# ASBESTOS ABATEMENT PRJOECT DESIGN AND SPECIFICATIONS

# OF THE

# LAUDERDALE COUNTY COURTHOUSE
# 200 SOUTH COURT STREET
# FLORENCE, ALABAMA

## TTSI PROJECT # 2025-0868

**Terrell**
**Technical Services, Inc.**

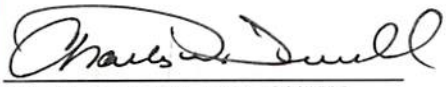
*Environmental, Health & Safety Solutions*

**Prepared for:**

Lauderdale County Commission
P.O. Box 1059
Florence, AL 35631

**Prepared by:**

Terrell Technical Services, Inc.
Environmental, Health & Safety Solutions
P. O. Box 1116
Madison, Alabama 35758



Charles Terrell, CIH, CHMM
President, Technical Director
Certified Industrial Hygienist #5850
Certified Hazardous Materials Manager #6203
EPA Accredited Asbestos Project Designer APD052341945



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## SECTION 02080 – ASBESTOS CONTAINING MATERIAL REMOVAL

## PART 1 GENERAL

### 1.01 DESCRIPTION OF WORK

A. General: This specification section follows the general format of the National Institute of Building Sciences (NIBS) and covers the work associated with removal, handling, transportation, and disposal of the asbestos-containing materials (ACM) described or referenced herein. **For the purposes of this contract these ACM shall be treated as EPA / NESHAP Regulated ACM (RACM) pursuant to 40 CFR 61 subpart M, regardless of the ACM type and condition. Current best practice abatement techniques are to be utilized on this project. Work activities associated with the removal of these ACM will follow work practices and engineering controls for OSHA Class I Asbestos Work pursuant to 29 CFR 1926.1101.** The ACM work includes the decontamination of items and work area surfaces which are currently contaminated or become contaminated during removal activities with ACM dust and/or debris. This section describes procedures and equipment required to protect workers and occupants of the work areas and adjacent areas from contact with airborne asbestos fibers and ACM dust and debris. The work also includes the disposal of all wastes generated by all aspects of the ACM removal process. The owner will be named as additionally insured for one (1) million dollars through contractors' general liability and pollution and prevention insurance.

B. ACM Descriptions and Removal Locations: Remove all ACM listed below and indicated in the Asbestos Inspection Report prepared for this project as indicated below in Part 1.01.C of this section. **Use only quantities listed below for bidding purposes.** A summary of each general category of ACM removal and accompanying work task, presented in sequential order, is specified in paragraph 3.08 herein. Those specified method(s) in part 3.08 are not intended to prohibit the contractor from using an alternative method provided that the alternative method is approved by the Consultant and complies with all other aspects of this specification and applicable regulations. **The abatement methods in part 3.08 are the minimal procedures for bidding to ensure that all bids are based upon the same scope of work.** After contract award specific changes to the procedure may be submitted to the Consultant for review and possible approval. The following work shall be performed by EPA Model Accreditation Plan (MAP) and State of Alabama licensed asbestos workers and supervisors employed by an Alabama Department of Environmental Management (ADEM) licensed contractor.

## Lauderdale Courthouse Quantities:

1. Remove approximately 24,800 square feet of ACM sprayed applied ceiling texture.

2. Remove approximately 350 TSI ACM hard fittings (elbows, fittings, Tee's, valves). Fitting sizes range from 1 ½" to 6" in diameter. (See Note 1 below)

3. **Alternate 1:** Provide per unit (per fitting) pricing for the removal of additional ACM 1 ½" to 6" thermal system insulation fitting materials which may be uncovered during abatement / demolition activities. Provide per unit and total pricing. Contractor will be paid for actual number of ACM fittings identified and abated.

4. **Alternate 2:** Provide per unit (per linear feet) pricing for the removal of additional ACM 1 ½" to 6" thermal system insulation pipe lagging materials which may be uncovered during abatement / demolition activities. Provide per unit and total pricing. Contractor will be paid for actual number of ACM linear footage identified and abated.

