TECHNICAL MEMORANDUM
BROWNFIELDS SUSTAINABILITY PILOT
ALLEN-MORRISON SITE, LYNCHBURG, VIRGINIA

INTRODUCTION

The U.S. Environmental Protection Agency (EPA) Brownfields Program empowers states, communities, and other stakeholders to work together to prevent, assess, safely clean up, and sustainably reuse brownfields. Under this program, EPA's Brownfields Sustainability Pilots are providing technical assistance to support communities in achieving greener, more sustainable assessment, cleanup, and redevelopment at their brownfields projects. EPA selected the Allen-Morrison Site in Lynchburg, Virginia, as a Brownfields sustainability pilot. As part of this pilot, Tetra Tech EM Inc., (Tetra Tech), through a subcontract to SRA International, Inc., provided assistance for the City of Lynchburg to create an inventory of materials that can be reused or recycled from the Allen-Morrison site through deconstruction of buildings and other structures on portions of the site.

The earliest use of the site dates back to the early 1900s when it was home to the Thornhill Wagon Company—at one time the largest independent manufacturer of farm wagons in the eastern U.S. The site was later owned and operated by the Allen-Morrison Corporation, a metal sign manufacturing facility. Other businesses occupying the site during ownership by Allen-Morrison Corporation included the Ferrum Veneer Company, Metallo Chemicals Inc., and Lynchburg Dry Kilns, Inc. The Allen-Morrison Corporation (Allen-Morrison) declared bankruptcy in 1996, and abandoned the property. The City of Lynchburg is committed to creating a public park on the Allen-Morrison site to serve both the neighborhood and the larger community. Conceptual site plans include a community center with gym space; neighborhood park components such as playgrounds, parking, and picnic areas; and pedestrian connections to the City Stadium and *Lynchburg Grows*, a non-profit urban farm. *Lynchburg Grows* is dedicated to demonstrating the importance of sustainable, local agriculture and healthy living, and is partnering with the City of Lynchburg to develop a comprehensive master plan that presents opportunities for remediation by design, shared resources and facilities, and neighborhood engagement in the redevelopment process. *Lynchburg Grows* provides nutrition and food systems programming for elementary school children, vocational training for disabled and low-income individuals, and workshops for people interested in increasing their gardening efforts.

Both the City of Lynchburg and *Lynchburg Grows* view this project as an opportunity to educate and engage citizens in the principles of sustainable development during design and construction, and through

educational interpretation of the site history. The information provided by the deconstruction inventory and the reuse of deconstructed materials on site will help Lynchburg implement and promote sustainable redevelopment opportunities, interpret the site history, and create local jobs or volunteer opportunities.

This technical memorandum presents sustainability pilot activities, a summary of inventory results, and other observations and recommendations for sustainable redevelopment identified during the pilot activities. A figure showing the general layout of the Allen-Morrison site is included as Attachment A; the inventory of materials is included as Attachment B; and a photographic log is provided as Attachment C. Tools and resources used to calculate material quantities are provided in Attachment D.

SUSTAINABILITY PILOT ACTIVITIES

Tetra Tech conducted several pilot activities before the field inventory. First, Tetra Tech developed a draft material reuse inventory tool to collect information on building materials, estimate salvageable quantities, and estimate costs or income values. EPA and the City of Lynchburg reviewed the draft tool, and Tetra Tech revised the tool based on comments received. Tetra Tech also participated in several conference calls with EPA and the City of Lynchburg Valley to refine the inventory tool and establish the scope of the pilot activities. In addition, Tetra Tech reviewed resources and site-specific information provided by the City of Lynchburg before the field inventory, including site maps and photos; a preliminary structural assessment of site buildings, a hazardous materials survey, and other site background documents; and site development plans.

Tetra Tech conducted the initial field inventory at the Allen-Morrison site in November 2008 and arranged a follow-up site visit by a local lumber salvage company representative that was conducted in February 2009. Based on initial discussions with the pilot team, the following buildings were to be surveyed during the inventory: the approximately 87,800-square-foot Allen-Morrison facility (Buildings 1A through 1E) and the approximately 86,400-square-foot Thornhill facility (Buildings 7A through 7F). These buildings are shown on the figure in Attachment A. However, based on observations during an initial site walk and discussions with the City of Lynchburg, it was determined that building conditions and materials within the Allen-Morrison facility were generally unsuitable for deconstruction and, therefore, complete demolition of the buildings with sorting of recyclable materials would be more appropriate. Portions of the Thornhill facility, particularly Building 7A, were more suitable for deconstruction. Therefore, based on these observations, available pilot resources, and discussions with the City of Lynchburg, the team agreed to conduct a quantitative deconstruction inventory for the

Thornhill facility and a qualitative assessment of the Allen-Morrison facility. Further discussion regarding the condition of these buildings and the feasibility of their deconstruction is provided below in "Observations and Recommendations."

The quantitative inventory of the Thornhill facility buildings focused on primary materials agreed upon by the City of Lynchburg, including: (1) lumber, (2) metal for scrap or reuse, and (3) other items for potential reuse in the proposed redevelopment. Items of particular interest for reuse are materials that are potentially valuable, significant for highlighting the industrial heritage of the site, or possibly useful for *Lynchburg Grows*. Tetra Tech measured the dimensions of the inventoried materials in the field, where possible, and supplemented these measurements by checking resources (for example, site maps) provided by the City of Lynchburg. Identified items and their associated quantities appear in detail in the inventory of materials (see Attachment B).

After the field inventory was completed, quantities of each building material type were calculated based on field observations and measurements. Lumber types were quantified primarily as board feet (BF) or square feet (sf), and metals were quantified in weight. The quantity calculations are documented in the inventory tool. Tetra Tech contacted local vendors to determine appropriate quantity conversion factors and units to use in calculations; vendors also provided input regarding costs or values associated with the materials inventoried. The following local salvage vendors provided information that supported the approximate valuations of salvaged lumber, scrap metal, and other materials:

- Allied Waste Services
  Lynchburg, VA
  434-237-6666
- Appalachia Wood
  Stuarts Draft, VA
  540-337-1801
- Antique Building Products
  Amherst, VA
  434-946-0634
- Big Wood
  Afton, VA
  434-361-9300
- Beasley Disposal, Inc.
  Lynchburg, VA
  434-528-5540
- BRC Recycling
  Lynchburg, VA
  434-385-6050
- Contract Crushing, LLC
  Charlottesville, VA
  434-979-2910
- Cycle Systems, Inc.
  Lynchburg, VA
  434-37-6666
- Mountain Lumber
  Ruckersville, VA
  434-985-3646

These vendors may also be considered potential bidders or team members for contracts to implement deconstruction activities at the site. Moreover, Adam "Woody" Coffman, of *Lynchburg Grows*, who is very familiar with the site and coordinated previous scrap metal recycling efforts at the Allen-Morrison site, provided additional information regarding local lumber and scrap metal recycling opportunities. Mr. Coffman estimated 300,000 to 350,000 pounds of metal remain in the Allen-Morrison buildings; considering the amount of equipment and structural steel that Tetra Tech observed during the deconstruction inventory, Mr. Coffman's estimate may be low.

Given the size of the facility buildings and available pilot resources, the City of Lynchburg also supported the inventory effort by estimating the quantity of brick, concrete masonry unit (CMU), and asphalt materials of Allen-Morrison and Thornhill facility buildings. This inventory provided the estimated quantity of painted vs. unpainted material, as well as the description and condition of each material. The findings are also included in the materials inventory in Attachment B.

In addition to this technical memorandum and the associated inventory of materials, Tetra Tech provided the City of Lynchburg with example deconstruction specifications and other deconstruction resources.

INVENTORY RESULTS

The primary types of materials identified to have potential value for deconstruction at the Thornhill facility (Buildings 7A though 7E) buildings include lumber, scrap metal/steel, concrete, and brick. Table 1 presents a summary of these materials, including the material type, quantity, and potential market value. Complete inventory results are included in Attachment B. Assumptions and uncertainties associated with material quantities and potential value are discussed below. As mentioned previously, a quantitative assessment was not conducted for the Allen Morrison facility; therefore, a detailed inventory is not provided for that portion of the site.

Material Quantity Assumptions and Uncertainties

Several assumptions were used to calculate material quantities. As noted previously, quantity units were based on information from vendors regarding local industry standards; for example, lumber dealers use BF (or for some sheet lumber types, sf), while metal scrap businesses deal in weight. Lumber quantity calculations were based on the percent salvageable material estimated during field inventory activities.

TABLE 1

MATERIAL INVENTORY SUMMARY
ALLEN-MORRISON SITE – THORNHILL FACILITY BUILDINGS
LYNCHBURG, VIRGINIA

Lumber		
Material Type	**Estimated Quantity (board feet)**	**Approximate Value**
<6-inch width (<6x) painted	49,500	$29,700
<6-inch width (<6x) unpainted	70,800	$42,500
6-inch width (6x) painted	25,400	$15,200
6-inch width (6x) unpainted	15,300	$9,200
8-inch width (8x) painted	9,900	$5,900
8-inch width (8x) unpainted	2,100	$1,300
Total	**173,000**	**$103,800**
Metal		
Material Type	**Estimated Quantity (pounds)**	**Approximate Value**
Metal Piping (Cast Iron)	20,000	$1,000
Structural Steel (I-beams, channel beams, etc.)	167,600	$8,400
Floor Plates	138,500	$6,900
Metal Tanks/Canisters	10,900	$550
Drying rack sheet metal	72,300	$3,600
Total	**409,300**	**$20,500**
Other Materials		
Material Type	**Estimated Quantity (bricks)**	**Approximate Value**
Brick (unpainted)	507,600	$126,900
Brick (painted)	252,900	$63,200
Total	**760,500**	**$190,100**

Notes:

"6x" lumber refers to boards of 6-inch width.
"8x" lumber refers to boards of 8-inch width.
Lumber value was estimated at an average of $0.60 per board foot for all sizes; prices range in price based on size and wood type. Additional damage to the lumber (as much as 40 percent or more) could occur during mechanical deconstruction, decreasing the net amount of salvageable material accordingly.
Metal was estimated at a scrap value of $5.00 per 100 pounds, based on current market value; additional metal on rooftop and in Building 7D was not included.
Bricks quantity was estimated based on assumption of 25 standard bricks per square foot of wall of 14-inch average thickness.
Bricks value was estimated at $0.25 per brick if cleaned and palletized; unit price fluctuates greatly with market demands.

