polarized Light Microscopy. Category II non-friable ACM means any material, excluding Category I non-friable ACM, containing more than 1 percent asbestos as determined using the methods specified in Appendix E, subpart E, 40 CFR part 763, section 1, Polarized Light Microscopy that, when dry, cannot be crumbled, pulverized, or reduced to powder by hand pressure.

Of the suspect asbestos-containing building material debris sampled, various thermal system insulations, cementitious panels, cementitious pipes resilient floor covering, electrical wire insulation, fire door packing, roofing membranes, roof mastics, vapor barrier mastic wrap, and other various miscellaneous building material debris were found to contain greater than one percent (>1%) regulated asbestiform minerals using polarized light microscopy coupled with dispersion staining (PLM/DS) in accordance with EPA 600/R-93/116 Method. Due to the large number of homogeneous asbestos-containing building material debris identified at the facility we have compiled a summary list of these materials and their general locations in Section 3.2 of this report. A complete copy of the laboratory analysis is included in the appendices.

When the planned debris field cleanup is performed, the friable regulated asbestos-containing thermal system insulation, vessel skim coat material, exposed fire door packing material debris; and category I rayon filament plant felt roofing material and stripped electrical wire insulation material debris; and category II cementitious panels and cementitious pipe material debris must be removed by a qualified asbestos abatement contractor. Each of these materials have been assessed by ACT's accredited asbestos inspectors as debris materials that have or will become friable during the course of future cleanup activities.

The remaining category I non-friable acm debris such as resilient flooring, asphalt roofing, mastics, gaskets and packing which have not or will not be subject to sanding, cutting grinding or abrading during the demolition and cleanup process are not subject to National Emission Standard for Hazardous Air Pollutants (NESHAP) regulations 40 CFR Part 61 Subpart M National Emission Standard for asbestos waste disposal requirements. Moreover, compaction for the purpose of waste reduction of Category I and/or Category II non-friable asbestos-containing debris by demolition equipment (e.g. track loaders, excavators, etc.) is considered rendering these materials friable and RACM waste disposal regulations will be enforceable by federal and state regulators.

It is EPA's interpretation that acm waste resulting from slicing and other methods that do not cut, grind, sand or abrade Category I non-friable asbestos-containing material is not subject to the NESHAP regulation and can be disposed of as non-asbestos waste. EPA further construes the NESHAP regulation to provide that if Category II materials (such as asbestos cement type products) are removed and disposed of without crumbling, pulverizing, or reducing to powder, the waste from the removal is not subject to the NESHAP waste disposal requirements.

EPA also interprets the NESHAP regulation to be inapplicable to waste resulting from roof removal operations that do not meet or exceed the coverage thresholds described in the regulation. Other Federal, State or local regulations may still be applicable in this situation.

All cleanup work involving acm must comply with NEHSAP and Occupational Safety and Health Administration regulations stipulated in the Code of Federal Regulations (CFR) 29 1926.1101 titled "Asbestos". Other regulations may also apply and are cross-referenced in both NESHAP and OSHA standards, which are presented to promote compliance with the cited regulations

## **2.0 PROJECT INFORMATION**

The Liberty Fibers Site, located in Lowland, Tennessee, has undergone various demolition activities by A&E Salvage and others in conjunction with a proposing site redevelopment. During the course of demolition and salvage activities it appears that several asbestos-containing building materials were not removed prior to the aforementioned activities and are now intermingled with general demolition debris. EPA Region 4 has provided A&E Salvage with a written directive to assess the extent of acm contamination within the demolition debris fields.

ACT's initial assessment of the debris fields identified an assortment of suspect asbestos-containing building material debris intermingled with demolition debris throughout the estimated seventy-three (73) acre demolition site. Although several complete and partial structures remained, the majority of the affected site was generally organized into debris fields within footprints of pre-existing structures. Buildings demolished included portions of the Rayon Staple Plant, Pulp Storage Building, Rayon Filament Plant, Raw Water Treatment Plant, Cooling Towers, Clarifier Tanks, south end of the Powerhouse Structure and many unidentified smaller office, storage tank and operational structures. ACT has developed site layout diagrams (ASB-01 and ASB-02) included in the appendices to generally identify those structures remaining.

Upon our initial site visit ACT's accredited inspectors observed various homogeneous building materials, including but not limited to, thermal system insulation, fire door insulation, cementitious panel and piping, refractory materials, gaskets, packing, resilient floor covering, drywall construction, acoustical ceiling tile, window glazing, roofing membranes, deck board insulation, window glazing and various other miscellaneous building material debris which were suspected to contain regulated asbestiform minerals.

The scope of investigative services addressed in this report are limited to the building material demolition debris fields identified within the scope of work boundary of drawing ASB-01 included in Appendix B. Specific areas, such as the Powerhouse debris field (included in a previous report) and buildings integrally sound were specifically excluded from this scope of work. The assessment of other potential sources of environmental hazards was not included in this scope of work. The scope of this report was defined in ACT's secondary proposal for the Debris Fields Asbestos Inspection and Design Proposal dated August 28, 2008. A pre-existing asbestos survey report was not available at the time of our site investigation.

## **3.0 ASBESTOS PROCEDURES AND RESULTS**

The services provided in this phase of the work included a visual survey of the designated debris field area scheduled for future cleanup activities, suspect building material debris sampling and laboratory analysis for asbestiform minerals. The following paragraphs discuss the general procedures employed for each of these tasks.

### **3.1 Field Grid Delineation**

The debris field inspection process began with a complete assessment of the debris field scope of work and other potential hazards that may affect our staff. Site hazards and safety concerns associated with this task included potential unintentional disturbance of acm, hazardous areas containing other potential contaminants and/or hidden dangers, slips, trips and falls. ACT performed an extensive pre-job safety training class with all staff, which included but not limited to a site-specific 2-hour asbestos awareness training course, potential chemical hazards, venomous snake and wasp dangers, unstable work/walking surfaces and heat exposure. All training of the grid delineating field technicians was performed and documented by Mr. Roberts.

Once all safety issues were defined and appropriate policies initiated, ACT's field staff began a tedious effort to completely delineate the debris field site with one-hundred foot by one-hundred foot (100'x100') grids. Three hundred eighteen (318) grids were delineated to encompass all debris fields at the site. All grids containing demolition debris or other unknown stock piled materials were then subdivided into sixteen (16) twenty-five foot by twenty-five foot (25'x25') subgrids. During this process all corner points were plotted via global positioning system (GPS) devices and surveyors flags placed to visually identify each grid. GPS grid point maps were developed for all grids and are included in the appendices for review.

### **3.2 Visual Survey**

The visual survey by ACT's accredited asbestos inspectors for suspected asbestos-containing materials included observation of thermal system insulation, fire door insulation, cementitious panel and piping, refractory materials, gaskets, packing, resilient floor covering, drywall construction, acoustical ceiling tile, window glazing, roofing membranes, deck board insulation, window glazing and various other miscellaneous building material debris. The primary purpose of the visual survey was to locate and identify friable and non-friable building material debris suspected of containing regulated asbestiform minerals that may require additional cleanup efforts during the site clearing activities. "Friable materials" are those that can be crumbled, pulverized or reduced to powder by hand pressure, releasing fibers into the air.

The next phase of the survey involved identification of suspect materials associated with the proposed site cleanup project and sample collection. Suspect materials sampled included thermal system insulation, fire door insulation, cementitious panel and piping, refractory materials, gaskets, packing, resilient floor covering, drywall construction, acoustical ceiling tile, window glazing, roofing membranes, deck board insulation, window glazing and various other miscellaneous building material debris which were suspected to contain regulated asbestiform minerals.

### **3.3 Material Sample Analysis and Summary of Results**

A total of seven hundred eighteen (718) material samples were collected and delivered to our accredited laboratory (NVLAP Lab Code 101048-1) for visual observation and analysis. The samples were analyzed using Polarized Light Microscopy (PLM) coupled with Dispersion Staining as detailed in the United States Environmental Protection Agency's (EPA) "Method for the Determination of Asbestos in Bulk Building Materials" (EPA-600/R-93/116, July 1993).

A complete list describing the materials sampled, their general location, and the laboratory results are presented in the Appendix A.

The EPA considers a material to be asbestos containing only if it contains greater than one percent (>1%) asbestos as appropriately determined by PLM, which may include point count analysis. The following is an abbreviated overview of general building materials found to contain regulated asbestiform minerals within the debris fields specified for investigation.

| Grid Location | Sub-Grid Sample Location | Debris Material<br>Sample Description           | Asbestos<br>Percent and Type |
|---------------|--------------------------|---|------------------------------|
| A5            | 3                        | Black w/Grey Flashing Material                  | 25% Chrysotile               |
| A5            | 9                        | Silver Coated Roofing Material                  | 3% Chrysotile                |
| A5            | 9                        | Black Roof Flashing Material                    | 25% Chrysotile               |
| A5            | 9                        | White Thermal System Insulation - Crumbly       | 45% Amosite<br>5% Chrysotile |
| A5            | 9                        | Grey Flashing on Brick                          | 25% Chrysotile               |
| A5            | 12                       | Black Flashing Material                         | 25% Chrysotile               |
| A5            | 12                       | White Thermal System Insulation - Crumbly       | 45% Amosite<br>5% Chrysotile |
| A6            | 6                        | Black Mastic & Felt On Brick                    | 25% Chrysotile               |
| A6            | 12                       | Black Non-Fibrous Layers                        | 3% Chrysotile                |
| A7            | 6                        | Thermal System Insulation Wrap, White Over Grey | 30% Chrysotile               |
| A7            | 6                        | Black Flashing Material                         | 25% Chrysotile               |
| A7            | 9                        | Black Flashing Material                         | 25% Chrysotile               |
| A8            | 3                        | Black Flashing Material                         | 25% Chrysotile               |
| A8            | 3                        | Black Mastic & Felt On Concrete                 | 25% Chrysotile               |
| B4            | 14                       | Grey Thermal System Insulation - Crumbly        | 30% Amosite<br>5% Chrysotile |
| B5            | 2                        | Silver Coated Flashing Material on Wood         | 25% Chrysotile               |
| B5            | 8                        | Glass Rock Insulation w/Black Mastic            | 8% Chrysotile                |



|    |    |  |                              |
|----|----|--|------------------------------|
| B5 | 9  | Grey Thermal System Insulation Wrap            | 15% Chrysotile               |
| B5 | 9  | White Thermal System Insulation - Crumbly      | 45% Amosite                  |
| B5 | 9  | Grey Thermal System Insulation Wrap            | 45% Amosite                  |
| B5 | 9  | White Thermal System Insulation                | 50% Amosite                  |
| B6 | 10 | Floor Tile w/Black Mastic                      | 3% Chrysotile<br>Mastic      |
| B6 | 11 | White Thermal System Insulation - Crumbly      | 30% Chrysotile               |
| B6 | 15 | Grey Thermal System Insulation - Crumbly       | 45% Chrysotile               |
| B6 | 15 | Floor Tile w/Black Mastic                      | 3% Chrysotile<br>Mastic      |
| B6 | 16 | White Thermal System Insulation - Crumbly      | 45% Amosite<br>5% Chrysotile |
| B7 | 2  | White Thermal System Insulation                | 40% Amosite                  |
| B7 | 3  | White Thermal System Insulation                | 40% Chrysotile               |
| B7 | 7  | White Thermal System Insulation - Crumbly      | 45% Amosite<br>5% Chrysotile |
| B8 | 2  | White Thermal System Insulation - Crumbly      | 40% Amosite                  |
| B8 | 3  | White Thermal System Insulation - Crumbly      | 45% Amosite<br>5% Chrysotile |
| B8 | 12 | White Thermal System Insulation - Crumbly      | 40% Amosite<br>5% Chrysotile |
| C1 | 11 | Pipe Wrap Over Green Thermal System Insulation | 10% Chrysotile               |
| C1 | 11 | Pipe Wrap Over Green Thermal System Insulation | 10% Chrysotile               |
| C1 | 11 | Pipe Wrap Over Green Thermal System Insulation | 15% Chrysotile               |
| C7 | 1  | White Thermal System Insulation - Crumbly      | 25% Chrysotile               |
| C7 | 5  | White Thermal System Insulation - Crumbly      | 20% Chrysotile               |