5. **Alternate 3:** Provide per unit (per square foot) pricing for the removal of additional ACM ceiling texture materials which may be uncovered during abatement / demolition activities. Provide per unit and total pricing. Contractor will be paid for actual number of ACM square footage identified and abated.

6. All estimated quantities provided are close approximate values to assist in preparation with the scope of work and bid process. It is the abatement contractor's responsibility to verify all quantities, evaluate removal difficulty factors and prepare bids accordingly. Any and all additional asbestos abatement work payments will be calculated at the per unit rates submitted within the bid form.

7. Contractor will not be paid for values in excess of stated or agreed upon quantities.

## General Conditions and Difficulty Notes:

**Note 1:** The vast majority of ACM thermal system insulation fittings are still present. There are newer non-ACM TSI installed on mechanical systems located in the basement area, and mechanical rooms throughout the structure (chillers, boiler, air handlers, etc.). The remaining ACM TSI is found in elbows, fittings and black mechanical mastics associated with the potable, chilled, and hot water systems. These ACM materials are primarily located within mechanical rooms on each floor, wall and ceiling cavities, and plumbing chases associated with the restrooms. Demolition of wall systems may be required in localized areas to access these materials. Glove bag removal techniques may be used on this material.

Note: Refer to Appendix A for additional information about locations and asbestos concentrations of the ACM. ACM Abatement location drawings are presented in Appendix B.

C. Inspector and Laboratory Information: Terrell Technical Services, Inc. (TTSI) performed a limited client directed bulk asbestos sampling event. All TSI components are assumed/presumed ACM by owner. Please be advised that this sampling event does not fully comply with the pre-demolition regulations of the U.S. EPA Clean Air Act, National Emission Standards for Hazardous Air Pollutants (NESHAP), Asbestos Renovation and Demolition Standards, nor OSHA 29 CFR 1926.1101 Asbestos Worker Protection Standards for Construction. The EPA/AHERA certificate number for Mr. Jonathan Cervantes of TTSI is AIN0123712456 with an expiration date of January 13, 2026. PLM analysis for the sampling event was performed by Safety Environmental Laboratories & Consulting, Inc. of Birmingham, Alabama, NVLAP # 200873-0.

D. Consultant Qualifications & Duties: The Consultant referenced in this specification section is a person that has current EPA approved training, and where applicable & Alabama Safe State accreditation, as Asbestos Inspector and Asbestos Abatement Project Designer or Supervisor, and NIOSH 582 equivalent training. The Consultant shall perform the roles described herein acting in the interest of Path Company, the Construction Manager, and the Lauderdale County Commission, the Property Owner, to help ensure compliance with this contract and applicable regulations and specifically provide records for the Construction Manager and Property Owner to document compliance with those regulations. The Consultant will act as an agent of the Construction Manager and Property Owner. The Contractor shall provide the Consultant advance notice of all key project activities in order to allow ample time to schedule inspections and monitoring.

## 1.02 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

A. AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)
1. ANSI Z9.2 (2018) Fundamentals Governing the Design and Operation of Local Exhaust Systems
2. ANSI Z87.1 (2020) Occupational and Educational Eye and Face Protection
3. ANSI Z88.2 (2015) Practices for Respiratory Protection

B. AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)
1. ASTM E 1368 (2018) Visual Inspection of Asbestos Abatement Projects
2. ASTM E 2356 (2018) Standard Practice for Comprehensive Building Asbestos Surveys
3. ASTM D 7701 (2020) Standard Practice for the Sampling and counting Airborne Fibers in the Workplace by Phase Contrast Microscopy
4. ASTM D 2794 (2019) Resistance of Organic Coatings to the Effects of Rapid Deformation (Impact)