It was difficult to estimate lumber quantity, dimensions, and percent damage in areas where the lumber was blocked from view by equipment or could not be readily accessed for measurement (especially ceiling beams and joists) due to high ceilings. Metal pipe weight calculations were based on linear pipe estimates and do not include the various sized joints, valves, flanges, and connectors associated with piping systems; therefore, the quantity calculations for piping systems are likely conservatively low. Uncertainties in the metal inventory quantities also exist because the age or nature of the materials did not allow easy conversions into weight; for example, some materials had non-standard dimensions, or the material alloy or density could not be identified based on field observations and other available data. In some cases, assumptions were based on professional judgment, metal weight calculators, conversion factors, and other resources (see Attachment D) to determine the weight of the various metal components for the inventory.

As previously discussed, the City of Lynchburg estimated the quantity of brick, CMU, and asphalt materials included in the inventory for the Allen-Morrison and Thornhill facility buildings.

In addition to the uncertainties associated with assumptions made, the material quantities and values presented are approximate because not all dimensions and building parameters could be determined during the field survey. Certain building elements, such as unexposed sub-floors, foundations, and ceiling or roofing materials are not included in the inventory because these could not be readily observed or measured in the field. If these materials are in suitable condition for salvaging through deconstruction, overall material quantities and potential value would increase. Furthermore, the percent of damaged material not suitable for salvaging due to rotting or insect activity was assessed during the field survey based on visual observations. More or less actual damage than estimated from observations during the field inventory could decrease or increase the amount of salvageable material, particularly for lumber. Additional damage (as much as 40 percent or more) could occur during the deconstruction process, depending on the deconstructability of the buildings—further decreasing the amount of salvageable material. A preliminary feasibility assessment for deconstruction of the inventoried buildings is discussed in the next section.

Salvage Value Assumptions and Uncertainties

Potential salvage value is based on information provided by local vendors. Specifically, lumber and scrap metal value was based on information provided by Big Wood and Cycle Systems, Inc., respectively.

Metal value was calculated based on the assumption that the material would be recycled as scrap for approximately $5.00 per 100 pounds. However, if the metal material could be sold for reuse for its intended purpose (for example, as piping, machinery/equipment, or structural steel), its value could be greater than for recycling as scrap. Further evaluation of the potential reuse of equipment and machinery by local developers and their engineers, industrial representatives, or vendors would be required to fully assess potential value and feasibility for reuse, rather than recycling.

Based on information provided by Big Wood of Afton, Virginia, the type of lumber at the site is generally short leaf southern yellow pine, which has a local market value of about $0.50 to $1.00 per BF. The higher value would apply primarily to the larger timber (greater than 8-inch-width or "8x"). Smaller (8x or less) would be of lesser value. Tetra Tech observed a mix of lumber sizes on the site; therefore, an average value of $0.60/BF foot was assumed for all lumber.

Deconstruction and transportation costs are not included in the value estimates. For both lumber and metal, transportation and container costs could be significant, depending on the market and vendor location. In addition, depending on the deconstruction time frame, market fluctuations may also influence the value. For example, scrap metal value has decreased approximately 50 percent in the past year, but vendors contacted anticipate a partial market rebound within the next six months.

OBSERVATIONS AND RECOMMENDATIONS

Tetra Tech used the *"Building Deconstruction Feasibility – Preliminary Assessment"* criteria established by Guy and Williams (2004) to qualitatively assess the feasibility of deconstructing the inventoried buildings. General observations associated with these criteria for the Allen Morrison and Thornhill facilities, recommendations for material reuse on site, and specific considerations for crushing concrete and brick on site for reuse are presented below.

Deconstruction Feasibility – Allen-Morrison Facility (Buildings 1A through 1E)

- Overall Building Condition and Safety: Extensive water damage to structural timbers and other lumber, collapsed roofs, widespread vandalism throughout the Allen-Morrison buildings, and mold in the office area of Building 1B were noted. These hazardous conditions make the buildings generally difficult and unsafe to deconstruct and provide little salvageable lumber.
- Building Dimensions, Accessibility, and Complexity: These large buildings are generally single-story with gently-sloped roofs and, except for the office area of Building 1B where CMU and gypsum board walls are present, have few interior walls. However, access to two sides of the

facility is limited due to nearby residences, and the overall hazardous conditions noted above make accessibility for deconstruction difficult, complex, and unsafe.

- Entanglement: Extensive and complex fire suppression, plumbing, electrical, and mechanical systems are present. These systems can provide scrap metal value, but the extent and entanglement of these systems with the structural steel ceiling lattice would make deconstruction difficult and labor intensive in most buildings.
- Asbestos and Hazardous Materials: Potential asbestos-containing material (ACM) was noted, particularly in the floor and ceiling tiles of the Building 1B office area. Lead-based paint (LBP) may be present on interior walls. Manufacturing equipment may contain oils or paints requiring special disposal. Fluorescent light fixtures were present, possibly salvageable for scrap metal value, but the associated fluorescent lamps should be removed and disposed of as "universal waste" according to the requirements in Section 9 Virginia Administrative Code (VAC) 20-60-273.
- Materials and Salvage Potential: As noted above, extensive water damage to structural timber and other lumber, collapsed roofs, and widespread vandalism have left minimal lumber for salvage through deconstruction. However, the buildings do contain significant quantities of structural steel and other metal that could be sold for scrap. As discussed later in this report, brick and concrete could also be salvaged for reuse; however, some of the interior brick walls are coated with what may be LBP.
- Mobilization: Access is limited on the northeast and northwest due to nearby residences, but the Allen-Morrison facility buildings are located adjacent to Rutherford Street and are in a U-shaped arrangement with a large, central, open asphalt area (see Attachment A). Therefore, mobilizing and staging equipment, workers, roll-off boxes, supplies, and support facilities to the site should not be a problem, and re-mobilization for deconstruction of different buildings should not be necessary.
- Garbage: Miscellaneous trash, debris, and other materials from previous operations were present through the buildings, which could hinder access for deconstruction activities and will require disposal. As discussed later in the report, some of these materials could be removed and salvaged for reuse.
- Labor: *Lynchburg Grows* may be able to provide a local source of volunteer labor for deconstruction; deconstruction activities could also provide opportunities to create new jobs. However, building conditions and associated safety concerns limit feasible use of unskilled labor. The large size and complexity of the buildings would require more skilled labor to direct deconstruction activities and operate heavy machinery.

These observations and discussions with the City of Lynchburg led to a determination that the condition of building materials within the Allen-Morrison facility buildings rendered them generally unsuitable and probably not cost-effective for deconstruction; therefore, demolition with mechanical separation and salvage of recyclable materials (particularly scrap metal, brick, and concrete) was recommended. For this reason, Tetra Tech did not conduct a detailed deconstruction materials inventory for these buildings. However, as presented in Attachment B, brick and concrete quantities were estimated by the City of Lynchburg. In addition, as discussed below in "Recommendations for On-Site Reuse," certain building contents and other items were identified as removable (before building demolition) for on-site reuse.

Deconstruction Feasibility – Thornhill Facility (Buildings 7A through 7F)

- Overall Building Condition and Safety: Water, fire, and insect damage, and the associated collapsed roofs and questionable structural integrity (particularly in Buildings 7A, 7B, and 7C), pose safety concerns for deconstruction activities in the Thornhill facility buildings. However, as shown in Table 1 and Attachment B, the buildings contain considerable amounts of potentially salvageable lumber for sale or on-site reuse, including large (greater than 6x) timber. Although a large portion of the roof in Building 7A has collapsed, this building likely has the highest potential for successful deconstruction due to the quantity of salvageable lumber. Manually dismantling some portions of the two-story Building 7A may be possible. However, because of questionable structural integrity and associated safety concerns, a more prudent strategy may be to carefully and strategically phase mechanical dismantling of this and other Thornhill buildings using properly trained or experienced workers (especially for safe removal of the roofs), followed by mechanically and manually separating and sorting salvageable lumber and other materials. The high ceilings and water damage to the roofs in Buildings 7B, 7C, and 7E also encourage a process of mechanical deconstruction, followed by mechanically and manually separating and sorting materials. Evidence of openings and sagging was noted in visible areas of the roof of Building 7D, although the large paint booths and drying ovens in Building 7D made it difficult to assess the ceiling/roof materials and other overall building conditions; these limitations also could hinder deconstruction efforts.

- Building Dimensions, Accessibility, and Complexity: These large buildings have gently sloped roofs and are relatively simple in their construction; but high ceilings, roof damage, and other overall conditions discussed above would increase complexity of deconstruction. Interior CMU walls, painting booths, and drying ovens in Building 7D pose added complexity and limitations of accessibility to this building. The Thornhill facility buildings are accessible from the exterior on all sides.

- Entanglement: Fire suppression, plumbing, electrical, and mechanical systems are present, but they are generally visible and accessible and should not pose significant obstacles to deconstruction in most Thornhill facility buildings. However, the large painting and drying oven systems in Building 7D pose additional limitations to deconstructability; however, these systems would provide scrap metal value.

- Asbestos and Hazardous Materials: ACM may be present in roof coating materials. LBP may also be present on interior walls and structural timber, except for Building A. Manufacturing equipment may contain oils or paints requiring special disposal. Fluorescent light fixtures may be salvaged for scrap metal value, but the associated fluorescent lamps should be removed and disposed of as "universal waste" according to the requirements in Section 9 Virginia Administrative Code (VAC) 20-60-273.

- Materials and Salvage Potential: As noted in the inventory, the percent damaged timber and other lumber is very high in some buildings, but potentially salvageable lumber exists, particularly in Buildings 7A and 7E. Field-based estimates of the approximate percentage of damaged lumber in each building is as follows:

    - Building A First Floor: 35 percent
    - Building A Second Floor: 15 percent
    - Building B: 50 percent
    - Building C: 90 percent
    - Building D: Could not estimate (see above)
    - Building E: 10 percent

The lumber present is typically painted except for Building 7A; based on the age of the buildings, coating materials could include LBP. Stripping paint from smaller (1x and 2x) pieces will be less cost-effective than stripping larger (greater than 6x) timbers. Proper health and safety precautions and management must be applied for LBP materials. Large quantities of brick and concrete may also provide salvage value for sale or on-site reuse; however, interior walls are painted, possibly with LBP, except for Building 7A.