|     |    |  |                              |
|-----|----|--|------------------------------|
| C7  | 6  | Floor Tile w/Black Mastic                            | 3% Chrysotile<br>Mastic      |
| C7  | 10 | Floor Tile w/Black Mastic                            | 2% Chrysotile<br>Mastic      |
| F1  | 10 | White Thermal System Insulation                      | 15% Amosite<br>5% Chrysotile |
| G3  | 11 | Thermal System Insulation On Lath                    | 30% Chrysotile               |
| G3  | 11 | Canvas Wrap w/Skim Coat                              | 5% Chrysotile                |
| G3  | 11 | Black Mastic Thermal System Insulation Vapor Barrier | 10% Chrysotile               |
| G9  | 8  | Pink Thermal System Insulation                       | 20% Amosite                  |
| H1  | 13 | Black Felt Wrap                                      | 30% Chrysotile               |
| H3  | 7  | Grey Thermal System Insulation                       | 10% Chrysotile               |
| I10 | 10 | White Thermal System Insulation                      | 15% Amosite<br>5% Chrysotile |
| I2  | 4  | White Thermal System Insulation w/Silver Wrap        | 10% Amosite<br>5% Chrysotile |
| I2  | 6  | White Thermal System Insulation                      | 10% Amosite<br>5% Chrysotile |
| I2  | 12 | Silver Coated Roofing material                       | 15% Chrysotile               |
| I3  | 5  | File Door Packing                                    | 25% Chrysotile               |
| J10 | 8  | White Thermal System Insulation                      | 15% Amosite<br>5% Chrysotile |
| J10 | 11 | White Thermal System Insulation                      | 15% Amosite<br>5% Chrysotile |
| J2  | 2  | Skim Coat and Wrap                                   | 15% Chrysotile               |
| J2  | 2  | Vessel Thermal System Insulation                     | 40% Chrysotile               |
| J2  | 6  | Vessel Thermal System Insulation                     | 40% Chrysotile               |
| J2  | 6  | Skim Coat and Wrap                                   | 40% Chrysotile               |

|     |    |                                 |                               |
|-----|----|---------------------------------|-------------------------------|
| J7  | 14 | White Thermal System Insulation | 40% Amosite                   |
| J7  | 15 | White Thermal System Insulation | 40% Amosite                   |
| K10 | 5  | White Thermal System Insulation | 20% Amosite<br>20% Chrysotile |
| K10 | 9  | Floor Tile - Black              | 10% Chrysotile<br>Tile        |
| K10 | 9  | Floor Tile - Black              | 2% Chrysotile<br>Mastic       |
| K10 | 13 | Floor Tile - Black              | 10% Chrysotile<br>Tile        |
| K10 | 13 | Floor Tile - Black              | 2% Chrysotile<br>Mastic       |
| K11 | 1  | Floor Tile - Grey               | 5% Chrysotile                 |
| K11 | 1  | White Thermal System Insulation | 20% Amosite<br>20% Chrysotile |
| K11 | 5  | Floor Tile - Grey               | 5% Chrysotile<br>Tile         |
| K11 | 7  | Black Roofing Material          | 3% Chrysotile                 |
| K11 | 8  | Black Roofing Material          | <1% Chrysotile                |
| K6  | 1  | White Thermal System Insulation | 40% Amosite<br>5% Chrysotile  |
| K8  | 2  | White Thermal System Insulation | 30% Amosite<br>10% Chrysotile |
| K9  | 5  | White Thermal System Insulation | 20% Amosite<br>30% Chrysotile |
| K9  | 9  | White Thermal System Insulation | 30% Amosite                   |
| L10 | 5  | White Thermal System Insulation | 35% Amosite<br>20% Chrysotile |
| L10 | 7  | Floor Tile                      | 40% Chrysotile                |
| L10 | 13 | Green Floor Tile                | 40% Chrysotile                |

|     |    |                                 |                               |
|-----|----|---------------------------------|-------------------------------|
| L11 | 3  | White Thermal System Insulation | 20% Amosite<br>20% Chrysotile |
| L11 | 5  | Black Roofing Material          | <1% Chrysotile                |
| L11 | 6  | Cementitious Panel              | 20% Chrysotile                |
| L11 | 7  | Dark Grey Cementitious Material | 10% Anthophyllite             |
| L5  | 11 | White Thermal System Insulation | 35% Amosite<br>10% Chrysotile |
| L6  | 4  | White Thermal System Insulation | 35% Amosite<br>10% Chrysotile |
| L7  | 13 | Black Cementitious Material     | 30% Actinolite                |
| L8  | 5  | White Thermal System Insulation | 40% Amosite<br>25% Chrysotile |
| L8  | 15 | White Thermal System Insulation | 20% Amosite<br>35% Chrysotile |
| L9  | 13 | White Thermal System Insulation | 35% Amosite<br>5% Chrysotile  |
| M5  | 15 | White Thermal System Insulation | 30% Amosite<br>30% Chrysotile |
| M5  | 16 | White Thermal System Insulation | 30% Amosite<br>30% Chrysotile |
| M6  | 1  | White Thermal System Insulation | 30% Amosite<br>30% Chrysotile |
| M6  | 1  | Pink Thermal System Insulation  | 40% Amosite<br>40% Chrysotile |
| M6  | 5  | White Thermal System Insulation | 30% Amosite<br>30% Chrysotile |
| M6  | 5  | Pink Thermal System Insulation  | 40% Amosite<br>20% Chrysotile |
| M6  | 8  | White Thermal System Insulation | 30% Amosite<br>30% Chrysotile |
| M8  | 9  | White Thermal System Insulation | 30% Amosite<br>20% Chrysotile |

|     |    |                                      |                               |
|-----|----|--------------------------------------|-------------------------------|
| Q6  | 8  | White Thermal System Insulation      | 15% Amosite<br>5% Chrysotile  |
| Q6  | 12 | White Thermal System Insulation      | 30% Amosite<br>5% Chrysotile  |
| R10 | 6  | Tan Thermal System Insulation        | <1% Chrysotile                |
| R11 | 1  | Grey Layered Roof material           | 35% Chrysotile                |
| R12 | 1  | Dark Grey Cementitious Pipe Material | 25% Chrysotile                |
| R12 | 3  | Grey Roof Material                   | 5% Chrysotile                 |
| R12 | 11 | Grey Cementitious Panel (Dimpled)    | 40% Chrysotile                |
| R12 | 13 | Grey Cementitious Waffled Material   | 8% Chrysotile                 |
| R5  | 7  | White Thermal System Insulation      | 20% Amosite<br>5% Chrysotile  |
| R5  | 11 | White Thermal System Insulation      | 20% Amosite<br>3% Chrysotile  |
| R5  | 15 | White Thermal System Insulation      | 20% Amosite<br>5% Chrysotile  |
| R6  | 3  | White Thermal System Insulation      | 30% Amosite<br>5% Chrysotile  |
| S4  | 16 | Silver Coated Black Mastic on Brick  | 3% Chrysotile                 |
| S4  | 16 | Silver Coated Black Mastic on Brick  | 35% Chrysotile                |
| T12 | 2  | Red Cementitious pipe w/Black Mastic | 30% Anthophyllite<br>Pipe     |
| T12 | 3  | Red Cementitious Pipe Material       | 30% Anthophyllite<br>Pipe     |
| T12 | 3  | Grey Cementitious pipe Material      | 35% Anthophyllite<br>Pipe     |
| T5  | 4  | Grey Thermal System Insulation       | 30% Amosite<br>10% Chrysotile |
| T5  | 14 | White Thermal System Insulation      | 50% Amosite<br>10% Chrysotile |

|     |    |  |                               |
|-----|----|--|-------------------------------|
| M8  | 15 | Pink Thermal System Insulation           | 40% Amosite<br>40% Chrysotile |
| N5  | 13 | White Thermal System Insulation          | 40% Amosite<br>40% Chrysotile |
| N5  | 15 | White Thermal System Insulation          | 30% Amosite<br>30% Chrysotile |
| N6  | 2  | White Thermal System Insulation          | 20% Amosite<br>20% Chrysotile |
| N6  | 2  | Pink Thermal System Insulation           | 40% Amosite<br>40% Chrysotile |
| N6  | 6  | Pink Thermal System Insulation           | 40% Amosite<br>40% Chrysotile |
| N7  | 1  | White Thermal System Insulation          | 20% Amosite<br>20% Chrysotile |
| N7  | 5  | White Thermal System Insulation          | 30% Amosite<br>30% Chrysotile |
| N8  | 10 | White Thermal System Insulation          | 30% Amosite<br>30% Chrysotile |
| O6  | 1  | White Thermal System Insulation          | 40% Amosite<br>20% Chrysotile |
| O6  | 6  | White Thermal System Insulation          | 40% Amosite<br>15% Chrysotile |
| P2  | 13 | Pink Thermal System Insulation           | 40% Amosite<br>25% Chrysotile |
| P6  | 1  | White Thermal System Insulation          | 40% Amosite<br>20% Chrysotile |
| P6  | 10 | White Thermal System Insulation          | 40% Amosite<br>20% Chrysotile |
| P6  | 53 | White Thermal System Insulation          | 40% Amosite<br>20% Chrysotile |
| Q10 | 4  | Old Layer Thermal System Insulation Wrap | 5% Chrysotile                 |
| Q10 | 8  | White Canvas                             | 10% Chrysotile                |
| Q12 | 8  | Grey Cementitious Pipe                   | 30% Actinolite                |

|     |     |   |                               |
|-----|-----|---|-------------------------------|
| T7  | 16  | Silver Coated Black Roofing Material        | 2% Chrysotile                 |
| U10 | 7   | Black Roofing Material                      | 40% Chrysotile                |
| U12 | 2   | White Thermal System Insulation             | 15% Amosite<br>30% Chrysotile |
| U13 | 1   | Black Roofing Material                      | 40% Chrysotile                |
| U13 | 1   | Grey Roofing Material                       | 35% Chrysotile                |
| U13 | 8   | Ridge Cap Felt                              | 50% Chrysotile                |
| U14 | 11  | Grey Cementitious Material                  | 20% Chrysotile                |
| U14 | 13  | White Thermal System Insulation             | 15% Amosite<br>30% Chrysotile |
| U14 | 16  | Black Roofing Material                      | 40% Chrysotile                |
| U14 | 16  | Gray Layered Thermal System Insulation Wrap | 10% Chrysotile                |
| U5  | 1   | White Thermal System Insulation             | 30% Amosite<br>5% Chrysotile  |
| U5  | 14  | Red & Black Cementitious pipe Covering      | 25% Anthophyllite             |
| U5  | 15  | White Thermal System Insulation             | 30% Amosite<br>10% Chrysotile |
| U5  | 15  | Pink Thermal System Insulation              | 15% Amosite                   |
| U5  | 15  | White Thermal System Insulation             | 35% Chrysotile                |
| U6  | 2   | White Thermal System Insulation             | 5% Amosite<br>20% Chrysotile  |
| U6  | 3   | Pink Thermal System Insulation              | 10% Amosite<br>20% Chrysotile |
| U6  | 11  | Grey Layered Thermal System Insulation      | 10% Chrysotile                |
| U6  | 11  | Grey Layered Thermal System Insulation      | 40% Chrysotile                |
| U6  | 11  | Grey Layered Thermal System Insulation      | 10% Chrysotile                |
| U7  | 001 | Grey Layered Thermal System Insulation      | 5% Chrysotile                 |