5. ASTM D 4397 (2016) Polyethylene Sheeting for Construction, Industrial, and Agricultural Applications
6. ASTM E 84 (2021) Surface Burning Characteristics of Building Materials
7. ASTM E 96 (2022) Water Vapor Transmission of Materials
8. ASTM E 119 (2020) Fire Tests of Building Construction and Materials
9. ASTM C 732 (2022) Aging Effects of Artificial Weathering on Latex Sealants
10. ASTM D 522 (2017) Mandrel Bend Test of Attached Organic Coatings
11. ASTM D 1331 (2020) Surface and Interfacial Tension of Solutions of Surface-Active Agents

C. CODE OF FEDERAL REGULATIONS (CFR)
1. CFR 29 Part 1910 Occupational Safety and Health Standards
2. CFR 29 Part 1926 Safety and Health Regulations for Construction
3. CFR 40 Part 61 National Emissions Standards for Hazardous Air Pollutants
4. CFR 40 Part 763 Asbestos (AHERA)

D. ENVIRONMENTAL PROTECTION AGENCY (EPA)
1. EPA 340/1-90-018 (1990) Asbestos/NESHAP Regulated Asbestos Containing Materials Guidance
2. EPA 340/1-90-019 (1990) Asbestos/NESHAP Adequately Wet Guidance
3. EPA 560/5-85-024 (1985) Guidance for Controlling Asbestos Containing Materials in Building

E. ALABAMA CODE
1. AL. ACT # 89-517 Asbestos Abatement Contractor Accreditation Act – Chapter 822-X-2 Safe State Environmental Programs

F. NATIONAL FIRE PROTECTION ASSOCIATION
1. NFPA 10 (2022) Portable Fire Extinguisher
2. NFPA 70 (2023) National Electrical Code
3. NFPA 101 (2024) Life Safety Codes
4. NFPA 701 (2023) Methods of Fire Test for Flame-Resistant Textiles and Films

G. NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH (NIOSH)
1. NIOSH Pub No. 84-100 NIOSH Manual Of Analytical Methods

H. UNDERWRITERS LABORATORIES (UL)
1. UL 586 (2009) High-Efficiency, Particulate, Air Filter Units

## 1.03 SECURITY AND COORDINATION OF WORK

The Contractor shall maintain control of the work area at all times using any measures as required including fencing, solid barriers, signage, and lockable doors. All ACM removal activities shall be closely coordinated with the work of all other trades to ensure timely execution of the work, completion of the project on schedule, and protection of ACM from disturbance prior to removal by unauthorized and non-trained persons. Special consideration shall be given to the

coordination and sequencing of ACM removal with the Consultant's activities such that inspections, air monitoring, and clearance testing can be performed in a timely fashion without delay to occupancy by the Construction Manager, Property Owner and/or other trades. The Contractor shall provide the Consultant, Construction Manager, and Property Owner the name and telephone number for a point of contact that is available to respond promptly to situations on site during non-routine working hours, particularly when negative containments are in place but not yet cleared. A log book shall be kept documenting entry into and out of the asbestos regulated work area. Entry into asbestos regulated work area(s) shall only be by personnel authorized by the Contractor, Consultant, or Construction Manager. Personnel authorized to enter asbestos regulated work areas shall be trained, medically evaluated and wear the personal protective equipment, as required by this specification, for the specific asbestos regulated work area to be entered.

1.04 MEDICAL REQUIREMENTS

Medical requirements shall conform to CFR 29 Part 1926, Section 1926.1101.

A. Medical Examinations: Before being exposed to airborne asbestos fibers, workers shall be provided with a comprehensive medical examination as required by CFR 29 Part 1926, Section 1926.1101 and other pertinent state or local requirements. This requirement must have been satisfied within the past year. The same medical examination shall be given on an annual basis to employees engaged in an occupation involving asbestos and within 30 calendar days before or after the termination of employment in such occupation. X-ray films of asbestos workers shall be identified to the consulting radiologist and medical record jackets shall be marked with the word "asbestos."