- Mobilization: The buildings to be deconstructed are adjacent to each other, readily accessible from local streets, and surrounded by ample open space for staging equipment and materials. Therefore, mobilizing equipment, workers, roll-off boxes, supplies, and support facilities to the site should not be a problem, and respective re-mobilizations for deconstructing different buildings should not be necessary.
- Garbage: Miscellaneous trash, debris, and other materials from previous operations throughout the buildings (particularly Building 7D) could hinder access for deconstruction activities; disposal of these will be necessary. As discussed later in the report, some of these materials could be removed and salvaged for reuse.
- Labor: *Lynchburg Grows* may be able to provide a local source of volunteer labor for deconstruction; deconstruction activities could also provide opportunities to create new jobs. However, building conditions and associated safety concerns may limit feasible use of unskilled labor. The large size and complexity of the buildings would require more skilled labor to direct deconstruction activities and operate heavy machinery; however, unskilled labor could be used for material sorting.

Based on these observations, the Thornhill facility buildings are more suitable for deconstruction than the Allen-Morrison facility buildings. Building 7A has the highest potential for successful deconstruction and includes the greatest salvageable lumber value. Overall deconstruction potential at Buildings 7B and 7C is similar to Building 7E, though Buildings 7B and 7C appeared to have less salvageable lumber than Building 7E. Moreover, Buildings 7B and 7C pose greater safety hazards than Building 7E because of more extensive water and other damage. Building 7D has the lowest potential for deconstruction because of its greater complexity and poorer accessibility, extensive water and other damage, greater amounts of garbage and debris, and extensive mechanical and other systems.

As noted above, manually dismantling some portions of the two-story Building 7A may be possible. However, because of questionable structural integrity and associated safety concerns, a more prudent strategy may be to carefully and strategically phase mechanical dismantling of this and other Thornhill buildings by properly trained or experienced workers (especially for safe removal of the roofs), followed by mechanically and manually separating and sorting salvageable lumber and other materials. Additional damage to the lumber (as much as 40 percent or more) could occur during mechanical deconstruction, decreasing the net amount of salvageable material accordingly.

A detailed deconstruction inventory for all Thornhill facility buildings, including brick and concrete quantities estimated by the City of Lynchburg, is in Attachment B; the inventory also lists salvageable metal associated with the large exterior drying unit on the east side of the Thornhill facility. In addition, as discussed below in "Recommendations for On-Site Reuse," certain building contents and other items that could be removed for on-site reuse before building demolition are identified. The City of Lynchburg expressed interest in reusing some materials for redevelopment, where the historic nature of site operations might be expressed through such items.

Recommendations for On-Site Reuse

As discussed above and shown in Table 1, materials such as lumber and scrap metal could be salvaged for profit. However, the following recommendations for reusing lumber and other materials on site as part of the redevelopment should also be considered:

- Lumber: As noted above, lumber in the Thornhill buildings could be sold for salvage for about $0.60/BF. However, on-site reuse of this material as part of redevelopment efforts will promote sustainability aspects of the project and highlight the site's architectural heritage. In particular, a portion of the large (6x or greater) timbers should be considered for reuse in the redevelopment to carry on the site history and character (see Photograph No. 1). Attachment B provides the complete inventory of lumber for potential reuse in the Thornhill facility.

  A complete inventory of salvageable lumber and other materials was not conducted for the Allen-Morrison facility buildings. However, during the site walk-through, Tetra Tech noted about 20 15-foot-long, 8x8 timber columns in Allen-Morrison Building 1C that may be reusable in the redevelopment; these columns were painted.

  Milling and reuse of the lumber in an on-site artist studio or carpentry/furniture shop, which could be included as part of the redevelopment, would provide additional job opportunities and may generate additional income for the project or *Lynchburg Grows*. Smaller (less than 6x) lumber, of less value on the salvage market than larger timbers, would be best used for the shops or on-site reuse and milling. Lumber with no salvage value or architectural reuse potential, including lumber segregated from demolition of the Allen-Morrison facility buildings, could be used for on-site landscaping, including garden boxes or vegetable bed borders, or shredded for use as mulch.
- Concrete: According to the site layout in Attachment A, the Allen-Morrison and Thornhill facility buildings contain approximately 87,500 and 86,400 sf, respectively, of concrete foundation. An additional 3,200 sf of concrete is present at the Thornhill site as elevated walkway/docks on the south side of the building. Assuming the concrete is 4 inches thick, at least approximately 59,000 CF of concrete is present at the site; a concrete assessment that includes core samples is recommended to determine foundation thickness. Additional concrete not included in the estimate may be present as walkways, pilings, and foundation elements. The concrete could be segregated and crushed, if necessary, for reuse on site as rip-rap, aggregate, fill, or sub-base for roads, sidewalks, or walking trails. Unexposed sub-floors and foundations that could not be readily observed or measured in the field are not included in the inventory and could significantly increase the quantity of this material available for reuse. Due to the large estimated

quantity of concrete at the Allen-Morrison site, on-site crushing by a portable crusher should be considered. However, this quantity of concrete is likely more than could be used on site; therefore, use of this material for off-site use in other city projects should be considered as allowable, per local regulations. Other considerations for crushing concrete and brick on site for reuse are discussed in the next section.

- Brick: According to the City of Lynchburg's inventory, approximately 35,000 CF of unpainted and 34,200 CF of painted bricks are at the site. The individual bricks could be salvaged if the walls would be carefully deconstructed and the bricks segregated. If carefully deconstructed, cleaned, and palletized, the bricks could be sold for reuse. The value depends on market demands, but could range from $.15 per brick to $.40 per brick; an average value of $0.25 per brick was assumed for the purposes of the materials inventory

  Where structurally appropriate, the brick could also be reused as part of the on-site redevelopment to recreate the historic architectural masonry of the site or as retaining walls or other decorative structures; it may be possible to leave a portion or entire wall of the Thornhill buildings intact as a backdrop for a small outdoor theatre or other aspect of the redevelopment. If carefully deconstructed, cleaned, and palletized, the bricks could be sold for reuse. The manual labor required to segregate, clean, and palletize individual bricks for reuse (reusing on-site pallets as discussed below) could create low-skilled jobs or volunteer opportunities for *Lynchburg Grows* or the local community. Bricks that cannot be reused on site could also be crushed for reuse on site as material for roads, sidewalks, or walking trails. Considerations for crushing concrete and brick on site for reuse are discussed in the next section.

  Prior to deconstruction, painted brick should be tested to determine if it contains lead; relatively inexpensive field test kits would serve for a preliminary determination. If LBP is present, the bricks will require proper handling and disposal, and should not be subjected to crushing or reuse on site. Crushing brick containing LBP may release leaded particulates into the air during crushing or render the LBP friable. Particulates that contain lead and friable LBP could pose a health hazard to site construction workers and end users.

  If the painted bricks are not covered with LBP, they could be reused or crushed on site. However, the painted surfaces may not be aesthetically desirable for the redevelopment project. Another option for the painted bricks would be to use power cutting equipment and slice off the painted face of the brick. The painted portion would be disposed of, while the unpainted portion could be used for nonstructural aspects of the project. Optionally, the unpainted portions could be crushed for reuse. Slicing the bricks could create low-skilled jobs or volunteer opportunities for the local community.

- Concrete Masonry Units (CMU): According to the City of Lynchburg's inventory, approximately 900 CF of unpainted and 7,500 CF of painted CMUs are at the site. The individual CMUs could be salvaged for reuse if the walls are carefully deconstructed and the CMUs segregated for reuse.

  Where structurally appropriate, the CMUs could also be reused as part of the on-site redevelopment. The manual labor required to segregate, clean, and palletize the CMUs for reuse could create low-skilled jobs or volunteer opportunities for the local community. CMUs that cannot be reused on site could also be crushed for reuse on site as material for roads, sidewalks, landscaping features, or walking trails. Painted CMUs should be tested for lead content prior to deconstruction.

  If LBP is present, the CMUs will require proper handling and disposal, and should not be subjected to crushing or reuse on site. Crushing CMUs containing LBP may release leaded

particulates into the air during crushing or render the LBP friable. Particulates containing lead and friable LBP would pose a health hazard to site construction workers and end users.

- Asphalt: Field measurements indicate that about 5,300 square yards of asphalt are present around and between the Allen-Morrison and Thornhill facility buildings. Asphalt can be salvaged and ground for reuse in asphalt or as sub-base materials.
- Sliding Doors: Several large sliding tracked, wooden doors—some with a counterweight or a visually interesting pressed metal (likely tin) finish—could be reused in the redevelopment rather than salvaged for lumber and metal of relatively little value (see Photograph No. 2). Sliding doors and their approximate dimensions and locations are as follows:

    - One 7- x 12-foot (ft) door – Thornhill Building 7A (upstairs)
    - One 12- x 13-ft door – Thornhill Building 7C
    - One 5- x 8-ft door – Thornhill Building 7D
    - One 5- x 8-ft door – Thornhill Building 7E
    - Three 8- x 8.5-ft doors – Thornhill Building 7E
    - Two 5- by 10-ft doors – Allen-Morrison Building 1A
    - Two 7.5- x 13-foot doors – Between Allen-Morrison Buildings 1A and 1C
    - Two 4- by 8-ft doors – between Allen-Morrison Buildings 1C and 1E
    - One 5- by 7-ft door – Allen-Morrison Building 1C
    - One 8- by 8-ft door – Allen-Morrison Building 1D
    - One 8- by 12-ft door (with person door inset) – between Allen-Morrison Buildings 1C and 1E

  Refinishing these doors and incorporating them into the redevelopment project would highlight the site's architectural and industrial heritage.