|     |    |  |                               |
|-----|----|--|-------------------------------|
| V10 | 8  | Black Cementitious Material                    | 25% Anthophyllite             |
| V10 | 14 | Roofing Material                               | 5% Chrysotile                 |
| V11 | 5  | Red Cementitious Material                      | 25% Anthophyllite             |
| V11 | 9  | Black Roofing Material                         | 15% Chrysotile                |
| V12 | 5  | Black Roofing Material                         | 25% Chrysotile                |
| V12 | 5  | Black Roofing Material                         | 15% Chrysotile                |
| V12 | 5  | Roofing Material                               | 25% Chrysotile                |
| V12 | 5  | Roofing Material                               | 30% Chrysotile                |
| V13 | 15 | White Thermal System Insulation                | 20% Amosite                   |
| V14 | 6  | White Thermal System Insulation                | 25% Amosite                   |
| V15 | 2  | Grey Cementitious Material                     | 25% Anthophyllite             |
| V7  | 1  | Grey & Black Layered Thermal System Insulation | 15% Chrysotile                |
| V8  | 2  | Dark Grey Cementitious Material                | 40% Anthophyllite             |
| V8  | 6  | Dark Grey Cementitious Material                | 35% Anthophyllite             |
| V8  | 14 | White Thermal System Insulation                | 35% Amosite                   |
| V8  | 15 | White Thermal System Insulation                | 40% Amosite                   |
| V9  | 1  | Black Roofing Material                         | 5% Chrysotile                 |
| V9  | 1  | White Thermal System Insulation                | 35% Amosite                   |
| V9  | 2  | White Thermal System Insulation                | 25% Amosite<br>10% Chrysotile |
| V9  | 2  | Roofing Material                               | 5% Chrysotile                 |
| W11 | 5  | Red Cementitious Pipe Material                 | 20% Anthophyllite             |
| W7  | 5  | Black Thermal System Wrap                      | 40% Chrysotile                |



|      |    |  |                               |
|------|----|--|-------------------------------|
| W7   | 8  | Sparkled Glass Rock Insulation Mastic            | <1% Chrysotile                |
| W9   | 14 | Grey & Black Layered Thermal System Insulation   | 10% Chrysotile                |
| X10  | 4  | Grey Thermal System Insulation                   | 25% Amosite<br>15% Chrysotile |
| X10  | 16 | Grey & Black Layered Thermal System Insulation   | 15% Chrysotile                |
| X12  | 12 | Black Layered Roof Material                      | 30% Chrysotile                |
| X7   | 10 | Black Pipe Wrap                                  | 15% Chrysotile                |
| X7   | 15 | Black Layered Roofing Material                   | 35% Chrysotile                |
| X9   | 14 | Grey Thermal System Insulation                   | 35% Amosite                   |
| Y10  | 1  | Grey Thermal System Insulation                   | 10% Chrysotile                |
| Y11  | 1  | White Thermal System Insulation Pipe Rack Debris | 15% Amosite<br>25% Chrysotile |
| Y13  | 16 | Black Roofing Material                           | 15% Amosite<br>25% Chrysotile |
| Y14  | 6  | Black Layered Roofing Material                   | 30% Chrysotile                |
| Z10  | 3  | Black Roofing Material/DI                        | 15% Chrysotile                |
| Z13  | 6  | White Thermal System Insulation                  | 15% Amosite<br>5% Chrysotile  |
| Z13  | 6  | White Thermal System Insulation                  | 25% Amosite<br>5% Chrysotile  |
| AA11 | 5  | Tan & Dark Grey Cementitious Material            | 35% Chrysotile                |
| AA11 | 7  | Tan & Dark Grey Cementitious Material            | 35% Chrysotile                |
| AA12 | 2  | Tan & Grey Cementitious Material                 | 30% Chrysotile                |
| AA13 | 1  | Dark Grey Cementitious Material                  | 30% Chrysotile                |
| AA13 | 9  | White Thermal System Insulation                  | 25% Amosite                   |

|     |    |  |                               |
|-----|----|--|-------------------------------|
| AB7 | 9  | White Cementitious Unknown                               | 20% Chrysotile                |
| Z14 | 6  | 30" Pipe White Thermal System Insulation w/Paper Wrap    | 40% Amosite<br><1% Chrysotile |
| Z14 | 6  | 30" Fitting Grey Thermal System Insulation w/Canvas Wrap | 3% Chrysotile                 |
| Z14 | 6  | 30" Fitting Thermal System Insulation w/Canvas Wrap      | 3% Chrysotile                 |
| Z14 | 6  | 18" Pipe White Thermal System Insulation                 | 20% Amosite<br>20% Chrysotile |
| Z14 | 6  | 2" Pipe Grey Thermal System Insulation                   | 20% Amosite<br>20% Chrysotile |
| Z14 | 6  | 6" Pipe Grey Thermal System Insulation                   | 20% Amosite<br>20% Chrysotile |
| Z14 | 6  | 8" Pipe Grey Thermal System Insulation                   | 20% Amosite<br>20% Chrysotile |
| Z14 | 6  | 14" Pipe Grey Thermal System Insulation                  | 20% Amosite<br>20% Chrysotile |
| Z14 | 6  | 12" Pipe Grey Thermal System Insulation                  | 20% Amosite<br>20% Chrysotile |
| Z14 | 6  | 6" Fitting Green Thermal System Insulation w/Canvas Wrap | 2% Chrysotile                 |
| U17 | 1  | Roof Felt (Top) First Layer                              | 30% Chrysotile                |
| U17 | 1  | Roof Felt Second Layer                                   | 60% Chrysotile                |
| U17 | 4  | Roof Felt (Top) First Layer                              | 12% Chrysotile                |
| U17 | 4  | Roof Felt Second Layer                                   | 45% Chrysotile                |
| U17 | 4  | Roof Felt Third Layer                                    | 40% Chrysotile                |
| U17 | 4  | White Felt Top Layer - Under Metal Ridge Cap             | 60% Chrysotile                |
| U17 | 1  | White Felt Top Layer - Under Metal Ridge Cap             | 50% Chrysotile                |
| M2  | 16 | Electrical Wire Insulation Debris                        | 20% Chrysotile                |

|    |    |                                   |                |
|----|----|-----------------------------------|----------------|
| M2 | 16 | Electrical Wire Insulation Debris | 20% Chrysotile |
| N3 | 1  | Electrical Wire Insulation Debris | 25% Chrysotile |
| N2 | 13 | Electrical Wire Insulation Debris | 25% Chrysotile |
| N2 | 13 | Electrical Wire Insulation Debris | 25% Chrysotile |
| N3 | 1  | Electrical Wire Insulation Debris | 35% Chrysotile |
| M3 | 4  | Electrical Wire Insulation Debris | 35% Chrysotile |
| M3 | 4  | Electrical Wire Insulation Debris | 20% Chrysotile |
| M3 | 3  | Electrical Wire Insulation Debris | 10% Chrysotile |

### 3.4 Material Assessment

The EPA's National Emission Standard for Hazardous Air Pollutants (NESHAP) regulations (40 CFR 61 (M)) require that regulated asbestos-containing materials (RACM) be properly removed prior to any demolition or renovation activity, which may disturb them. The EPA NESHAP regulations define RACM as:

- (a) Friable ACM;
- (b) Category I non-friable ACM that has become friable;
- (c) Category I non-friable ACM that will be or has been subject to sanding, grinding, cutting or abrading, or;
- (d) Category II non-friable ACM that has a high probability of becoming, or has become, crumbled, pulverized, or reduced to powder by the forces expected to act on the material in the course of demolition or renovation operations.

Building materials that contain less than one (1) percent asbestos are not currently subject to EPA regulations. However, it should be noted that the disturbance of these materials may be subject to regulations issued by the U.S. Occupational Safety and Health Administration (OSHA). Such a disturbance may elevate the concentration of airborne fibers above the permissible exposure limit (PEL) of 0.1 fibers per cubic centimeter (f/cc) of air, measured as an eight (8) hour time weighted average (TWA), or the 30-minute short term excursion limit (STEL) of 1.0 f/cc. Recent revisions to the OSHA regulations require that all surfacing materials, thermal system insulation materials, and resilient flooring installed "no later than 1980" be considered as presumed asbestos-containing materials (PACM) and treated accordingly.

Furthermore, OSHA has implemented the final rule for occupational exposure to asbestos to include regular building maintenance operations and custodial activities that may disturb identified or presumed asbestos-containing materials. In order to rebut the designation of installed materials as PACM, OSHA requires the sampling of suspect material be performed in accordance with 40 CFR 763 (E) issued by the EPA under the Asbestos Hazard Emergency Response Act of 1986 (AHERA). The AHERA regulations establish asbestos identification and management

requirements for schools, grades K through 12. The recent OSHA revisions also include specific notification and engineering control procedures.

#### **4.0 ASBESTOS EXPOSURE ASSESSMENT AND RECOMMENDATIONS**

Asbestos is an airborne hazard. An assessment of potential exposure to harmful asbestos fibers from asbestos-containing materials should evaluate the material's potential to release fibers into the air. Fiber release may occur spontaneously due to the normal aging and subsequent deterioration of the materials. Fiber release may also occur suddenly due to disturbance of the materials by maintenance, renovations, demolition, accidents, excessive vibrations, or water damage. As a part of the survey, a visual assessment was performed in order to ascertain the potential for asbestos fiber release from the identified building material debris.

The assessment focused upon specific criteria which include asbestos content (percentage and type); friability; evidence of deterioration, physical damage or water damage; proximity to an air stream; and accessibility. The effects of future cleanup activities were considered separately for each affected material found to contain asbestos. Such an exposure assessment is qualitative in nature. The surveyor, based upon facility characteristics, prior experience, and an understanding of abatement alternatives and known cleanup plans evaluates these criteria qualitatively. This method of evaluation is outlined in the EPA's "Guidance for Controlling Asbestos-Containing Materials in Buildings" (EPA 560/5-85-024).

The results of the evaluations are reported in the following relative terms describing the potential for asbestos fiber release.

- Materials that are in good physical condition and exhibit little chance for disturbance are considered to have a "low" potential for fiber release.
- Materials that are in poor condition with some deterioration or damage, or exhibit some risk for disturbance present a "medium" potential for fiber emission.
- Materials that are in generally poor condition and exhibit the affinity for further deterioration, damage, or disturbance are considered to present a "high" potential to generate airborne fibers.
- Materials assessed as an "imminent hazard" are typically damaged, openly exposed, likely to be disturbed and display a very high possibility of releasing fibers into the air.

From the exposure assessments, recommendations for control alternatives are determined and prioritized. Understanding that this survey has been performed for cleanup purposes and for the development of asbestos abatement work procedure design, ACT Services has utilized the NESHAP evaluation criteria and OSHA referenced regulations for this assessment.

The following assessments have been determined based on the understanding that this development site will be properly cleared as planned. Due to the potential site personnel hazards associated with leaving this material in place, ACT recommends the immediate initialization of an asbestos operations and maintenance (O&M) program for controlling potential airborne dust until such time as the acm is properly removed.

#### **4.1 Thermal System Insulation Debris**

The asbestos-containing thermal system insulation debris, in place and in poor condition, is considered as RACM by NESHAP definition, and should be promptly abated as part of the site cleanup activities. The friable asbestos-containing thermal system pipe insulation debris, in its present condition and location, pose a medium potential for airborne asbestos fiber exposure.