B. Medical and Exposure Records: Complete and accurate records shall be maintained of each employee's medical examinations, medical records and exposure data as required by CFR 29 Part 1910, Section 1910.20 and CFR 29 Part 1926, Section 1926.1101 for a period of 40 years after termination of employment. Records of the required medical examinations and exposure data shall be made available for inspection and copying to: The Assistant Secretary of Labor for Occupational Safety and Health (OSHA) or authorized representatives of the employee and an employee's physician upon request of the employee or former employee. Maintain on file at the work site for review as requested by the Consultant, a copy of the required medical certification for each employee.

1.05 TRAINING

Within 1-year prior to assignment and commencement of work on this asbestos abatement project, each worker directly involved in handling ACM and ACM generated wastes to include packaging and transporting such wastes for disposal, shall take and successfully complete a course of asbestos training as specified by United States Environmental Protection Agency (EPA) requirements under the Model Accreditation Plan (MAP) and the Asbestos School Hazard Abatement Re-authorization Act (ASHARA) and the Alabama Asbestos Abatement Contractor

Accreditation Act. Workers shall take and successfully complete the "Worker" course. On-site supervisors and technical support personnel shall take and successfully complete the "Contractor/Supervisor" course. Worker and Contractor/Supervisor courses taken more than 1 year prior to commencement of work are acceptable provided that the individual has successfully completed the annual refresher training and any other state requirements. In addition, prior to the commencement of work, each worker shall be instructed by the on-site "competent person" in project specific topics related to the following: hazards and health effects of the specific types of ACM to be abated; the contents and requirements of the Contractor's Hazard Communication Program including site specific emergency response requirements; safety and health precautions including heat and/or cold stress monitoring specific to this project; and hands-on work practices specific to this project.

## 1.06 RESPIRATORY PROTECTION PROGRAM

The Contractor shall establish in writing, and implement a respiratory protection program in accordance with CFR 29 Part 1926, Section 1926.1101, CFR 29 Part 1910, Section 1910.134, ANSI Z88.2, CGA G-7 and CGA G-7.1. Prior to initiating any activity involving disturbance of ACM on this project, the Contractor's competent person shall conduct an "Initial Exposure Assessment" (IEA, based upon historical and objective data relevant to the nature of the subject work. Even if a “Negative IEA” can be supported, this contract requires, at a minimum, that half face-piece, negative pressure, HEPA filtered, air purifying respirators be worn at all times inside regulated areas and while handling ACM waste. Should the Contractor's IEA indicate that more stringent protection is required, that higher level of respiratory protection shall be employed immediately. Subsequent evaluations shall be made by the competent person based on measured levels of airborne asbestos fiber concentrations encountered during the performance of the asbestos abatement work of this project. Each employee shall have a current fit test for the specific make, model, and size of respirator worn on this project. The Contractor's respiratory protection program shall include, but not be limited to, the following elements:

A. The company policy, used for the assignment of individual responsibility, accountability, and implementation of the respiratory protection program.

B. The standard operating procedures covering the selection and use of respirators. Respiratory selection shall be determined by the hazard to which the worker is exposed.

C. Medical evaluation of each user to verify that the worker may be assigned to an activity where respiratory protection is required.

D. Training in the proper use and limitations of respirators.

E. Respirator fit-testing, i.e., quantitative, qualitative and individual functional fit checks.

F. Regular cleaning and disinfection of respirators.

G. Routine inspection of respirators during cleaning and after each use when designated for emergency use.

H. Storage of respirators in convenient, clean, and sanitary locations.

I. Surveillance of work area conditions and degree of employee exposure (e.g., through air monitoring).

J. Regular evaluation of the continued effectiveness of the respiratory protection program.

K. Recognition and procedures for the resolution of special problems as they affect respirator use (e.g., no facial hair that comes between the respirator face piece and face or interferes with valve function; prescription eye wear usage; prohibition of wearing contact lenses; etc.).

L. Proper training in putting on and removing respirators.

## 1.07 HAZARD COMMUNICATION PROGRAM

A hazard communication program shall be established and implemented in accordance with CFR 29 Part 1926, Section 1926.59, and be updated to comply with the latest Global Harmonization System (GHS) requirements.