- Tanks and Paint Mixing Vessels: Several large, steel, boiler tanks and paint mixing vessels could be sold as scrap metal (see Photographs No. 3 and 4). However, the tanks could also be reused on site as cisterns to collect rainwater for irrigating a community garden at the site, irrigating general site landscaping, or supplying water for other gray water applications. This reuse would allow for more sustainable operation of the facility, reduce site operating costs, and provide an opportunity for public interpretation of these sustainable practices. The tanks could also be used by local artists as material for sculptures or other artwork. Properly cleaning the tanks, particularly the paint mixing vessels, would be required before reuse.
- Skylights: About 12 approximately 8- by 12-ft, glass, peaked skylights are located on the roof of the Allen-Morrison facility (see Photograph No. 5). If these features can be carefully removed despite the roof damage in these buildings, they could be reused in the development to highlight the architectural and industrial heritage of the site, or possibly as part of greenhouse structures for *Lynchburg Grows*.
- Sprinkler System and Plates: The sprinkler or fire suppression system piping in both the Thornhill and Allen-Morrison facilities can be salvaged for scrap metal value. However, certain interesting features such as valves and manufacturer or other system identification plates (see Photograph No. 6) could be refinished and reused decoratively in the redevelopment project and to interpret the site history. Of particular interest could be a circa 1911 plate in Thornhill Building 7C.
- Silk Screens and Frames: More than 400 wooden silk screen frames of various sizes are located in Thornhill Building 7D, many with silk screens still in place; Attachment B includes a complete inventory of these frames (see Photograph No. 7). The silk screens and frames could be restored

and incorporated as artwork or other uses to highlight the industrial heritage of the site. The wooden frames could also be restored by local artists for their use. Insect- or water-damaged wooden frames that cannot be restored could be shredded for mulch.

- Sheet Metal Signs: Sheet metal signs apparently manufactured by Allen-Morrison were located in Thornhill Building 7C and Allen-Morrison Building 1E (see Photograph No. 8). These signs could be displayed in the redevelopment to highlight the industrial heritage of the site.
- Mylar Sign Design Drawings: A rack containing dozens of mylar sign design drawings was located in Allen-Morrison Building 1C (see Photograph No. 9). These drawings could be restored and framed for reuse as artwork or other display in the redevelopment to highlight the industrial heritage of the site.
- Cardboard Boxes: About 40 pallets of cardboard boxes of various sizes were located on the second story of Thornhill Building 7A. These boxes could be used to store or package for sale goods, artwork, or groceries produced by *Lynchburg Grows*, the local farmer's market, or other local volunteer organizations or small businesses.
- Wooden Pallets: About 50 empty wooden pallets were located on the second story of Thornhill Building 7A. The pallets could be used by *Lynchburg Grows*, the local farmer's market, or other local volunteer organizations or small businesses or to palletize salvaged bricks for reuse or resale.
- Shelving Units, Tables, and Drying Rack: Several wooden or steel shelving racks and tables located throughout the site could be refurbished, if necessary, for reuse by Lynchburg Grows or other local businesses or volunteer organizations (see Photographs No. 10 and 11). Of particular interest may be the wooden mailbox and parts storage shelving units in Thornhill Building 7E and Allen-Morrison Building 7C. Larger, heavier duty steel shelving or drying racks, such as those located in Thornhill Buildings 7A and 7E, could be used at the site to store lumber (or other materials) prior to reuse.
- Wheeled Hoist System and Equipment: An interesting wheeled hoist system and piece of wheeled equipment were located on the second floor of Thornhill Building 7A and in Allen-Morrison Building 1A, respectively (see Photograph No. 12). This hoist system could be repaired for reuse, or this system and the wheeled equipment refurbished as vintage pieces of equipment for display to highlight the industrial heritage of the site.
- Other Mechanical Equipment and Machinery: Although most mechanical systems and associated equipment remaining at the site may be best recycled for scrap metal value, certain equipment could be salvaged for resale or reuse in the redevelopment. In the Thornhill facility buildings, this equipment included large industrial fans in Buildings 7C and 7E, a mechanical press in Building 7B, and rooftop wind turbines. An array of conveyors and painting, coating, and drying equipment is also located in Building 7D. In the Allen-Morrison facility buildings, a more extensive array of conveyors and painting, coating, and drying equipment was located in Building 1A, and large individual machinery pieces were located in Buildings 1C and 1D. As noted earlier, further evaluation of the potential reuse of this equipment and machinery by local developers and their engineers, industrial representatives, or vendors would be required to fully assess potential value and feasibility for reuse.

The information gathered as part of this inventory can be used for determining whether building materials should be salvaged for re-sale, on-site reuses, or off-site disposal. Based on discussions with local vendors, off-site disposal and transportation costs may range in price from $35 to $63 per

ton of material, depending on the level of transportation and other support needed for removal. In addition, any wood waste taken to the landfill can be ground into mulch at the landfill; the chips could be used by the City's LEAF program for highway landscaping and by the landfill for alternative daily cover. Local landfill tipping fees for construction and demolition waste disposal would be about $35 per ton for nonhazardous materials and debris.

Based on discussions with the pilot project partners, Tetra Tech recommends that the decision to reuse, dispose of, or sell deconstructed materials should not be regarded as a simple cost-benefit analysis for this site. Potential benefits of deconstruction and materials reuse to consider include the following:

- Diverting waste from landfills
- Salvaging materials for recycling or resale value
- Salvaging materials for reuse on the and other City projects, thus reducing the costs of those projects
- Salvaging materials for community reuse or resale, especially *Lynchburg Grows* or the local community market
- Achieving carbon savings (for example, using salvaged instead of new lumber, and minimizing unnecessary transportation of materials to landfills)
- Preserving cultural and industrial heritage of the site, thus creating a greater sense of community pride and understanding
- Promoting sustainability aspects of the redevelopment project
- Creating low-skilled jobs or volunteer opportunities.

Items intended for salvage or on-site reuse should be identified in the deconstruction bid package specifications for consideration in the deconstruction contractor's waste management plan.

Considerations for Crushing Concrete and Brick on Site for Reuse

Due to the large estimated quantity of concrete and brick at the Allen-Morrison site, on-site crushing using a portable crusher would likely be feasible and cost effective. Approximate costs, based on discussions with local vendors, as well as other considerations for crushing concrete on site for reuse are discussed below.

Assuming a portable, 60-inch-jaw crushing unit, crushed material of 4-inch size or smaller can be produced. Outputs can average about 900 tons of concrete per day. This rate assumes the material is

stockpiled and broken into manageable sizes prior to crusher loading. Because on-site stockpiling and breakage of the large pieces would be required regardless of the concrete disposition, costs associated with excavating, breaking, and stockpiling concrete are not included in the cost information provided below. Rebar would be salvaged and can be transported off site as scrap metal. An approximately 100- by 100-ft area would be required for a portable crusher.

The mobilization and setup costs for a portable crusher would be about $2,000. Operation fees would be $150,000 per month, including labor. At a rate of 900 tons per day, a total of 18,000 tons of concrete can be crushed per month. Based on the estimated volume of concrete at the site and 1.5 tons of concrete per cubic foot, at least 43,500 tons of concrete could be generated from the Allen-Morris facility buildings area and 45,000 tons from the Thornhill facility buildings area—totaling 88,500 tons of concrete to be crushed. A rate of 18,000 tons per month would entail about 5 months of on-site crusher operation. Thus, assuming all available concrete is crushed on site, the total cost would be about $752,000 or about $8.50 per ton.

Off-site crushing would cost approximately $20 per ton to transport off site and crush at a concrete recycling facility. Therefore, 88,500 tons of concrete would cost about $1,770,000 to transport and crush off site. If concrete is crushed off site, additional costs would be incurred by the City of Lynchburg for purchase and import of materials for site redevelopment, such as backfill, rip-rap, and base course. If redevelopment requires less crushed concrete than the concrete generated at the Allen-Morrison site, the excess could be sold for additional revenue or used on other projects. Local vendors indicate that the market rate for crushed concrete is $113.25 per cubic yard, or about $170 per ton. Crushed concrete could be staged at the site for future use on this or other City projects. Based on the volume of concrete assumed at the site, on-site crushing is a cost-effective option and would provide materials for reuse during site redevelopment or other City projects—saving costs for the City. Moreover, if excess materials produced are not required for the City's needs, the excess may be sold to area consumers, generating additional revenue. However, possible restrictions in local regulations or ordinances regarding concrete use at other sites should be considered, and may limit this option. Other considerations include the following:

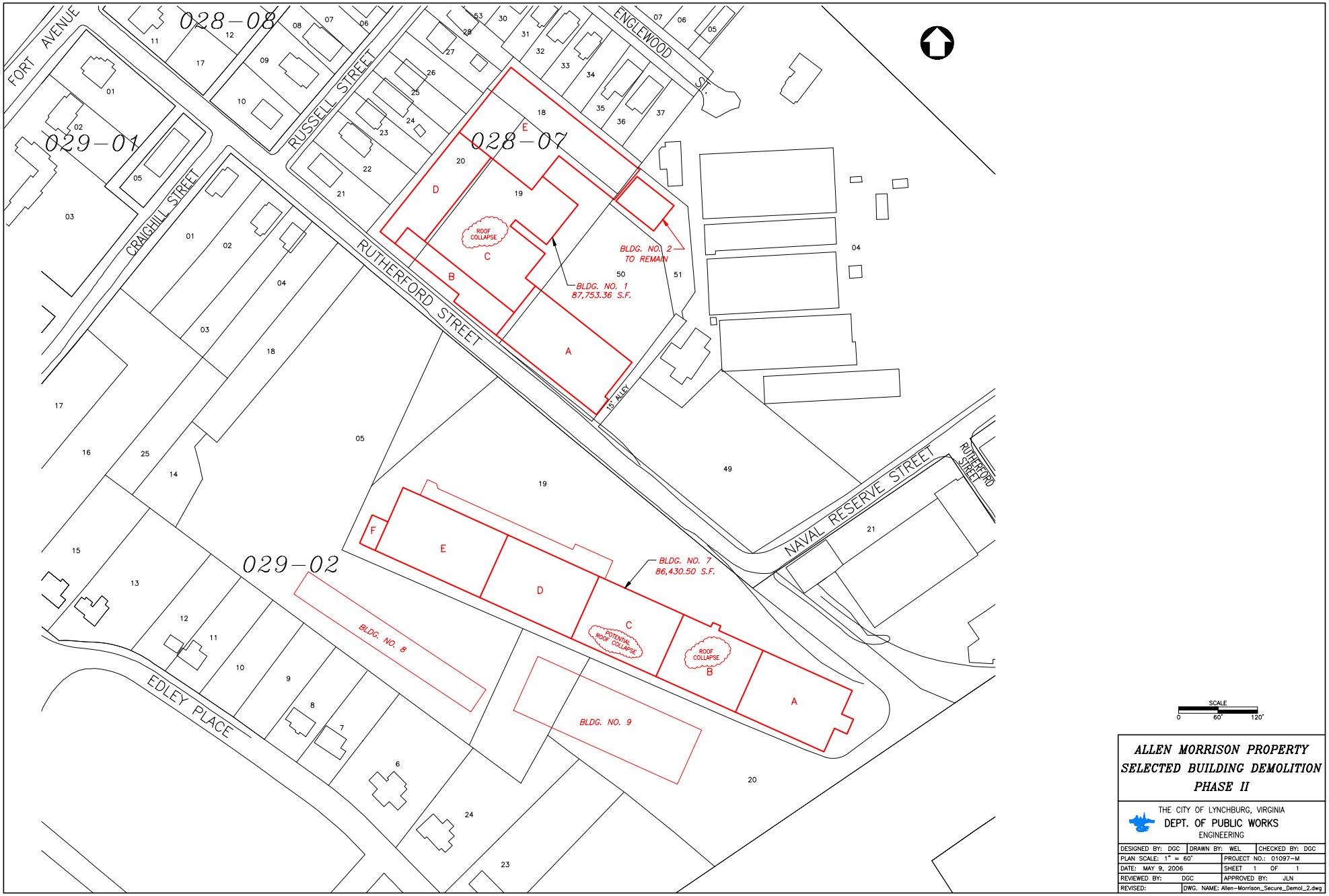
- Costs will vary based on the market value at the time of the project initiation.
- Concrete should be analyzed for contaminants, such as heavy metals, prior to site work based on ultimate disposition and associated acceptance criteria.