Removal operations, waste packaging and disposal of friable asbestos-containing thermal system insulation debris must be performed in accordance with NESHAP regulations that include notification, personnel training, no visible emissions, adequately wetting waste materials and properly packaging and labeling waste throughout the process. OSHA regulations consider asbestos-containing thermal system insulation debris cleanup operations as Class I removal activities and require the use of reasonable engineering controls and work practices to reduce exposures. All work must be assessed by a competent person and designed to prevent the migration of airborne asbestos from a designated regulated area.

The removal of friable asbestos-containing thermal system insulation debris should be performed by a qualified asbestos abatement contractor under properly controlled conditions in accordance with EPA, TDEC and OSHA removal and disposal regulations.

#### **4.2 Roofing Material Debris**

ACT has categorized several different roofing material debris associated with this debris field cleanup effort. The following descriptions define both friable and non-friable roofing material debris observed at the site.

##### **4.2.1 Friable Roof Felt Debris**

Friable roof felt material was observed within the Rayon Filament Plant sloped roof section which included grids R-10 through U-17 and V10 through W-12. This particular situation was determined after a detailed investigation of the sloped roof felt materials that appeared to be weathered and fibrous. Analytical results indicated that the roof felt top layer and subsequent layers contained greater than one percent (>1%) regulated asbestiform minerals.

Friable asbestos-containing roof felt debris, in place and in poor condition, is considered as RACM by NESHAP definition, and should be promptly abated as part of the site cleanup activities. The friable asbestos-containing roof felt debris, in its present condition and location, pose a medium potential for airborne asbestos fiber exposure.

Removal operations, waste packaging and disposal of friable asbestos-containing roof felt debris must be performed in accordance with NESHAP regulations that include notification, personnel training, no visible emissions, adequately wetting waste materials and properly packaging and labeling waste throughout the process. OSHA regulations would consider the non-intact asbestos-containing roof felt debris cleanup operations as Class II removal activities and require the use of reasonable engineering controls and work practices to reduce exposures. All work must be assessed by a competent person and designed to prevent the migration of airborne asbestos from a designated regulated area.

The removal of friable asbestos-containing roof felt debris should be performed by a qualified asbestos abatement contractor under properly controlled conditions in accordance with EPA, TDEC and OSHA removal and disposal regulations.

#### **4.2.2 Non-Friable Built-Up Roofing Debris**

The non-friable asbestos-containing built-up roofing and flashing debris, in place and in a normal demolition condition that has not been subject to sanding, cutting, grinding or abrading, is considered a Category I non-friable ACM by NESHAP definition. This condition exists throughout the footprint of the Rayon Staple Plant, Pulp Storage Building, Raw Water Treatment Plant, Cooling Towers, Powerhouse Structure and many smaller unidentified office, storage tank and operational structures. The non-friable bitumens and/or resinously bound asbestos-containing roof debris material, in its present condition and location, pose a low potential for airborne asbestos fiber exposure.

TDEC's interpretation of built-up roofing waste resulting from slicing and other methods that do not cut, grind, sand or abrade Category I non-friable asbestos-containing roofing material is not subject to the NESHAP rule and can be disposed of as non-asbestos waste. OSHA regulations consider the cleanup operations of asbestos-containing roof debris bound by their matrix as Class II removal activities and require the use of reasonable engineering controls and work practices to reduce exposures. All work must be assessed by a competent person and designed to prevent the migration of airborne asbestos from a designated regulated area.

The removal of non-friable asbestos-containing built-up roofing debris should be performed by a qualified asbestos abatement contractor under properly controlled conditions in accordance with EPA, TDEC and OSHA removal and disposal regulations.

#### **4.2.3 Roof Flashing & Mastic Debris**

The non-friable asbestos-containing roof flashing and mastic debris, in place and in a normal demolition condition that has not been subject to sanding, cutting, grinding or abrading, is considered a Category I non-friable ACM by NESHAP definition. This condition exists throughout the Rayon Staple Plant, Pulp Storage Building, Raw Water Treatment Plant, Cooling Towers, Powerhouse Structure and many smaller unidentified office, storage tank and operational structures. The non-friable bitumens and/or resinously bound asbestos-containing roof flashing and mastic debris material, in its present condition and location, pose a low potential for airborne asbestos fiber exposure.

TDEC's interpretation of roof flashing and mastic waste resulting from slicing and other methods that do not cut, grind, sand or abrade Category I non-friable asbestos-containing roofing material is not subject to the NESHAP rule and can be disposed of as non-asbestos waste. OSHA regulations consider the cleanup operations of asbestos-containing roof debris bound by their matrix as Class II removal activities and require the use of reasonable engineering controls and work practices to reduce exposures. All work must be assessed by a competent person and designed to prevent the migration of airborne asbestos from a designated regulated area.

The removal of non-friable asbestos-containing roof flashings and mastic debris should be performed by a qualified asbestos abatement contractor under properly controlled conditions in accordance with EPA, TDEC and OSHA removal and disposal regulations.

#### **4.3 Resilient Flooring Debris**

Several types of asbestos-containing resilient floor tile and mastic material debris were identified during the survey. The flooring materials include non-friable floor tile debris and also non-friable flooring mastic applied to concrete flooring.

The non-friable asbestos-containing flooring debris, in place and in place and in a normal demolition condition that has not been subject to sanding, cutting, grinding or abrading, is considered a Category I non-friable ACM by NESHAP definition. The non-friable bitumens and/or resinously bound asbestos-containing flooring debris material, in its present condition and location, pose a low potential for airborne asbestos fiber exposure.

TDEC's interpretation of flooring material waste resulting from slicing and other methods that do not cut, grind, sand or abrade Category I non-friable asbestos-containing flooring material is not subject to the NESHAP rule and can be disposed of as non-asbestos waste. OSHA regulations consider the cleanup operations of asbestos-containing flooring debris bound by their matrix as Class II removal activities and require the use of reasonable engineering controls and work practices to reduce exposures. All work must be assessed by a competent person and designed to prevent the migration of airborne asbestos from a designated regulated area.

The removal of non-friable asbestos-containing flooring debris should be performed by a qualified asbestos abatement contractor under properly controlled conditions in accordance with EPA, TDEC and OSHA removal and disposal regulations.

#### **4.4 Miscellaneous Material Debris**

Various types of miscellaneous non-friable asbestos-containing applications were observed during the survey. These applications include weather seals on windows, vapor barriers, glass rock insulation mastic, bitumens pipe wraps and various adhesive materials. Non-friable mastics applied to friable asbestos-containing substrates such as asbestos-containing thermal system insulation have been considered as homogeneous to the friable substrate material and should be handled accordingly.

All other non-friable asbestos-containing mastic materials, in place and in a normal demolition condition that have not been subject to sanding, cutting, grinding or abrading, are considered Category I non-friable ACM's by NESHAP definition. The non-friable bitumens and/or resinously bound asbestos-containing mastic debris material, in its present condition and location, pose a low potential for airborne asbestos fiber exposure.

TDEC's interpretation of miscellaneous mastic waste resulting from slicing and other methods that do not cut, grind, sand or abrade Category I non-friable asbestos-containing mastic material is not subject to the NESHAP rule and can be disposed of as non-asbestos waste. OSHA regulations consider the cleanup operations of asbestos-containing mastic debris bound by their matrix as Class II removal activities and require the use of reasonable engineering controls and work practices to reduce exposures. All work must be assessed by a competent person and designed to prevent the migration of airborne asbestos from a designated regulated area.

The removal of non-friable asbestos-containing miscellaneous mastic debris should be performed by a qualified asbestos abatement contractor under properly controlled conditions in accordance with EPA, TDEC and OSHA removal and disposal regulations.

#### **4.5 Cementitious Panels & Piping Debris**

Various asbestos-containing cementitious debris materials were observed in both damaged and non-friable forms during our investigation of the designated debris fields. The damaged cementitious panel and pipe debris are considered as crumbled, pulverized, and/or reduced to powder and would be subject to the NESHAP waste disposal requirements.



#### **4.5.1 Friable Cementitious Debris**

Friable asbestos-containing cementitious debris, in place and in poor condition, is considered as RACM by NESHAP definition, and should be promptly abated as part of the site cleanup activities. The friable asbestos-containing cementitious debris, in its present condition and location, pose a low potential for airborne asbestos fiber exposure.

Removal operations, waste packaging and disposal of friable asbestos-containing cementitious debris must be performed in accordance with NESHAP regulations that include notification, personnel training, no visible emissions, adequately wetting waste materials and properly packaging and labeling waste throughout the process. OSHA regulations would consider the non-intact asbestos-containing roof felt debris cleanup operations as Class II removal activities and require the use of reasonable engineering controls and work practices to reduce exposures. All work must be assessed by a competent person and designed to prevent the migration of airborne asbestos from a designated regulated area.

The removal of friable asbestos-containing cementitious debris should be performed by a qualified asbestos abatement contractor under properly controlled conditions in accordance with EPA, TDEC and OSHA removal and disposal regulations.

#### **4.5.2 Non-Friable Cementitious Materials**

Non-friable asbestos-containing cementitious pipe sections were also observed within the debris fields in good condition. These materials would be considered as Category II non-friable ACM by NESHAP definition. Category II non-friable materials (such as asbestos cement type pipe and panel products) removed and disposed of without crumbling, pulverizing, or reducing to powder are not subject to the NESHAP waste disposal requirements.

Removal operations, waste packaging and disposal of non-friable asbestos-containing cementitious materials must be performed in accordance with NESHAP regulations that include notification, personnel training, no visible emissions, adequately wetting waste materials and properly packaging and labeling waste throughout the process. OSHA regulations would consider the intact asbestos-containing cementitious material cleanup operations as Class II removal activities and require the use of reasonable engineering controls and work practices to reduce exposures. All work must be assessed by a competent person and designed to prevent the migration of airborne asbestos from a designated regulated area.

The removal of non-friable asbestos-containing cementitious materials debris should be performed by a qualified asbestos abatement contractor under properly controlled conditions in accordance with EPA, TDEC and OSHA removal and disposal regulations.

#### **4.6 Stripped Electrical Wire Insulation Debris**

Various forms of woven electrical wire insulation were found stripped from the metal wiring and piled in a small debris field. The stripped asbestos-containing electrical wire insulation debris, in place and in poor condition, is considered as RACM by NESHAP definition, and should be promptly abated as part of the site cleanup activities. The friable asbestos-containing stripped electrical wire insulation debris, in its present condition and location, pose a low potential for airborne asbestos fiber exposure.



Removal operations, waste packaging and disposal of friable asbestos-containing stripped electrical wire insulation debris must be performed in accordance with NESHAP regulations that include notification, personnel training, no visible emissions, adequately wetting waste materials and properly packaging and labeling waste throughout the process. OSHA regulations consider asbestos-containing thermal system insulation debris cleanup operations as Class I removal activities and require the use of reasonable engineering controls and work practices to reduce exposures. All work must be assessed by a competent person and designed to prevent the migration of airborne asbestos from a designated regulated area.

The removal of friable asbestos-containing stripped electrical wire insulation debris should be performed by a qualified asbestos abatement contractor under properly controlled conditions in accordance with EPA, TDEC and OSHA removal and disposal regulations.

## **5.0 QUALIFICATIONS OF REPORT**

A.C.T. Services, LLC., has endeavored to investigate the existing conditions of the demolition debris fields at the Former Liberty Fibers site located in Lowland, Tennessee using generally accepted procedures. Regardless of the thoroughness of our survey, it is possible that some areas concealing asbestos-containing building materials were overlooked or inaccessible.