## 1.08 SAFETY AND HEALTH COMPLIANCE

In addition to detailed requirements of this specification, the work shall comply with applicable laws, ordinances, criteria, rules, and regulations of Federal, state, regional, and local authorities regarding handling, storing, transporting, and disposing of asbestos waste materials and with the applicable requirements of CFR 29 Part 1910, CFR 29 Part 1926, CFR 40 Part 61, Subpart A, and CFR 40 Part 61, Subpart M, NFPA 10, NFPA 70, NFPA 90A, NFPA 101. Matters of interpretation of standards shall be submitted to the appropriate administrative agency for resolution before starting work. Where the requirements of this specification, applicable laws, rules, criteria, ordinances, regulations, and referenced documents vary, the most stringent requirement as defined by the Consultant shall apply.

## 1.09 PERMITS, LICENSES AND NOTIFICATIONS

All necessary permits and licenses applicable to the removal, transport and disposal of ACM, in conjunction with this project, shall be obtained and paid for, by the Contractor, in a timely manner. The Contractor shall notify, and pay all applicable notification fees, the local and state agencies having EPA delegated authority over NESHAP matters, in writing at least 10 working days prior to the commencement of on-site ACM handling work in accordance with CFR 40 Part 61, Subpart M, state and local requirements. The notification shall include the mandatory EPA/Alabama Department of Environmental Management (ADEM) Asbestos Demolition / Renovation Notification Form" and any other required documentation. At least ten (10) working days prior to on-site ACM handling activities the original notification shall be received by ADEM. An additional copy of

the notification shall be forwarded to the Consultant as indicated below in article "Submittals."

1.10 SUBMITTALS

The Consultant's approval is required for all submittals.

A. PRE- WORK SUBMITTALS

The following items shall be submitted in triplicate and ultimately received by the Consultant at least ten working days prior to any on-site asbestos abatement activities. All items must be in a bound book with Table of Contents and Tabs clearly indicating the purpose of each submittal item, for example if more than one person is certified as “supervisor” clearly state whom is the person responsible for the project and whom is acting as “Competent Person”.

1. Liability Insurance. The required insurance shall be written for not less than any limits of liability required by law or by those set forth below, whichever is greater. Insurance which excludes asbestos abatement shall not be acceptable to the Construction Manager or Property Owner. Evidence shall be provided by the Contractor which clearly states that the insurance policy covers asbestos abatement. The Contractor shall provide Comprehensive General Liability Insurance and Pollution Liability Insurance covering asbestos related work. The insurance shall provide at least one (1) million dollars per occurrence. The certificate of insurance shall specifically name this project, indicate that asbestos abatement is covered, and state that the Construction Manager and Property Owner is an additional insured.
2. EPA / ADEM Asbestos Demolition / Renovation Notification Form. Refer to part 1.01.C of this specification for relevant information about the ACM inspection, inspector, and laboratory.
3. ADEM certification / license for Asbestos Abatement Contractor.
4. Alabama / Safe State certification / license for Abatement Supervisor.
5. Name and Qualifications Resume of OSHA Competent Person / Abatement Supervisor.
6. Alabama / Safe State certifications and licenses for all on-site Abatement Workers. All certificates for additional workers that will be used but were not included in the pre-work submittal shall be emailed or faxed to the consultant no later than the first day they work on site. The Contractor must have, at all times, on site, an extra copy of all Alabama / Safe State certifications and licenses, for the Consultant.
7 A formal written statement signed by the “Competent Person” indicating that Initial Exposure Assessments (IEA) have been performed for anticipated asbestos exposures based upon: a) previous monitoring for very similar projects, or b) objective data. The IEA statement shall indicate that the workers will start in a certain type of respirator and that personal exposure monitoring will be conducted until the IEA is fully supported for asbestos.
8. Name and qualifications of person(s) that will perform personal exposure air monitoring. Training for the person performing asbestos exposure monitoring shall include, at a minimum, NIOSH 582 equivalent training.