- Bid estimates should be obtained from local contractors for both options—on-site crushing and off-site recycling.
- On-site crushing would require mobilization and setup of heavy equipment at the site, for which local permits would be required for air particulate discharge and for construction and operation of concrete crushing equipment.
- The work may generate dust and noise which could be a nuisance to adjacent residents; therefore, siting and operation of the equipment should be downwind and as far from local residences as possible; hours of operation should also be limited based on permit restrictions and local resident concerns.

As discussed earlier, approximately 35,000 CF of unpainted bricks and 900 CF of unpainted CMUs are also at the site. Similar costs, processing rates, and other assumptions should be considered for managing brick and CMU that cannot be salvaged for reuse.

ATTACHMENT A

SITE LAYOUT



C:\DWGS\AllenMorrison-DWGS\Allen-Morrison_Secure_Demol_2.dwg 10/31/2008 - 10:08am LAYOUT TAB "Demol_SecureBuildings (PDF)"

ALLEN MORRISON PROPERTY
SELECTED BUILDING DEMOLITION
PHASE II

THE CITY OF LYNCHBURG, VIRGINIA
DEPT. OF PUBLIC WORKS
ENGINEERING

DESIGNED BY: DGC	DRAWN BY: WEL	CHECKED BY: DGC
PLAN SCALE: 1" = 60'		PROJECT NO.: 01097-M
DATE: MAY 9, 2006		SHEET 1 OF 1
REVIEWED BY: DGC		APPROVED BY: JLN
REVISED:	DWG. NAME: Allen-Morrison_Secure_Demol_2.dwg	

ATTACHMENT B

DECONSTRUCTION INVENTORY
ALLEN-MORRISON SITE, LYNCHBURG, VIRGINIA

Deconstruction Inventory
Allen-Morrison Facility, Lynchburg, VA
Thornhill Building 7-A: 1st and 2nd Floor

Item No.	Building Material			Quantity				Reuse, Salvage, Disposal Options		Potential Value[2]	Regulatory Considerations
	Material	Elements	Dimensions	Estimated Quantity	Estimated Percent Damage[1]	Estimated Quantity for Reuse or Salvage	Units	Description/ Condition	Options		
1	Lumber	Support structure columns	8"x8"x10.5'	5040	15%	4280	BF	Mostly good condition, approximately bottom foot of most columns have water damage, some are painted	Sell for salvage, on-site reuse	$2,570	None identified
2	Lumber	Floor Decking	1"x7"	15350	35%	9980	BF	Mostly good condition, some insect and water damage	Sell for salvage, on-site reuse	$5,990	None identified
3	Lumber	Wall materials, knotty pine wood planks	various wall dimensions	1660	0%	1660	sf	Good condition, located in office area	Sell for salvage, on-site reuse	$990	None identified
4	Lumber - tongue and groove	Ceiling deck	3"x6"	92080	35%	59850	BF	Unpainted, mostly good condition, some water damage	Sell for salvage, on-site reuse	$35,910	None identified
5	Lumber - timber	Shorter Ceiling Joists	6"x8"x4'	2510	15%	2140	BF	Some painted, mostly good condition, some water damage	Sell for salvage, on-site reuse	$1,280	Possible LBP
6	Lumber - timber	Long ceiling joists (run width of building)	6"x8"x103'	14010	15%	11910	BF	Unpainted, mostly good condition, some water damage	Sell for salvage, on-site reuse	$7,140	None identified
7	Lumber - timber	Support structure columns	6"x6"; varying heights (108", 128", 144")	2690	15%	2280	BF	Mostly good condition, some having painted spots	Sell for salvage, on-site reuse	$1,370	None identified
8	Metal - cast iron	Sprinkler system piping	2" diameter	1960	0%	1960	ft	Mostly good condition with some rusting	Sell for scrap metal value	$220	None identified
9	Metal - cast iron	Sprinkler system piping	6" diameter	250	0%	250	ft	Mostly good condition, with some rusting	Sell for scrap metal value	$150	None identified
12	Metal - cast iron	Sprinkler system piping	2" diameter	1960	0%	1960	ft	Mostly good condition, with some rusting	Sell for scrap metal value	$220	None identified
13	Metal - cast iron	Sprinkler system piping	3" diameter	300	0%	300	ft	Mostly, good condition with some rusting	Sell for scrap metal value	$80	None identified
14	Metal - steel	I beam	16"x15' (long)	50	0%	50	ft	Mostly good condition with some rusting	Sell for scrap metal value, sell for reuse	$90	None identified
15	Metal - steel	9" Channel Beam	9" x10.5' (long)	130	0%	130	ft	Mostly good condition with some rusting	Sell for scrap metal value, sell for reuse	$100	None identified

Notes:

[1] "Estimated Percent Damage" provided for salvagable materials (lumber, brick, etc.) only. Based on field observations where possible.

[2] Lumber value was estimated by an average of $0.60 per board foot for all sizes
Metal values are based on an estimate of $5.00 per 100 lbs

BF Board feet
LBP Lead-based paint
SF Square feet
ft Linear feet

Deconstruction Inventory
Allen-Morrison Facility, Lynchburg VA
Thornhill Building 7-B

Item No.	Building Material			Quantity				Reuse, Salvage, Disposal Options		Potential Value[2]	Regulatory Considerations
	Material	Elements	Dimensions	Estimated Quantity	Estimated Percent Damage[1]	Estimated Quantity for Reuse or Salvage	Units	Description/ Condition	Options		
1	Lumber - timber	Support structure columns	8"x8"x11'	940	0%	940	BF	painted, good condition	Sell for salvage, on-site reuse	$560	Possible LBP
2	Lumber - timber	Roof support structure beams	6"x8"x103'	4940	0%	4940	BF	painted	Sell for salvage, on-site reuse	$2,970	Possible LBP
3	Lumber - timber	Roof support structure beams	6"x8"x28'	1340	0%	1340	BF	painted	Sell for salvage, on-site reuse	$810	Possible LBP
4	Lumber - timber	Roof support structure beams	6"x6"x6'	430	0%	430	BF	painted	Sell for salvage, on-site reuse	$260	Possible LBP
5	Lumber - timber	Roof support structure beams	6"x6"x10'	720	0%	720	BF	painted	Sell for salvage, on-site reuse	$430	Possible LBP
6	Lumber - timber	Roof support structure ceiling joist	6"x8"x8'	770	0%	770	BF	painted	Sell for salvage, on-site reuse	$460	Possible LBP
7	Lumber - timber	Roof support structure	2"x6"x10'	950	0%	950	BF	painted	Sell for salvage, on-site reuse	$570	Possible LBP
8	Lumber - timber	Roof support structure partial beams	8"x8"x5'	650	0%	650	BF	painted	Sell for salvage, on-site reuse	$390	Possible LBP
9	Lumber - timber	Roof support structure partial beams	8"x8"x7'	890	0%	890	BF	painted	Sell for salvage, on-site reuse	$530	Possible LBP
10	Lumber - tongue and groove	Ceiling materials	2"x8"	27190	50%	13600	BF	painted, most wood has chipped paint and water damage	Sell for salvage, on-site reuse	$8,160	Possible LBP
11	Metal - cast iron	Sprinkler system piping	2" diameter	1750	0%	1750	ft	mostly good condition, some rusting	Sell for scrap metal value	$240	
12	Metal - cast iron	Sprinkler system piping	3" diameter	260	0%	260	ft	mostly good condition, some rusting	Sell for scrap metal value	$90	
13	Metal - steel	9" Channel beam	9"x11'	350	0%	350	ft	painted	Sell for scrap metal value, sell for reuse	$260	
14	Metal - steel	15"Channel beam	15"	1060	0%	1060	ft	painted	Sell for scrap metal value, sell for reuse	$2,120	

Notes:

[1] "Estimated Percent Damage" provided for salvagable materials (lumber, brick, etc.) only. Based on field observations where possible.