This report presents general descriptions of various construction materials and the general locations where these materials were encountered. Determination of specific or exact quantities and locations of all hazardous materials within the site was beyond the scope of this work. If questions arise during the planning for demolition or other construction, ACT should be notified to allow our staff the opportunity to review the situation and present recommendations.

\*\*\* End of Section \*\*\*

**Volume Number 1**

**APPENDIX A**

**ASBESTOS-CONTAINING MATERIAL SUMMARY REPORT**

| Sample Number | Grid Location | Sub-Grid Sample Location | Sample Description                              | Asbestos % and Type          | NESHAP Designation | Friable (Yes or No) |
|---------------|---------------|--------------------------|---|------------------------------|--------------------|---------------------|
| A5 - 3 - 005  | A5            | 3                        | Black w/Grey Flashing Material                  | 25% Chrysotile               | CAT-1              | No                  |
| A5 - 9 - 024  | A5            | 9                        | Silver Coated Roofing Material                  | 3% Chrysotile                | CAT-1              | No                  |
| A5 - 9 - 025  | A5            | 9                        | Black Roof Flashing Material                    | 25% Chrysotile               | CAT-1              | No                  |
| A5 - 9 - 026  | A5            | 9                        | White Thermal System Insulation - Crumbly       | 45% Amosite<br>5% Chrysotile | RACM               | Yes                 |
| A5 - 9 - 027  | A5            | 9                        | Grey Flashing on Brick                          | 25% Chrysotile               | CAT-1              | No                  |
| A5 - 12 - 036 | A5            | 12                       | Black Flashing Material                         | 25% Chrysotile               | CAT-1              | No                  |
| A5 - 12 - 037 | A5            | 12                       | White Thermal System Insulation - Crumbly       | 45% Amosite<br>5% Chrysotile | RACM               | Yes                 |
| A6 - 6 - 005  | A6            | 6                        | Black Mastic & Felt On Brick                    | 25% Chrysotile               | CAT-1              | No                  |
| A6 - 12 - 034 | A6            | 12                       | Black Non-Fibrous Layers                        | 3% Chrysotile                | CAT-1              | No                  |
| A7 - 6 - 005  | A7            | 6                        | Thermal System Insulation Wrap, White Over Grey | 30% Chrysotile               | RACM               | Yes                 |
| A7 - 6 - 006  | A7            | 6                        | Black Flashing Material                         | 25% Chrysotile               | CAT-1              | No                  |
| A7 - 9 - 013  | A7            | 9                        | Black Flashing Material                         | 25% Chrysotile               | CAT-1              | No                  |
| A8 - 3 - 002  | A8            | 3                        | Black Flashing Material                         | 25% Chrysotile               | CAT-1              | No                  |
| A8 - 3 - 005  | A8            | 3                        | Black Mastic & Felt On Concrete                 | 25% Chrysotile               | CAT-1              | No                  |
| B4 - 14 - 010 | B4            | 14                       | Grey Thermal System Insulation - Crumbly        | 30% Amosite<br>5% Chrysotile | RACM               | Yes                 |
| B5 - 2 - 011  | B5            | 2                        | Silver Coated Flashing Material on Wood         | 25% Chrysotile               | CAT-1              | No                  |
| B5 - 8 - 024  | B5            | 8                        | Glass Rock Insulation w/Black Mastic            | 8% Chrysotile                | CAT-1              | No                  |
| B5 - 9 - 030  | B5            | 9                        | Grey Thermal System Insulation Wrap             | 15% Chrysotile               | RACM               | Yes                 |
| B5 - 9 - 031  | B5            | 9                        | White Thermal System Insulation - Crumbly       | 45% Amosite                  | RACM               | Yes                 |
| B5 - 9 - 032  | B5            | 9                        | Grey Thermal System Insulation Wrap             | 45% Amosite                  | RACM               | Yes                 |
| B5 - 9 - 033  | B5            | 9                        | White Thermal System Insulation                 | 50% Amosite                  | RACM               | Yes                 |
| B6 - 10 - 003 | B6            | 10                       | Floor Tile w/Black Mastic                       | 3% Chrysotile<br>Mastic      | CAT-1              | No                  |
| B6 - 11 - 004 | B6            | 11                       | White Thermal System Insulation - Crumbly       | 30% Chrysotile               | RACM               | Yes                 |
| B6 - 15 - 005 | B6            | 15                       | Grey Thermal System Insulation - Crumbly        | 45% Chrysotile               | RACM               | Yes                 |
| B6 - 15 - 006 | B6            | 15                       | Floor Tile w/Black Mastic                       | 3% Chrysotile<br>Mastic      | CAT-1              | No                  |
| B6 - 16 - 007 | B6            | 16                       | White Thermal System Insulation - Crumbly       | 45% Amosite<br>5% Chrysotile | RACM               | Yes                 |
| B7 - 2 - 003  | B7            | 2                        | White Thermal System Insulation                 | 40% Amosite                  | RACM               | Yes                 |
| B7 - 3 - 002  | B7            | 3                        | White Thermal System Insulation                 | 40% Chrysotile               | RACM               | Yes                 |

| Sample Number  | Grid Location | Sub-Grid Sample Location | Sample Description                                   | Asbestos % and Type          | NESHAP Designation | Friable (Yes or No) |
|----------------|---------------|--------------------------|--|------------------------------|--------------------|---------------------|
| B7 - 7 - 001   | B7            | 7                        | White Thermal System Insulation - Crumbly            | 45% Amosite<br>5% Chrysotile | RACM               | Yes                 |
| B8 - 2 - 002   | B8            | 2                        | White Thermal System Insulation - Crumbly            | 40% Amosite                  | RACM               | Yes                 |
| B8 - 3 - 001   | B8            | 3                        | White Thermal System Insulation - Crumbly            | 45% Amosite<br>5% Chrysotile | RACM               | Yes                 |
| B8 - 12 - 003  | B8            | 12                       | White Thermal System Insulation - Crumbly            | 40% Amosite<br>5% Chrysotile | RACM               | Yes                 |
| C1 - 11 - 005  | C1            | 11                       | Pipe Wrap Over Green Thermal System Insulation       | 10% Chrysotile               | CAT-I              | No                  |
| C1 - 11 - 006  | C1            | 11                       | Pipe Wrap Over Green Thermal System Insulation       | 10% Chrysotile               | CAT-I              | No                  |
| C1 - 11 - 007  | C1            | 11                       | Pipe Wrap Over Green Thermal System Insulation       | 15% Chrysotile               | CAT-I              | No                  |
| C7 - 1 - 001   | C7            | 1                        | White Thermal System Insulation - Crumbly            | 25% Chrysotile               | RACM               | Yes                 |
| C7 - 5 - 005   | C7            | 5                        | White Thermal System Insulation - Crumbly            | 20% Chrysotile               | RACM               | Yes                 |
| C7 - 6 - 004   | C7            | 6                        | Floor Tile w/Black Mastic                            | 3% Chrysotile<br>Mastic      | CAT-1              | No                  |
| C7 - 10 - 006  | C7            | 10                       | Floor Tile w/Black Mastic                            | 2% Chrysotile<br>Mastic      | CAT-1              | No                  |
| F1 - 10 - 002  | F1            | 10                       | White Thermal System Insulation                      | 15% Amosite<br>5% Chrysotile | RACM               | Yes                 |
| G3 - 11 - 001  | G3            | 11                       | Thermal System Insulation On Lath                    | 30% Chrysotile               | RACM               | Yes                 |
| G3 - 11 - 002  | G3            | 11                       | Canvas Wrap w/Skim Coat                              | 5% Chrysotile                | RACM               | Yes                 |
| G3 - 11 - 003  | G3            | 11                       | Black Mastic Thermal System Insulation Vapor Barrier | 10% Chrysotile               | CAT-1              | No                  |
| G9 - 8 - 004   | G9            | 8                        | Pink Thermal System Insulation                       | 20% Amosite                  | RACM               | Yes                 |
| H1 - 13 - 003  | H1            | 13                       | Black Felt Wrap                                      | 30% Chrysotile               | RACM               | Yes                 |
| H3 - 7 - 005   | H3            | 7                        | Grey Thermal System Insulation                       | 10% Chrysotile               | RACM               | Yes                 |
| I10 - 10 - 004 | I10           | 10                       | White Thermal System Insulation                      | 15% Amosite<br>5% Chrysotile | RACM               | Yes                 |
| I2 - 4 - 005   | I2            | 4                        | White Thermal System Insulation w/Silver Wrap        | 10% Amosite<br>5% Chrysotile | RACM               | Yes                 |
| I2 - 6 - 007   | I2            | 6                        | White Thermal System Insulation                      | 10% Amosite<br>5% Chrysotile | RACM               | Yes                 |
| I2 - 12 - 002  | I2            | 12                       | Silver Coated Roofing material                       | 15% Chrysotile               | CAT-1              | No                  |
| I3 - 5 - 001   | I3            | 5                        | File Door Packing                                    | 25% Chrysotile               | RACM               | Yes                 |
| J10 - 8 - 005  | J10           | 8                        | White Thermal System Insulation                      | 15% Amosite<br>5% Chrysotile | RACM               | Yes                 |
| J10 - 11 - 006 | J10           | 11                       | White Thermal System Insulation                      | 15% Amosite<br>5% Chrysotile | RACM               | Yes                 |
| J2 - 2 - 001   | J2            | 2                        | Skim Coat and Wrap                                   | 15% Chrysotile               | RACM               | Yes                 |
| J2 - 2 - 002   | J2            | 2                        | Vessel Thermal System Insulation                     | 40% Chrysotile               | RACM               | Yes                 |
| J2 - 6 - 003   | J2            | 6                        | Vessel Thermal System Insulation                     | 40% Chrysotile               | RACM               | Yes                 |