9. Name, address, and telephone number of the laboratory that will analyze the personal exposure samples.

B. PROGRESS SUBMITTALS

1. Daily personal exposure air monitoring reports.

C. CLOSE-OUT SUBMITTALS

1. Waste disposal records.

## 1.11 PERSONAL PROTECTIVE EQUIPMENT

The Contractor's designated competent person shall select and approve all the required personal protective clothing and equipment to be used. Contractor employees shall be trained in the selection, fitting, and use of the required personal protective equipment and the site safety and health requirements. Contractor workers shall be provided with personal protective clothing and equipment as specified herein and the Contractor shall ensure that it is worn properly.

A. Respirators: Respirators shall be selected and used in accordance with manufacturers recommendations, and shall be approved by the Mine Safety and Health Administration and the National Institute for Occupational Safety and Health (MSHA/NIOSH) for use in environments containing airborne asbestos fibers. Personnel who handle ACM, enter asbestos regulated work areas, or who are otherwise carrying out abatement activities including waste handling, shall be provided with approved respirators that are fully protective of the worker at the measured or anticipated airborne asbestos concentration level to be encountered. For air-purifying respirators, the particulate filter portion of the cartridges or canister approved for use in airborne asbestos environments shall be Type H, high-efficiency particulate air (HEPA). Respiratory protection shall comply with the CFR 29 Part 1926 and CFR 29 Part 1910. A qualitative or quantitative fit test conforming to CFR 29 Part 1926 shall be conducted by the Contractor's Competent Person for each Contractor worker required to wear a respirator. A respirator fit test shall be performed for each worker prior to initially wearing a respirator on this project and every 6 months thereafter. If physical changes in a worker develop that will affect the fit, a new fit test shall be performed. Functional fit checks shall be performed by employees each time a respirator is put on and in accordance with the manufacturer's recommendation.

1. As a minimum, half face-piece, negative pressure, HEPA filtered, air purifying respirators, shall be worn during the startup of abatement activities involving OSHA Class II asbestos work (i.e. floor tile, mastic, exterior shingles, window glazing putty/caulk), unless otherwise approved in writing by the Consultant.
2. As a minimum, full face-piece, HEPA filtered, powered air purifying respirators (PAPR), shall be worn during the startup of abatement activities involving OSHA Class I asbestos work (i.e. pipe insulation and associated debris), unless otherwise approved in writing by the Consultant.

3. The upgrading of respirator type, from the minimum requirements specified for start-up, shall be made by the Contractor's Competent Person based on the measured airborne asbestos fiber concentrations during the work or changed conditions anticipated to be encountered. The Contractor's actions to upgrade respirator type shall be verbally conveyed to the Consultant.

B. Whole Body Protection: Personnel exposed to asbestos shall be provided with disposable whole-body protection as specified herein and such protection shall be worn properly as directed by the competent person. The Contractor's competent person shall select and approve the whole-body protection to be used. Disposable whole-body protection shall be disposed of as asbestos contaminated waste upon exiting from the asbestos regulated work area. Reusable whole-body protection shall not be permitted.

C. Coveralls: Disposable-impermeable or breathable whole-body coveralls with a zipper front shall be provided. Sleeves shall be secured at the wrists, and foot coverings secured at the ankles.

D. Gloves: Disposable plastic or rubber gloves shall be provided to protect hands. Cloth gloves may be worn inside the plastic or rubber gloves for comfort, but shall not be used alone. Where there is the potential for hand injuries (i.e., scrapes, punctures, cuts, etc.) a suitable outer glove shall be provided and used.

E. Foot Coverings: Cloth socks shall be provided and worn next to the skin. If rubber boots are not used, foot wear and disposable foot coverings shall be provided. Rubber boots shall be used in moist or wet areas. Only rubber boots shall be removed from the asbestos regulated work area after being thoroughly decontaminated. All other protective foot covering shall be disposed of as ACM.