[2] Lumber value was estimated by an average of $0.60 per board foot for all sizes
Metal values are based on an estimate of $5.00 per 100 lbs

BF Board feet

LBP Lead-based paint

ft Linear feet

Deconstruction Inventory
Allen-Morrison Facility, Lynchburg, VA
Thornhill Building 7-C

Item No.	Building Material			Quantity				Reuse, Salvage, Disposal Options		Potential Value[2]	Regulatory Considerations
	Material	Elements	Dimensions	Estimated Quantity	Estimated Percent Damage[1]	Estimated Quantity for Reuse or Salvage	Units	Description/ Condition	Options		
1	Lumber - timber	Support structure columns	8"x8"x18'	1540	0%	1540	BF	painted and chipped	Sell for salvage, on-site reuse	$920	Possible LBP
2	Lumber - timber	Roof support structure beams	8"x8"x5'	530	0%	530	BF	painted and chipped	Sell for salvage, on-site reuse	$320	Possible LBP
3	Lumber - timber	Roof support structure beams	6"x8"x103'	5760	50%	2880	BF	painted and chipped	Sell for salvage, on-site reuse	$1,730	Possible LBP
4	Lumber - timber	Roof support structure beams	6"x8"x28'	1570	0%	1570	BF	painted and chipped	Sell for salvage, on-site reuse	$940	Possible LBP
5	Lumber - timber	Roof support structure beams	6"x6"x6'	500	0%	500	BF	painted and chipped	Sell for salvage, on-site reuse	$300	Possible LBP
6	Lumber - timber	Roof support structure beams	6"x6"x10'	840	0%	840	BF	painted and chipped	Sell for salvage, on-site reuse	$500	Possible LBP
7	Lumber - timber	Ceiling joist	6"x8"x4'	130	50%	60	BF	poor condition, water damage	Sell for salvage, on-site reuse	$40	Possible LBP
8	Lumber - tongue and groove	Ceiling deck materials	2"x8"	31310	90%	3130	BF	poor condition, water damage	Sell for salvage, on-site reuse	$1,880	Possible LBP
9	Metal - steel	9" Channel beam	9"x18'	580	0%	580	ft	painted and chipped	Sell for scrap metal value, sell for reuse	$440	
10	Metal - steel	15" Channel beam	15"	1060	0%	1060	ft	painted and chipped	Sell for scrap metal value, sell for reuse	$2,120	
11	Metal - steel	12"Channel beam in roof structure	12"	80	0%	80	ft	painted and chipped	Sell for scrap metal value, sell for reuse	$100	
12	Metal - steel	Channel beam	9"	30	0%	30	ft	painted and chipped	Sell for scrap metal value, sell for reuse	$20	
13	Metal - steel	Flooring Decking 1/8" plates	141'x103'	14520	0%	14520	SF	rusted	Sell for scrap metal value	$4,470	

Notes:

[1] "Estimated Percent Damage" provided for salvagable materials (lumber, brick, etc.) only. Based on field observations where possible.

[2] Lumber value was estimated by an average of $0.60 per board foot for all sizes
Metal values are based on an estimate of $5.00 per 100 lbs

BF Board feet
LBP Lead-based paint
SF Square feet
ft Linear feet

Deconstruction Inventory
Allen-Morrison Facility, Lynchburg, VA
Thornhill Building 7-D

Item No.	Building Material			Quantity		Reuse, Salvage, Disposal Options		Potential Value[1]	Regulatory Considerations
	Material	Elements	Dimensions	Estimated Quantity	Quantity Units	Description/ Condition	Options		
1	CMU	walls	various dimensions; CMU-8"x8"x16"	27410	CY	Painted	Disposal, reuse onsite		Possible LBP
6	Lumber	wooden frame for silk screen (2"x4")	54"x84"	45	ea	some insect and water damage	Reuse on site		
8	Lumber	wooden frame for silk screen (1.5"x3.25")	40"x54"	122	ea	some insect and water damage	Reuse on site		
10	Lumber	wooden frame for silk screen (1.5"x3.25")	54"x64"	112	ea	some insect and water damage	Reuse on site		
11	Lumber	wooden frame for silk screen (1.75"x5.75")	60"x123"	26	ea	some insect and water damage	Reuse on site		
13	Lumber	wooden frame for silk screen (1.75"x5.75")	72"x95"	6	ea	some insect and water damage	Reuse on site		
14	Lumber	wooden frame for silk screen (1.5"x3.5")	65"x75"	35	ea	some insect and water damage	Reuse on site		
16	Lumber	wooden frame for silk screen (1.5"x5")	70"x152"	35	ea	some insect and water damage	Reuse on site		
18	Lumber	wooden frame for silk screen (1.75"x5.5")	70"x118"	32	ea	some insect and water damage	Reuse on site		
2	Metal	paint mix canisters	42"x28"x0.5"	6	ea	Used, paint residue	Sell for scrap metal value, sell for reuse	$210	Possible LBP
3	Metal	paint mix canisters	32"x16"x0.5"	2	ea	Used, paint residue	Sell for scrap metal value, sell for reuse	$30	Possible LBP
4	Metal	paint mix canisters	36"x24"x0.5"	1	ea	Used, paint residue	Sell for scrap metal value, sell for reuse	$30	Possible LBP
20	Metal	large boiler tank	7' diameter; 17.5' length	1	SF	Used	Sell for scrap metal value	$240	Possible decon
21	Metal	small tank	42" diameter; 72" length	1	SF	Used	Sell for scrap metal value	$45	Possible decon

Notes:

[1] Lumber value was estimated by an average of $0.60 per board foot for all sizes
Metal values are based on an estimate of $5.00 per 100 lbs

LBP Lead-based paint
CY Cubic yard
SF Square feet
ea Each

Deconstruction Inventory
Allen-Morrison Facility, Lynchburg, VA
Thornhill Building 7-E

Item No.	Building Materials			Quantity				Reuse, Salvage, Disposal Options		Potential Value[2]	Regulatory Considerations
	Material	Elements	Dimensions	Estimated Quantity	Estimated Percent Damage[1]	Estimated Quantity for Reuse or Salvage	Units	Description/ Condition	Options		
1	Lumber	roof support structure joist	6"x8"x8'	960	0%	960	BF	mostly good condition, painted	Sell for salvage, on-site reuse	$580	Possible LBP
2	Lumber - timber	roof support structure columns	8"x8"x11'	1180	0%	1180	BF	mostly good condition, painted	Sell for salvage, on-site reuse	$710	Possible LBP
3	Lumber - timber	roof support structure beams	6"x8"x104'	6240	0%	6240	BF	mostly good condition, painted	Sell for salvage, on-site reuse	$3,740	Possible LBP
4	Lumber - timber	roof support structure beams	6"x8"x28'	1680	0%	1680	BF	mostly good condition, painted	Sell for salvage, on-site reuse	$1,010	Possible LBP
5	Lumber - timber	roof support structure beams	6"x6"x6'	900	0%	900	BF	mostly good condition, painted	Sell for salvage, on-site reuse	$540	Possible LBP
6	Lumber - timber	roof support structure beams	6"x6"x10'	540	0%	540	BF	mostly good condition, painted	Sell for salvage, on-site reuse	$320	Possible LBP
7	Lumber - timber	roof support structure beams	2"x6"x10'	1185	0%	1185	BF	mostly good condition, painted	Sell for salvage, on-site reuse	$710	Possible LBP
8	Lumber - timber	roof support structure beams	8"x8"x5'	810	0%	810	BF	mostly good conditon, painted	Sell for salvage, on-site reuse	$490	Possible LBP
9	Lumber - timber	roof support structure beams	8"x8"x7'	1110	0%	1110	BF	mostly good condition, painted	Sell for salvage, on-site reuse	$670	Possible LBP
10	Lumber - tongue and groove	ceiling deck	2"x8"	36400	10%	32760	BF	mostly good condition; no holes or sagging but some paint flaking	Sell for salvage, on-site reuse	$19,660	Possible LBP
11	Metal - steel	channel beams	9"x11'	440	0%	440	ft	painted with some flaking	Sell for scrap metal value, sell for reuse	$330	
12	Metal - steel	channel beams	15"	1400	0%	1400	ft	painted with some flaking	Sell for scrap metal value, sell for reuse	$2,800	
13	Metal - steel	flooring plates	20'x20'	2400	0%	2400	SF	worn and rusted	Sell for scrap metal value	$2,450	

Notes:
[1] "Estimated Percent Damage" provided for salvagable materials (lumber, brick, etc.) only. Based on field observations where possible.
[2] Lumber value was estimated by an average of $0.60 per board foot for all sizes
Metal values are based on an estimate of $5.00 per 100 lbs
BF Board feet
LBP Lead-based paint
SF Square feet
ft Linear feet

Deconstruction Inventory
Allen-Morrison Facility, Lynchburg, VA
Thornhill Exterior Area

Item No.	Building Material			Quantity				Condition and Value Estimate		Potential Value
	Material	Elements	Dimensions	Estimated Quantity	Estimated Percent Damage[1]	Estimated Quantity for Reuse or Salvage	Units	Description/ Condition	Options	
1	Concrete	Outside Loading ramp	9"x69"x275'	40	0%	40	CY	decent condition, intact, some discoloring	Disposal, on-site reuse	
2	Concrete	Outside loading ramp	9"x69"x350'	60	0%	60	CY	decent condition, intact, some discoloring	Disposal, on-site reuse	
3	Concrete	Outside loading ramp(short ramp)	9"x69"x65'	10	0%	10	CY	decent condition, intact, some discoloring	Disposal, on-site reuse	
4	Concrete	columns supporting all loading ramps	1'x1'x35"	10	0%	10	CY	decent condition, intact, some discoloring	Disposal, on-site reuse	
5	Metal - steel	drying rack support I beams	10"	790	0%	790	feet	decent condition, some rusting	Sell for scrap metal value	$1,940
6	Metal - steel	drying rack support poles	4" diameter; 17' long	340	0%	340	feet	decent condition, some rusting	Sell for scrap metal value	$170
7	Metal - steel	drying rack support poles (criss-cross)	3" diameter; varying lengths (13'-20')-avg about 15'	840	0%	840	feet	decent condition, some rusting	Sell for scrap metal value	$310
8	Metal - steel	large drying rack	5590 SF	5590	0%	5590	SF	decent condition, some rusting	Sell for scrap metal value	$1,200

Notes:

[1] "Estimated Percent Damage" provided for salvagable materials (lumber, brick, etc.) only. Based on field observations where possible.