| Sample Number  | Grid Location | Sub-Grid Sample Location | Sample Description              | Asbestos % and Type           | NESHAP Designation | Friable (Yes or No) |
|----------------|---------------|--------------------------|---------------------------------|-------------------------------|--------------------|---------------------|
| J2 - 6 - 004   | J2            | 6                        | Skim Coat and Wrap              | 40% Chrysotile                | RACM               | Yes                 |
| J7 - 14 - 001  | J7            | 14                       | White Thermal System Insulation | 40% Amosite                   | RACM               | Yes                 |
| J7 - 15 - 002  | J7            | 15                       | White Thermal System Insulation | 40% Amosite                   | RACM               | Yes                 |
| K10 - 5 - 009  | K10           | 5                        | White Thermal System Insulation | 20% Amosite<br>20% Chrysotile | RACM               | Yes                 |
| K10 - 9 - 006  | K10           | 9                        | Floor Tile - Black              | 10% Chrysotile<br>Tile        | CAT-I              | No                  |
| K10 - 9 - 006  | K10           | 9                        | Floor Tile - Black              | 2% Chrysotile<br>Mastic       | CAT-I              | No                  |
| K10 - 13 - 001 | K10           | 13                       | Floor Tile - Black              | 10% Chrysotile<br>Tile        | CAT-I              | No                  |
| K10 - 13 - 001 | K10           | 13                       | Floor Tile - Black              | 2% Chrysotile<br>Mastic       | CAT-I              | No                  |
| K11 - 1 - 001  | K11           | 1                        | Floor Tile - Grey               | 5% Chrysotile                 | CAT-I              | No                  |
| K11 - 1 - 002  | K11           | 1                        | White Thermal System Insulation | 20% Amosite<br>20% Chrysotile | RACM               | Yes                 |
| K11 - 5 - 004  | K11           | 5                        | Floor Tile - Grey               | 5% Chrysotile<br>Tile         | CAT-I              | No                  |
| K11 - 7 - 006  | K11           | 7                        | Black Roofing Material          | 3% Chrysotile                 | CAT-I              | No                  |
| K11 - 8 - 007  | K11           | 8                        | Black Roofing Material          | <1% Chrysotile                | CAT-I              | No                  |
| K6 - 1 - 001   | K6            | 1                        | White Thermal System Insulation | 40% Amosite<br>5% Chrysotile  | RACM               | Yes                 |
| K8 - 2 - 004   | K8            | 2                        | White Thermal System Insulation | 30% Amosite<br>10% Chrysotile | RACM               | Yes                 |
| K9 - 5 - 001   | K9            | 5                        | White Thermal System Insulation | 20% Amosite<br>30% Chrysotile | RACM               | Yes                 |
| K9 - 9 - 005   | K9            | 9                        | White Thermal System Insulation | 30% Amosite                   | RACM               | Yes                 |
| L10 - 5 - 001  | L10           | 5                        | White Thermal System Insulation | 35% Amosite<br>20% Chrysotile | RACM               | Yes                 |
| L10 - 7 - 004  | L10           | 7                        | Floor Tile                      | 40% Chrysotile                | CAT-1              | No                  |
| L10 - 13 - 006 | L10           | 13                       | Green Floor Tile                | 40% Chrysotile                | CAT-1              | No                  |
| L11 - 3 - 004  | L11           | 3                        | White Thermal System Insulation | 20% Amosite<br>20% Chrysotile | RACM               | Yes                 |
| L11 - 5 - 001  | L11           | 5                        | Black Roofing Material          | <1% Chrysotile                | CAT-I              | No                  |
| L11 - 6 - 002  | L11           | 6                        | Cementitious Panel              | 20% Chrysotile                | CAT-II             | No                  |
| L11 - 7 - 003  | L11           | 7                        | Dark Grey Cementitious Material | 10% Anthophyllite             | CAT-II             | No                  |
| L5 - 11 - 003  | L5            | 11                       | White Thermal System Insulation | 35% Amosite<br>10% Chrysotile | RACM               | Yes                 |
| L6 - 4 - 001   | L6            | 4                        | White Thermal System Insulation | 35% Amosite<br>10% Chrysotile | RACM               | Yes                 |
| L7 - 13 - 004  | L7            | 13                       | Black Cementitious Material     | 30% Actinolite                | CAT-II             | No                  |
| L8 - 5 - 014   | L8            | 5                        | White Thermal System Insulation | 40% Amosite<br>25% Chrysotile | RACM               | Yes                 |

| Sample Number | Grid Location | Sub-Grid Sample Location | Sample Description                       | Asbestos % and Type           | NESHAP Designation | Friable (Yes or No) |
|---------------|---------------|--------------------------|--|-------------------------------|--------------------|---------------------|
| L8 - 15 - 002 | L8            | 15                       | White Thermal System Insulation          | 20% Amosite<br>35% Chrysotile | RACM               | Yes                 |
| L9 - 13 - 002 | L9            | 13                       | White Thermal System Insulation          | 35% Amosite<br>5% Chrysotile  | RACM               | Yes                 |
| M5 - 15 - 001 | M5            | 15                       | White Thermal System Insulation          | 30% Amosite<br>30% Chrysotile | RACM               | Yes                 |
| M5 - 16 - 002 | M5            | 16                       | White Thermal System Insulation          | 30% Amosite<br>30% Chrysotile | RACM               | Yes                 |
| M6 - 1 - 003  | M6            | 1                        | White Thermal System Insulation          | 30% Amosite<br>30% Chrysotile | RACM               | Yes                 |
| M6 - 1 - 004  | M6            | 1                        | Pink Thermal System Insulation           | 40% Amosite<br>40% Chrysotile | RACM               | Yes                 |
| M6 - 5 - 001  | M6            | 5                        | White Thermal System Insulation          | 30% Amosite<br>30% Chrysotile | RACM               | Yes                 |
| M6 - 5 - 002  | M6            | 5                        | Pink Thermal System Insulation           | 40% Amosite<br>20% Chrysotile | RACM               | Yes                 |
| M6 - 8 - 005  | M6            | 8                        | White Thermal System Insulation          | 30% Amosite<br>30% Chrysotile | RACM               | Yes                 |
| M8 - 9 - 001  | M8            | 9                        | White Thermal System Insulation          | 30% Amosite<br>20% Chrysotile | RACM               | Yes                 |
| M8 - 15 - 003 | M8            | 15                       | Pink Thermal System Insulation           | 40% Amosite<br>40% Chrysotile | RACM               | Yes                 |
| N5 - 13 - 001 | N5            | 13                       | White Thermal System Insulation          | 40% Amosite<br>40% Chrysotile | RACM               | Yes                 |
| N5 - 15 - 003 | N5            | 15                       | White Thermal System Insulation          | 30% Amosite<br>30% Chrysotile | RACM               | Yes                 |
| N6 - 2 - 002  | N6            | 2                        | White Thermal System Insulation          | 20% Amosite<br>20% Chrysotile | RACM               | Yes                 |
| N6 - 2 - 003  | N6            | 2                        | Pink Thermal System Insulation           | 40% Amosite<br>40% Chrysotile | RACM               | Yes                 |
| N6 - 6 - 001  | N6            | 6                        | Pink Thermal System Insulation           | 40% Amosite<br>40% Chrysotile | RACM               | Yes                 |
| N7 - 1 - 001  | N7            | 1                        | White Thermal System Insulation          | 20% Amosite<br>20% Chrysotile | RACM               | Yes                 |
| N7 - 5 - 002  | N7            | 5                        | White Thermal System Insulation          | 30% Amosite<br>30% Chrysotile | RACM               | Yes                 |
| N8 - 10 - 001 | N8            | 10                       | White Thermal System Insulation          | 30% Amosite<br>30% Chrysotile | RACM               | Yes                 |
| O6 - 1 - 001  | O6            | 1                        | White Thermal System Insulation          | 40% Amosite<br>20% Chrysotile | RACM               | Yes                 |
| O6 - 6 - 002  | O6            | 6                        | White Thermal System Insulation          | 40% Amosite<br>15% Chrysotile | RACM               | Yes                 |
| P2 - 13 - 003 | P2            | 13                       | Pink Thermal System Insulation           | 40% Amosite<br>25% Chrysotile | RACM               | Yes                 |
| P6 - 1 - 001  | P6            | 1                        | White Thermal System Insulation          | 40% Amosite<br>20% Chrysotile | RACM               | Yes                 |
| P6 - 10 - 004 | P6            | 10                       | White Thermal System Insulation          | 40% Amosite<br>20% Chrysotile | RACM               | Yes                 |
| P6 - 53 - 002 | P6            | 53                       | White Thermal System Insulation          | 40% Amosite<br>20% Chrysotile | RACM               | Yes                 |
| Q10 - 4 - 003 | Q10           | 4                        | Old Layer Thermal System Insulation Wrap | 5% Chrysotile                 | RACM               | Yes                 |
| Q10 - 8 - 004 | Q10           | 8                        | White Canvas                             | 10% Chrysotile                | RACM               | Yes                 |
| Q12 - 8 - 001 | Q12           | 8                        | Grey Cementitious Pipe                   | 30% Actinolite                | CAT-II             | No                  |

| Sample Number  | Grid Location | Sub-Grid Sample Location | Sample Description                   | Asbestos % and Type           | NESHAP Designation | Friable (Yes or No) |
|----------------|---------------|--------------------------|--------------------------------------|-------------------------------|--------------------|---------------------|
| Q6 - 8 - 007   | Q6            | 8                        | White Thermal System Insulation      | 15% Amosite<br>5% Chrysotile  | RACM               | Yes                 |
| Q6 - 12 - 008  | Q6            | 12                       | White Thermal System Insulation      | 30% Amosite<br>5% Chrysotile  | RACM               | Yes                 |
| R10 - 6 - 002  | R10           | 6                        | Tan Thermal System Insulation        | <1% Chrysotile                | RACM               | Yes                 |
| R11 - 1 - 001  | R11           | 1                        | Grey Layered Roof material           | 35% Chrysotile                | RACM               | Yes                 |
| R12 - 1 - 001  | R12           | 1                        | Dark Grey Cementitious Pipe Material | 25% Chrysotile                | CAT-II             | No                  |
| R12 - 3 - 003  | R12           | 3                        | Grey Roof Material                   | 5% Chrysotile                 | RACM               | Yes                 |
| R12 11 - 005   | R12           | 11                       | Grey Cementitious Panel (Dimpled)    | 40% Chrysotile                | CAT-II             | No                  |
| R12 - 13 - 004 | R12           | 13                       | Grey Cementitious Waffled Material   | 8% Chrysotile                 | CAT-II             | No                  |
| R5 - 7 - 004   | R5            | 7                        | White Thermal System Insulation      | 20% Amosite<br>5% Chrysotile  | RACM               | Yes                 |
| R5 - 11 - 003  | R5            | 11                       | White Thermal System Insulation      | 20% Amosite<br>3% Chrysotile  | RACM               | Yes                 |
| R5 - 15 - 001  | R5            | 15                       | White Thermal System Insulation      | 20% Amosite<br>5% Chrysotile  | RACM               | Yes                 |
| R6 - 3 - 001   | R6            | 3                        | White Thermal System Insulation      | 30% Amosite<br>5% Chrysotile  | RACM               | Yes                 |
| S4 - 16 - 002  | S4            | 16                       | Silver Coated Black Mastic on Brick  | 3% Chrysotile                 | CAT-1              | No                  |
| S4 - 16 - 002  | S4            | 16                       | Silver Coated Black Mastic on Brick  | 35% Chrysotile                | CAT-1              | No                  |
| T12 - 2 - 001  | T12           | 2                        | Red Cementitious pipe w/Black Mastic | 30% Anthophyllite<br>Pipe     | CAT-II             | No                  |
| T12 - 3 - 002  | T12           | 3                        | Red Cementitious Pipe Material       | 30% Anthophyllite<br>Pipe     | CAT-II             | No                  |
| T12 - 3 - 003  | T12           | 3                        | Grey Cementitious pipe Material      | 35% Anthophyllite<br>Pipe     | CAT-II             | No                  |
| T5 - 4 - 002   | T5            | 4                        | Grey Thermal System Insulation       | 30% Amosite<br>10% Chrysotile | RACM               | Yes                 |
| T5 - 14 - 003  | T5            | 14                       | White Thermal System Insulation      | 50% Amosite<br>10% Chrysotile | RACM               | Yes                 |
| T7 - 16 - 001  | T7            | 16                       | Silver Coated Black Roofing Material | 2% Chrysotile                 | RACM               | Yes                 |
| U10 - 7 - 001  | U10           | 7                        | Black Roofing Material               | 40% Chrysotile                | RACM               | Yes                 |
| U12 - 2 - 001  | U12           | 2                        | White Thermal System Insulation      | 15% Amosite<br>30% Chrysotile | RACM               | Yes                 |
| U13 - 1 - 001  | U13           | 1                        | Black Roofing Material               | 40% Chrysotile                | RACM               | Yes                 |
| U13 - 1 - 002  | U13           | 1                        | Grey Roofing Material                | 35% Chrysotile                | RACM               | Yes                 |
| U13 - 8 - 003  | U13           | 8                        | Ridge Cap Felt                       | 50% Chrysotile                | RACM               | Yes                 |
| U14 - 11 - 002 | U14           | 11                       | Grey Cementitious Material           | 20% Chrysotile                | CAT-II             | No                  |
| U14 13 - 003   | U14           | 13                       | White Thermal System Insulation      | 15% Amosite<br>30% Chrysotile | RACM               | Yes                 |
| U4 - 16 - 004  | U14           | 16                       | Black Roofing Material               | 40% Chrysotile                | RACM               | Yes                 |

| Sample Number  | Grid Location | Sub-Grid Sample Location | Sample Description                             | Asbestos % and Type           | NESHAP Designation | Friable (Yes or No) |
|----------------|---------------|--------------------------|--|-------------------------------|--------------------|---------------------|
| U4 - 16 - 005  | U14           | 16                       | Gray Layered Thermal System Insulation Wrap    | 10% Chrysotile                | RACM               | Yes                 |
| U5 - 1 - 001   | U5            | 1                        | White Thermal System Insulation                | 30% Amosite<br>5% Chrysotile  | RACM               | Yes                 |
| U5 - 14 - 006  | U5            | 14                       | Red & Black Cementitious pipe Covering         | 25% Anthophyllite             | CAT-II             | No                  |
| U5 - 15 - 003  | U5            | 15                       | White Thermal System Insulation                | 30% Amosite<br>10% Chrysotile | RACM               | Yes                 |
| U5 - 15 - 004  | U5            | 15                       | Pink Thermal System Insulation                 | 15% Amosite                   | RACM               | Yes                 |
| U5 - 15 - 005  | U5            | 15                       | White Thermal System Insulation                | 35% Chrysotile                | RACM               | Yes                 |
| U6 - 2 - 001   | U6            | 2                        | White Thermal System Insulation                | 5% Amosite<br>20% Chrysotile  | RACM               | Yes                 |
| U6 - 3 - 003   | U6            | 3                        | Pink Thermal System Insulation                 | 10% Amosite<br>20% Chrysotile | RACM               | Yes                 |
| U6 - 11 - 005  | U6            | 11                       | Grey Layered Thermal System Insulation         | 10% Chrysotile                | RACM               | Yes                 |
| U6 - 11 - 005  | U6            | 11                       | Grey Layered Thermal System Insulation         | 40% Chrysotile                | RACM               | Yes                 |
| U6 - 11 - 006  | U6            | 11                       | Grey Layered Thermal System Insulation         | 10% Chrysotile                | RACM               | Yes                 |
| U7 - - 003     | U7            | 001                      | Grey Layered Thermal System Insulation         | 5% Chrysotile                 | RACM               | Yes                 |
| V10 - 8 - 001  | V10           | 8                        | Black Cementitious Material                    | 25% Anthophyllite             | CAT-II             | No                  |
| V10 - 14 - 002 | V10           | 14                       | Roofing Material                               | 5% Chrysotile                 | CAT-1              | No                  |
| V11 - 5 - 002  | V11           | 5                        | Red Cementitious Material                      | 25% Anthophyllite             | CAT-II             | No                  |
| V11 - 9 - 003  | V11           | 9                        | Black Roofing Material                         | 15% Chrysotile                | CAT-1              | No                  |
| V12 - 5 - 001  | V12           | 5                        | Black Roofing Material                         | 25% Chrysotile                | RACM               | Yes                 |
| V12 - 5 - 002  | V12           | 5                        | Black Roofing Material                         | 15% Chrysotile                | CAT-1              | No                  |
| V12 - 5 - 003  | V12           | 5                        | Roofing Material                               | 25% Chrysotile                | RACM               | Yes                 |
| V12 - 5 - 003  | V12           | 5                        | Roofing Material                               | 30% Chrysotile                | RACM               | Yes                 |
| V13 - 15 - 004 | V13           | 15                       | White Thermal System Insulation                | 20% Amosite                   | RACM               | Yes                 |
| V14 - 6 - 002  | V14           | 6                        | White Thermal System Insulation                | 25% Amosite                   | RACM               | Yes                 |
| V15 - 2 - 001  | V15           | 2                        | Grey Cementitious Material                     | 25% Anthophyllite             | CAT-II             | No                  |
| V7 - 1 - 004   | V7            | 1                        | Grey & Black Layered Thermal System Insulation | 15% Chrysotile                | RACM               | Yes                 |
| V8 - 2 - 001   | V8            | 2                        | Dark Grey Cementitious Material                | 40% Anthophyllite             | CAT-II             | No                  |
| V8 - 6 - 002   | V8            | 6                        | Dark Grey Cementitious Material                | 35% Anthophyllite             | CAT-II             | No                  |
| V8 - 14 - 006  | V8            | 14                       | White Thermal System Insulation                | 35% Amosite                   | RACM               | Yes                 |
| V8 - 15 - 007  | V8            | 15                       | White Thermal System Insulation                | 40% Amosite                   | RACM               | Yes                 |



| Sample Number  | Grid Location | Sub-Grid Sample Location | Sample Description                                    | Asbestos % and Type           | NESHAP Designation | Friable (Yes or No) |
|----------------|---------------|--------------------------|---|-------------------------------|--------------------|---------------------|
| V9 - 1 - 001   | V9            | 1                        | Black Roofing Material                                | 5% Chrysotile                 | CAT-1              | No                  |
| V9 - 1 - 003   | V9            | 1                        | White Thermal System Insulation                       | 35% Amosite                   | RACM               | Yes                 |
| V9 - 2 - 004   | V9            | 2                        | White Thermal System Insulation                       | 25% Amosite<br>10% Chrysotile | RACM               | Yes                 |
| V9 - 2 - 006   | V9            | 2                        | Roofing Material                                      | 5% Chrysotile                 | CAT-1              | No                  |
| W11 - 5 - 002  | W11           | 5                        | Red Cementitious Pipe Material                        | 20% Anthophyllite             | CAT-II             | No                  |
| W7 - 5 - 002   | W7            | 5                        | Black Thermal System Wrap                             | 40% Chrysotile                | RACM               | Yes                 |
| W7 - 8 - 001   | W7            | 8                        | Sparkled Glass Rock Insulation Mastic                 | <1% Chrysotile                | CAT-1              | No                  |
| W9 - 14 - 005  | W9            | 14                       | Grey & Black Layered Thermal System Insulation        | 10% Chrysotile                | RACM               | Yes                 |
| X10 - 4 - 003  | X10           | 4                        | Grey Thermal System Insulation                        | 25% Amosite<br>15% Chrysotile | RACM               | Yes                 |
| X10 - 16 - 004 | X10           | 16                       | Grey & Black Layered Thermal System Insulation        | 15% Chrysotile                | RACM               | Yes                 |
| X12 - 12 - 001 | X12           | 12                       | Black Layered Roof Material                           | 30% Chrysotile                | CAT-1              | No                  |
| X7 - 10 - 001  | X7            | 10                       | Black Pipe Wrap                                       | 15% Chrysotile                | CAT-1              | No                  |
| X7 - 15 - 002  | X7            | 15                       | Black Layered Roofing Material                        | 35% Chrysotile                | CAT-1              | No                  |
| X9 - 14 - 001  | X9            | 14                       | Grey Thermal System Insulation                        | 35% Amosite                   | RACM               | Yes                 |
| Y10 - 1 - 001  | Y10           | 1                        | Grey Thermal System Insulation                        | 10% Chrysotile                | RACM               | Yes                 |
| Y11 - 1 - 002  | Y11           | 1                        | White Thermal System Insulation<br>Pipe Rack Debris   | 15% Amosite<br>25% Chrysotile | RACM               | Yes                 |
| Y13 - 16 - 001 | Y13           | 16                       | Black Roofing Material                                | 15% Amosite<br>25% Chrysotile | CAT-1              | No                  |
| Y14 - 6 - 001  | Y14           | 6                        | Black Layered Roofing Material                        | 30% Chrysotile                | CAT-1              | No                  |
| Z10 - 3 - 003  | Z10           | 3                        | Black Roofing Material/DI                             | 15% Chrysotile                | CAT-1              | No                  |
| Z13 - 6 - 001  | Z13           | 6                        | White Thermal System Insulation                       | 15% Amosite<br>5% Chrysotile  | RACM               | Yes                 |
| Z13 - 6 - 003  | Z13           | 6                        | White Thermal System Insulation                       | 25% Amosite<br>5% Chrysotile  | RACM               | Yes                 |
| AA11 - 5 - 002 | AA11          | 5                        | Tan & Dark Grey Cementitious Material                 | 35% Chrysotile                | CAT-II             | No                  |
| AA11 - 7 - 001 | AA11          | 7                        | Tan & Dark Grey Cementitious Material                 | 35% Chrysotile                | CAT-II             | No                  |
| AA12 - 2 - 001 | AA12          | 2                        | Tan & Grey Cementitious Material                      | 30% Chrysotile                | CAT-II             | No                  |
| AA13 - 1 - 001 | AA13          | 1                        | Dark Grey Cementitious Material                       | 30% Chrysotile                | CAT-II             | No                  |
| AA13 - 9 - 004 | AA13          | 9                        | White Thermal System Insulation                       | 25% Amosite                   | RACM               | Yes                 |
| AB7 - 9 - 002  | AB7           | 9                        | White Cementitious Unknown                            | 20% Chrysotile                | CAT-II             | No                  |
| PHPR - 1       | Z14           | 6                        | 30" Pipe White Thermal System Insulation w/Paper Wrap | 40% Amosite<br><1% Chrysotile | RACM               | Yes                 |

| Sample Number | Grid Location | Sub-Grid Sample Location | Sample Description                                       | Asbestos % and Type           | NESHAP Designation | Friable (Yes or No) |
|---------------|---------------|--------------------------|--|-------------------------------|--------------------|---------------------|
| PHPR - 2      | Z14           | 6                        | 30" Fitting Grey Thermal System Insulation w/Canvas Wrap | 3% Chrysotile                 | RACM               | Yes                 |
| PHPR - 3      | Z14           | 6                        | 30" Fitting Thermal System Insulation w/Canvas Wrap      | 3% Chrysotile                 | RACM               | Yes                 |
| PHPR - 7      | Z14           | 6                        | 18" Pipe White Thermal System Insulation                 | 20% Amosite<br>20% Chrysotile | RACM               | Yes                 |
| PHPR - 9      | Z14           | 6                        | 2" Pipe Grey Thermal System Insulation                   | 20% Amosite<br>20% Chrysotile | RACM               | Yes                 |
| PHPR - 10     | Z14           | 6                        | 6" Pipe Grey Thermal System Insulation                   | 20% Amosite<br>20% Chrysotile | RACM               | Yes                 |
| PHPR - 11     | Z14           | 6                        | 8" Pipe Grey Thermal System Insulation                   | 20% Amosite<br>20% Chrysotile | RACM               | Yes                 |
| PHPR - 12     | Z14           | 6                        | 14" Pipe Grey Thermal System Insulation                  | 20% Amosite<br>20% Chrysotile | RACM               | Yes                 |
| PHPR - 13     | Z14           | 6                        | 12" Pipe Grey Thermal System Insulation                  | 20% Amosite<br>20% Chrysotile | RACM               | Yes                 |
| PHPR - 14     | Z14           | 6                        | 6" Fitting Green Thermal System Insulation w/Canvas Wrap | 2% Chrysotile                 | RACM               | Yes                 |
| RFB - R - 001 | U17           | 1                        | Roof Felt (Top) First Layer                              | 30% Chrysotile                | RACM               | Yes                 |
| RFB - R - 002 | U17           | 1                        | Roof Felt Second Layer                                   | 60% Chrysotile                | RACM               | Yes                 |
| RFB - R - 005 | U17           | 4                        | Roof Felt (Top) First Layer                              | 12% Chrysotile                | RACM               | Yes                 |
| RFB - R - 006 | U17           | 4                        | Roof Felt Second Layer                                   | 45% Chrysotile                | RACM               | Yes                 |
| RFB - R - 007 | U17           | 4                        | Roof Felt Third Layer                                    | 40% Chrysotile                | CAT-1              | No                  |
| RFB - R - 011 | U17           | 4                        | White Felt Top Layer - Under Metal Ridge Cap             | 60% Chrysotile                | RACM               | Yes                 |
| RFB - R - 012 | U17           | 1                        | White Felt Top Layer - Under Metal Ridge Cap             | 50% Chrysotile                | RACM               | Yes                 |
| WC - 001      | M2            | 16                       | Electrical Wire Insulation Debris                        | 20% Chrysotile                | RACM               | Yes                 |
| WC - 002      | M2            | 16                       | Electrical Wire Insulation Debris                        | 20% Chrysotile                | RACM               | Yes                 |
| WC - 003      | N3            | 1                        | Electrical Wire Insulation Debris                        | 25% Chrysotile                | RACM               | Yes                 |
| WC - 004      | N2            | 13                       | Electrical Wire Insulation Debris                        | 25% Chrysotile                | RACM               | Yes                 |
| WC - 005      | N2            | 13                       | Electrical Wire Insulation Debris                        | 25% Chrysotile                | RACM               | Yes                 |
| WC - 006      | N3            | 1                        | Electrical Wire Insulation Debris                        | 35% Chrysotile                | RACM               | Yes                 |
| WC - 007      | M3            | 4                        | Electrical Wire Insulation Debris                        | 35% Chrysotile                | RACM               | Yes                 |
| WC - 008      | M3            | 4                        | Electrical Wire Insulation Debris                        | 20% Chrysotile                | RACM               | Yes                 |
| WC - 009      | M3            | 3                        | Electrical Wire Insulation Debris                        | 10% Chrysotile                | RACM               | Yes                 |