[2] Metal values are based on an estimate of $5.00 per 100 lbs

LBP Lead-based paint

CY Cubic yard

SF Square feet

ft Linear feet

Deconstruction Inventory
Allen-Morrison Facility
Lynchburg, VA

Item No.	Building Materials				Quantity			Reuse, Salvage, Disposal Options		Estimate of Cost or Income Value	Regulatory Considerations
	Area	Elements	Material	Dimensions	Estimated Quantity	Estimated Percent Unpainted(Whole Bricks)	Estimated ft³ of Unpainted Material	Description/ Condition	Options	$$	Issues
1	Warehouse 4	wall materials	Lumber	2" x 7", 8 to 11' lengths	84.5 board ft			Unpainted, good condition, 5% damaged	Resale, reuse on site	To be determined with vendors	None
2	TH_1N	wall materials	**Brick**	154' x 20.8' (avg), 14" to 18.5" thick	**3557 ft³**	**100%**	**3557 ft³**	Unpainted, good condition	Resale, reuse on site	To be determined with vendors	None
3	TH_1E	wall materials	**Brick**	100' x 26.5' (avg), 14" to 18.5" thick	**2954 ft³**	**25%**	**739 ft³**	Bottom half of inside wall painted	Resale, reuse on site	To be determined with vendors	Possibly Lead-based paint
4	TH_1S	wall materials	**Brick**	154' x 20.8' (avg), 14" to 18.5" thick	**3407 ft³**	**100%**	**3407 ft³**	Unpainted, good condition	Resale, reuse on site	To be determined with vendors	None
5	TH_1W	wall materials	**Brick**	100' x 26.5' (avg), 14" to 18.5" thick	**3068 ft³**	**50%**	**1534 ft³**	West side of wall painted, good condition	Resale, reuse on site	To be determined with vendors	Possibly Lead-based paint
6	TH_2N	wall materials	**Brick**	132' x 15.5', 9" to 18" thick	**1081 ft³**	**50%**	**541 ft³**	Inside of wall painted, good condition	Resale, reuse on site	To be determined with vendors	Possibly Lead-based paint
			CMU	12' x 8' bumpout, 10.2' tall (avg)	**213 ft³**	**100%**	**213 ft³**	Unpainted, perfect condition	Resale, reuse on site	To be determined with vendors	None
7	TH_2S	wall materials	**Brick**	129' x 115.5', 9" to 18" thick	**1893 ft³**	**50%**	**947 ft³**	Inside of wall painted, good condition	Resale, reuse on site	To be determined with vendors	Possibly Lead-based paint
			CMU	10.8' x 18.5' with 12' x 7.3' cutout for door	**79 ft³**	**50%**	**40 ft³**	Inside of wall painted, good condition	Resale, reuse on site	To be determined with vendors	Possibly Lead-based paint
9	TH_2W	wall materials	**Brick**	100' x 20.5' (avg), 14" thick	**2348 ft³**	**0%**	**0 ft³**	Both sides of wall painted, good condtion	Resale, reuse on site	To be determined with vendors	Possibly Lead-based paint
10	TH_3N	wall materials	**Brick**	139' x 15.5', 9" to18" thick	**1179 ft³**	**50%**	**590 ft³**	Inside of wall painted, good condition	Resale, reuse on site	To be determined with vendors	Possibly Lead-based paint
			CMU	3 windows filled in	**181 ft³**	**0%**	**0 ft³**	Inside of wall painted, good condition	Resale, reuse on site	To be determined with vendors	Possibly Lead-based paint
11	TH_3S	wall materials	**Brick**	139' x 15.5', 9" to18" thick	**994 ft³**	**50%**	**497 ft³**	Inside of wall painted, good condition	Resale, reuse on site	To be determined with vendors	Possibly Lead-based paint
12	TH_3W	wall materials	**Brick**	100' x 20.5' (avg), 14" thick	**2348 ft³**	**0%**	**0 ft³**	Both sides of wall painted, good condtion	Resale, reuse on site	To be determined with vendors	Possibly Lead-based paint

Deconstruction Inventory
Allen-Morrison Facility
Lynchburg, VA

Item No.	Building Materials				Quantity			Reuse, Salvage, Disposal Options		Estimate of Cost or Income Value	Regulatory Considerations
13	TH_4N	wall materials	**Brick**	149' x 15.5', 9" to 18" thick	**987 ft³**	**50%**	**494 ft³**	Inside of wall painted, good condition	Resale, reuse on site	To be determined with vendors	Possibly Lead-based paint
		wall materials	**CMU**	13 windows filled in; 8.2' x 10.5'	**895 ft³**	**0%**	**0 ft³**	Inside of wall painted, good condition	Resale, reuse on site	To be determined with vendors	Possibly Lead-based paint
14	TH_4S	wall materials	**Brick**	149' x 15.5', 9" to 18" thick	**1526 ft³**	**50%**	**763 ft³**	Inside of wall painted, good condition	Resale, reuse on site	To be determined with vendors	Possibly Lead-based paint
		wall materials	**CMU**	5 window casings	**227 ft³**	**0%**	**0 ft³**	Inside of wall painted, good condition	Resale, reuse on site	To be determined with vendors	Possibly Lead-based paint
15	TH_4W	wall materials	**Brick**	100' x 20.5' (avg), 14" thick	**2348 ft³**	**0%**	**0 ft³**	Both sides of wall painted, good condtion	Resale, reuse on site	To be determined with vendors	Possibly Lead-based paint
16	TH_5N	wall materials	**Brick**	169' x 15.5', 9" to 18" thick	**1584 ft³**	**50%**	**7923 ft³**	Inside of wall painted, good condition	Resale, reuse on site	To be determined with vendors	Possibly Lead-based paint
17	TH_5S	wall materials	**Brick**	169' x 15.5', 9" to 18" thick	**1527 ft³**	**50%**	**764 ft³**	Inside of wall painted, good condition	Resale, reuse on site	To be determined with vendors	Possibly Lead-based paint
18	TH_5W	wall materials	**Brick**	100' x 20.5' (avg), 14" thick	**2044 ft³**	**25%**	**511 ft³**	75% of wall painted, good condition	Resale, reuse on site	To be determined with vendors	Possibly Lead-based paint
19	TH_6N	wall materials	**Brick**	26' x 19.2', 14" thick	**561 ft³**	**50%**	**281 ft³**	Inside of wall painted, good condition	Resale, reuse on site	To be determined with vendors	Possibly Lead-based paint
20	TH_6S	wall materials	**Brick**	26' x 15.5', 14" thick	**424 ft³**	**50%**	**212 ft³**	Inside of wall painted, good condition	Resale, reuse on site	To be determined with vendors	Possibly Lead-based paint
21	TH_6W	wall materials	**Brick**	44.5' x 20.5' (avg), 14" thick	**1068 ft³**	**50%**	**534 ft³**	Inside of wall painted, good condition	Resale, reuse on site	To be determined with vendors	Possibly Lead-based paint
22	TH_6I	wall materials	**Brick**	24.8' x 20', 14" thick	**594 ft³**	**50%**	**397 ft³**	Both sides of wall painted, good condtion	Resale, reuse on site	To be determined with vendors	Possibly Lead-based paint
23	TH_7N	wall materials	**CMU**	164' x 15' (avg), 8" thick	**1495 ft³**	**0%**	**0 ft³**	Inside of wall painted, good condition	Resale, reuse on site	To be determined with vendors	Possibly Lead-based paint
24	TH_7E	wall materials	**CMU**	31.5' x 15' (avg), 8" thick	**304 ft³**	**0%**	**0 ft³**	Inside of wall painted, good condition	Resale, reuse on site	To be determined with vendors	Possibly Lead-based paint
25	TH_7W	wall materials	**CMU**	23' x 15' (avg), 8" thick	**214 ft³**	**0%**	**0 ft³**	Inside of wall painted, good condition	Resale, reuse on site	To be determined with vendors	Possibly Lead-based paint
26	AM 1N	wall materials	**Brick**	196' x 20.7', 1' thick	**2118 ft³**	**50%**	**1059 ft³**	Inside of wall painted, good condition	Resale, reuse on site	To be determined with vendors	Possibly Lead-based paint

Deconstruction Inventory
Allen-Morrison Facility
Lynchburg, VA

Item No.	Building Materials				Quantity			Reuse, Salvage, Disposal Options		Estimate of Cost or Income Value	Regulatory Considerations
27	AM 1E	wall materials	**Brick**	68' x 14.4', 1' thick	**719 ft³**	**50%**	**360 ft³**	Inside of wall painted, good condition	Resale, reuse on site	To be determined with vendors	Possibly Lead-based paint
			CMU	Bumpout on outside of wall, 30' x 7' x 14.5'	**443 ft³**	**100%**	**443 ft³**	Unpainted, good condition	Resale, reuse on site	To be determined with vendors	None
28	AM 1S	wall materials	**Brick**	196' x 20.7', 1' thick	**2159 ft³**	**50%**	**1080 ft³**	Inside of wall painted, good condition	Resale, reuse on site	To be determined with vendors	Possibly Lead-based paint
			CMU	Inside walls 12' 4" tall, 8" thick	**878 ft³**	**0%**	**0 ft³**	Both sides of wall painted, good condtion	Resale, reuse on site	To be determined with vendors	Possibly Lead-based paint
29	AM 1W	wall materials	**Brick**	96.6' x 35', 1 ft thick	**2335 ft³**	**0%**	**0 ft³**	Both sides of wall painted, good condtion	Resale, reuse on site	To be determined with vendors	Possibly Lead-based paint
30	AM 2N	wall materials	**Brick**	28.5' x 11.25' x 1'	**281 ft³**	**0%**	**0 ft³**	Both sides of wall painted, good condtion	Resale, reuse on site	To be determined with vendors	Possibly Lead-based paint
31	AM 2S	wall materials	**Brick**	81' x 11.25' x 1'	**535 ft³**	_		Outside unpainted, inside unknown	Resale, reuse on site	To be determined with vendors	Possibly Lead-based paint
32	AM 2W	wall materials	**Brick**	28.5' x 11.25' x 1'	**239 ft³**	**50%**	**120 ft³**	Inside of wall painted, good condition	Resale, reuse on site	To be determined with vendors	Possibly Lead-based paint
33	AM 3N	wall materials	**Brick**	127.4' x 11.25' x 1'	**1383 ft³**	**0%**	**0 ft³**	Both sides of wall painted, good condtion	Resale, reuse on site	To be determined with vendors	Possibly Lead-based paint
			CMU	Room 12' x 10.5' x 9'	**203 ft³**	**100%**	**203 ft³**	Unpainted, good condition	Resale, reuse on site	To be determined with vendors	Possibly Lead-based paint
34	AM 3E	wall materials	**Brick**	16.7' x 14.75' x 1'	**246 ft³**	**0%**	**0 ft³**	Both sides of wall painted, good condtion	Resale, reuse on site	To be determined with vendors	Possibly Lead-based paint
35	AM 3S	wall materials	**Brick**	123.7' x 12.75' x 1'	**1162 ft³**	_		Outside unpainted, inside unknown	Resale, reuse on site	To be determined with vendors	Possibly Lead-based paint
36	AM 3W	wall materials	**Brick**	30' x 11.25' x 1'	**338 ft³**	**0%**	**0 ft³**	Both sides of wall painted, good condtion	Resale, reuse on site	To be determined with vendors	Possibly Lead-based paint
38	AM 4E	wall materials	**Brick**	130' x 12.25' x 1'	**1091 ft³**	**0%**	**0 ft³**	Both sides of wall painted, good condtion	Resale, reuse on site	To be determined with vendors	Possibly Lead-based paint
			CMU	3 x 6.5' x 13' x 8"	**177 ft³**	**0%**	**0 ft³**	Both sides of wall painted, good condtion	Resale, reuse on site	To be determined with vendors	Possibly Lead-based paint
39	AM 4S	wall materials	**Brick**	24.3 x 14.75' x 1'	**269 ft³**	**50%**	**135 ft³**	Inside of wall painted, good condition	Resale, reuse on site	To be determined with vendors	Possibly Lead-based paint