***Volume Number 1***

**APPENDIX B**

**SITE LAYOUT DIAGRAMS & MAPS**

**ASB-01 – Site Layout Diagram With Main Grid System**

**ASB-02 – Site Layout Diagram With Subgrid System**

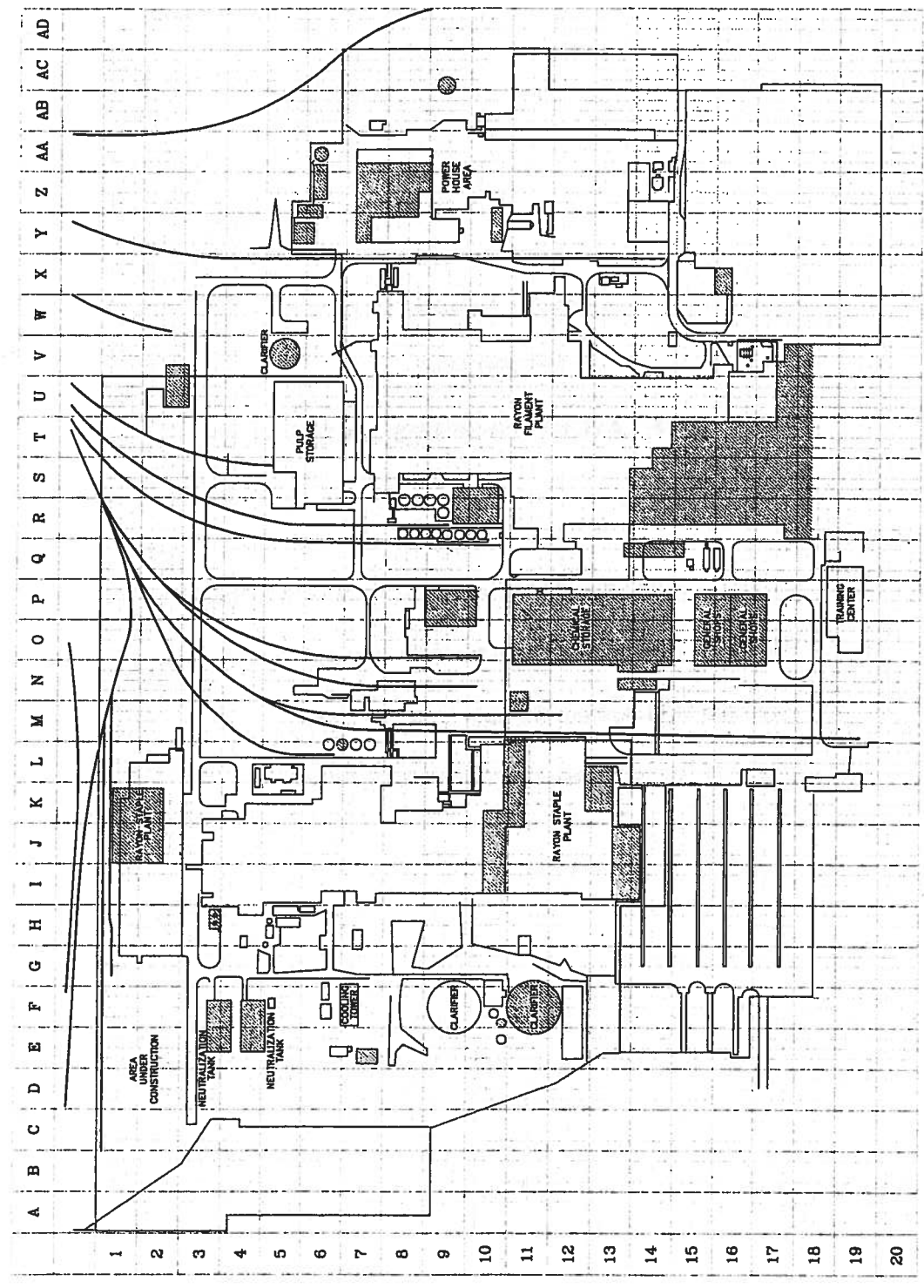
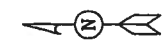
**Example Grid System Sample Location Sheet**

**Example Global Positioning Satellite Point Map**

4 3 2 1

D C B A

| REVISIONS |     |             | DATE |  | APPROVED |  |
|-----------|-----|-------------|------|--|----------|--|
| ZONE      | REV | DESCRIPTION |      |  |          |  |
|           |     |             |      |  |          |  |



☐ SCOPE BOUNDARY  
☒ STRUCTURES REMAINING

**A.C.T. Services, LLC**  
 FORMER LIBERTY FIBERS RAYON PLANT  
 SITE LAYOUT

| SIZE            | PROJ. NO. | DWG. NO. | REV  |
|-----------------|-----------|----------|------|
| C               | 08.17.002 | ASB-02   | A    |
| SCALE           |           | SHEET    |      |
| Approx. 1"=200' |           | 1        | OF 1 |

WARNING: DO NOT SCALE DRAWING  
 DIMENSIONS ARE APPROXIMATE AND  
 NOT TO BE USED FOR CONSTRUCTION  
 OF ANY STRUCTURE OR EQUIPMENT  
 WITHOUT THE WRITTEN CONSENT OF  
 A.C.T. SERVICES, LLC AND SHOULD NOT BE  
 USED FOR ANY OTHER PURPOSE  
 WITHOUT THE WRITTEN CONSENT OF  
 A.C.T. SERVICES, LLC

4 3 2 1

D C B A

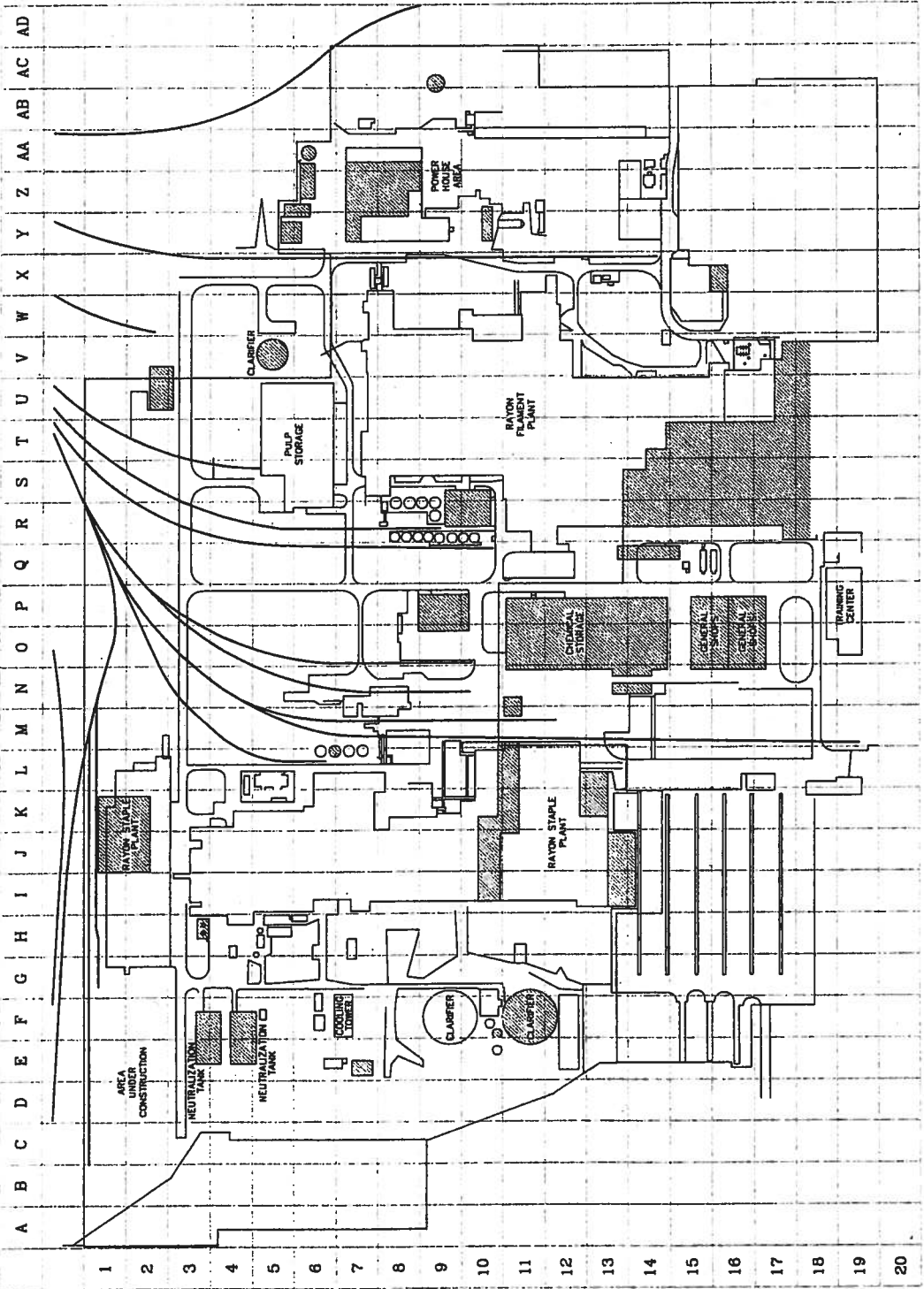
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| REVISIONS |     |             |          |
|-----------|-----|-------------|----------|
| ZONE      | REV | DESCRIPTION | DATE     |
|           |     |             | APPROVED |



□ SCOPE BOUNDARY  
▨ STRUCTURES REMAINING

**A.C.T. Services, LLC**  
FORMER LIBERTY FIBERS RAYON PLANT  
SITE LAYOUT

| SIZE  | PROD. NO.       | DWG. NO. | REV |
|-------|-----------------|----------|-----|
| C     | 08.17.002       | ASB-01   | A   |
| SCALE | Approx. 1"=200' |          |     |
|       | SHEET 1 OF 1    |          |     |

WARNING: DO NOT SCALE DRAWING  
ALL DIMENSIONS SHOWN ON THIS DRAWING  
ARE BASED ON THE LATEST AVAILABLE  
FIELD SURVEY DATA AND SHOULD NOT BE  
USED FOR CONSTRUCTION PURPOSES WITHOUT  
CONSULTATION WITH A.C.T. SERVICES, LLC

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