Deconstruction Inventory
Allen-Morrison Facility
Lynchburg, VA

Item No.	Building Materials				Quantity			Reuse, Salvage, Disposal Options		Estimate of Cost or Income Value	Regulatory Considerations
40	AM 4W	wall materials	**Brick**	160' x 14.5' x 1'	**1693 ft³**	**50%**	**847 ft³**	Inside of wall painted, good condition	Resale, reuse on site	To be determined with vendors	Possibly Lead-based paint
			CMU	8' x 7.6' x 8"	**30 ft³**	**100%**	**30 ft³**	Unpainted, good condition	Resale, reuse on site	To be determined with vendors	None
41	AM 5N	wall materials	**Brick**	63.5' x 15.3' x 1'	**948 ft³**	**50%**	**474 ft³**	Inside of wall painted, good condition	Resale, reuse on site	To be determined with vendors	Possibly Lead-based paint
			CMU	40' x 13.75' x 4"	**164 ft³**	**0%**	**0 ft³**	Both sides of wall painted, good condtion	Resale, reuse on site	To be determined with vendors	Possibly Lead-based paint
42	AM 5E	wall materials	**Brick**	160' x 25' x 1'	**4000 ft³**	**20%**	**800 ft³**	Inside of wall painted, bottom half of outside painted, good condition	Resale, reuse on site	To be determined with vendors	Possibly Lead-based paint
			CMU	140' x 13.75' x 4"	**578 ft³**	**0%**	**0 ft³**	Both sides of wall painted, good condtion	Resale, reuse on site	To be determined with vendors	Possibly Lead-based paint
43	AM 5S	wall materials	**Brick**	63' x 28' x 1'	**1684 ft³**	**0%**	**0 ft³**	Both sides of wall painted, good condtion	Resale, reuse on site	To be determined with vendors	Possibly Lead-based paint
			CMU	19' x 13.75' x 8"	**183 ft³**	**0%**	**0 ft³**	Both sides of wall painted, good condtion	Resale, reuse on site	To be determined with vendors	Possibly Lead-based paint
44	AM 5W	wall materials	**Brick**	160' x 14.5' x 1'	**1937 ft³**	**50%**	**969 ft³**	Inside of wall painted, good condition	Resale, reuse on site	To be determined with vendors	Possibly Lead-based paint
45	AM 6N	wall materials	**Brick**	187' x 12.25' x 1'	**1945 ft³**	**100%**	**1945 ft³**	Unpainted, good condition	Resale, reuse on site	To be determined with vendors	None
46	AM 6E	wall materials	**Brick**	62.5' x 13' x 1'	**842 ft³**	**100%**	**842 ft³**	Unpainted, good condition	Resale, reuse on site	To be determined with vendors	None
			Brick	55' x 13' x 1'	**457 ft³**	**50%**	**229 ft³**	Inside of wall painted, good condition	Resale, reuse on site	To be determined with vendors	Possibly Lead-based paint
47	AM 6S	wall materials	**Brick**	184.7' x 13' x 1'	**1749 ft³**	**82%**	**1434 ft³**	18% of wall painted, good condition	Resale, reuse on site	To be determined with vendors	Possibly Lead-based paint
48	AM 8N	wall materials	**Brick**	69.4' x 13' x 1'	**838 ft³**	**0%**	**0 ft³**	Both sides of wall painted, good condtion	Resale, reuse on site	To be determined with vendors	Possibly Lead-based paint
			CMU	92.7 x 12' x 8"	**638 ft³**	**0%**	**0 ft³**	Inside of wall painted, good condition	Resale, reuse on site	To be determined with vendors	Possibly Lead-based paint

Deconstruction Inventory
Allen-Morrison Facility
Lynchburg, VA

Item No.	Building Materials				Quantity			Reuse, Salvage, Disposal Options		Estimate of Cost or Income Value	Regulatory Considerations
49	AM 8E	wall materials	**Brick**	14.75' x 50.75' x 1'	**749 ft³**	**0%**	**0 ft³**	Both sides of wall painted, good condtion	Resale, reuse on site	To be determined with vendors	Possibly Lead-based paint
			CMU	76' x 14' x 8"	**565 ft³**	**0%**	**0 ft³**	Inside of wall painted, good condition	Resale, reuse on site	To be determined with vendors	Possibly Lead-based paint
50	AM 8S	wall materials	**Brick**	49' x 15' x 1'	**578 ft³**	**0%**	**0 ft³**	Both sides of wall painted, good condtion	Resale, reuse on site	To be determined with vendors	Possibly Lead-based paint
			CMU	23' x 15' x 8"	**185 ft³**	**0%**	**0 ft³**	Inside of wall painted, good condition	Resale, reuse on site	To be determined with vendors	Possibly Lead-based paint
51	AM 8W	wall materials	**Brick**	2' x 2' x 13' + 50.75' x 5' x 1'	**356 ft³**	**0%**	**0 ft³**	Both sides of wall painted, good condtion	Resale, reuse on site	To be determined with vendors	Possibly Lead-based paint
52	AM 10N	wall materials	**Brick**	45' x 12.5' x 1'	**494 ft³**	**50%**	**247 ft³**	Inside of wall painted, good condition	Resale, reuse on site	To be determined with vendors	Possibly Lead-based paint
53	AM 10E	wall materials	**Brick**	49' x 15.5' x 1'	**606 ft³**	**0%**	**0 ft³**	Both sides of wall painted, good condtion	Resale, reuse on site	To be determined with vendors	Possibly Lead-based paint
			CMU	2 x 9.5' x 4.8' x 8"	**91 ft³**	**0%**	**0 ft³**	Both sides of wall painted, good condtion	Resale, reuse on site	To be determined with vendors	Possibly Lead-based paint
54	AM 10S	wall materials	**Brick**	45' x 12.5' x 1'	**563 ft³**	**0%**	**0 ft³**	Both sides of wall painted, good condtion	Resale, reuse on site	To be determined with vendors	Possibly Lead-based paint
55	AM 10W	wall materials	**Brick**	49' x 12.5' x 1'	**613 ft³**	**0%**	**0 ft³**	Both sides of wall painted, good condtion	Resale, reuse on site	To be determined with vendors	Possibly Lead-based paint
56	AM 11N	wall materials	**CMU**	47.5' x 15.5' x 8"	**306 ft³**	**0%**	**0 ft³**	Inside of wall painted, good condition	Resale, reuse on site	To be determined with vendors	Possibly Lead-based paint
57	AM 11E	wall materials	**CMU**	50' x 13.5' x 8"	**440 ft³**	**0%**	**0 ft³**	Inside of wall painted, good condition	Resale, reuse on site	To be determined with vendors	Possibly Lead-based paint
58	AM yard	Parking/ Loading Zones	**Asphalt**		**2187 yd²**						
59	TH yard	Parking/ Loading Zones	**Asphalt**		**3098 yd²**						

ATTACHMENT C

PHOTOGRAPHIC LOG

Photograph No. 1: Thornhill 7A (upstairs)—view of 6”x 6” timber column structure

Photograph No. 2: Sliding door upstairs in Thornhill 7A

Photograph No. 3: Paint mixing canisters in Thornhill 7D

Photograph No. 4: Boiler tank in Thornhill 7D

Photograph No. 5: Skylights on top of Allen-Morrison facility

Photograph No. 6: Sprinkler system plating in Thornhill 7C

Photograph No. 7: Silk screens and frames in Thornhill 7D

Photograph No. 8: Sheet metal signs in Allen-Morrison 1E

Photograph No. 9: Sign design drawings on rack in Allen-Morrison 1C

Photograph No. 10: Shelving unit in Allen-Morrison 1C

Photograph No. 11: Steel shelving unit in Thornhill 7A

Photograph No. 12: Wheeled equipment in Allen-Morrison 1A

ATTACHMENT D

INVENTORY QUANTITY CALCULATION TOOLS AND RESOURCES

In addition to field measurements and observations, the following on-line and other resources were used to calculate quantities of materials for the deconstruction inventory:

Piping and Other Metal

American Institute of Steel Construction, Inc. 2007. *Steel Construction Manual.* Thirteenth Edition.

Cast Iron Pipe Weight Standards
http://www.gizmology.net/pipe.htm

Electrical Conduit Weight Standards
http://www.steelconduit.com/docs/EMTspecs.pdf

Metal Weights Calculator
http://www.bostoncenterless.com/weightcalc.htm
http://www.steelforge.com/steelweights.htm

Brick

http://www.mc2-ice.com/support/estref/popular_conversion_files/masonry/brick.htm