F. Head Covering: Hood type disposable head covering shall be provided. In addition, protective head gear (hard hats) shall be provided if required by the Contractors Safety Plan. Hard hats shall only be removed from the asbestos regulated work area after being thoroughly decontaminated.

G. Protective Eye Wear: Contact lenses shall not be worn in asbestos regulated work areas. When vision correction is necessary to perform the work task, prescription safety eye wear shall be used. Fog-proof goggles shall be worn by personnel engaged in asbestos abatement activities in the asbestos regulated work area when the use of a full face-piece respirator is not required. Eye protection provided shall be in accordance with ANSI Z87.1.

H. Other Items: All other items of whole-body protection shall be provided as required by Contractors Safety Plan.

## 1.12 DECONTAMINATION UNITS & WASTE LOAD-OUT ROOMS

A. General: For all types of ACM removal on this project, the contractor shall establish a three-chamber decontamination facility that is incorporated into the demarcated boundaries of the regulated asbestos work area, even if that

requires a poly floor/ground covered walkway to the facility, and regardless if the actual type of ACM work meets the OSHA Class 2 criteria. The facility must have a clean room on one end for personnel to change from street clothes to work clothes. In the middle it shall have a shower. On the end connected to the negative pressure work area enclosure shall be a chamber (dirty room) for removing dirty clothing prior to showering, for double bagging waste, and for cleaning equipment. Off one side of dirty room shall be an air lock for passing out waste bags, unless a separate space with water source is provided for waste double bagging and generator labeling elsewhere at the boundary of the regulated area. The contractor shall ensure that all employees enter and exit the regulated area through the decontamination area. All surfaces in the decontamination area shall be covered with 6 mil poly sheeting.

B. Interior Asbestos Work: The three chamber decontamination facility must be part of the negative pressure enclosures for the interior flooring material asbestos removal area and the crawlspace pipe insulation and debris removal area.

## 1.13 WARNING SIGNS

Contractor shall ensure that all personnel understand the warning signs. Warning signs printed in each language as required for comprehension by all employees and occupants of surrounding areas shall be provided at the regulated boundaries and entrances to asbestos regulated work areas. Signs shall be located at such a distance that personnel may read the sign and take the necessary protective steps required before entering the area. Warning signs shall be in vertical format conforming to CFR 29 Part 1910, and CFR 29 Part 1926, minimum 20 by 14 inches and displaying the following legend in the lower panel:

| LEGEND | LETTERING |
|---|---|
| DANGER | 3-INCH SANS SERIF GOTHIC OR BLOCK |
| ASBESTOS | 1-INCH SANS SERIF GOTHIC OR BLOCK |
| MAY CAUSE CANCER<br>CAUSES DAMAGE TO LUNGS | 1-INCH SANS SERIF GOTHIC OR BLOCK |
| AUTHORIZED PERSONNEL ONLY | 1-INCH SANS SERIF GOTHIC OR BLOCK |
| WEAR RESPIRATORY PROTECTION AND PROTECTIVE CLOTHING IN THIS AREA | 1-INCH GOTHIC |

Spacing between lines shall be at least equal to the height of the upper of any two lines.

## 1.14 WARNING LABELS

Warning labels shall be affixed to all asbestos disposal containers used to contain asbestos materials, scrap, waste debris, and other products contaminated with

asbestos. Containers with preprinted warning labels conforming to requirements specified herein are acceptable. Warning labels shall conform to CFR 29 Part 1926 and shall be of sufficient size to be clearly legible displaying the following legend:

DANGER
CONTAINS ASBESTOS FIBERS
MAY CAUSE CANCER, CAUSES DAMAGE TO LUNGS
DO NOT CREATE DUST, AVOID CREATING DUST

## 1.15 LOCAL EXHAUST SYSTEM

Negative air pressure enclosure / containment systems are required on this project for interior ACM removal (i.e. floor tile & mastic) and associated debris. The system shall be as specified herein and in accordance with ANSI Z9.2 and CFR 29 Part 1926. The system will provide at least 4 air changes per hour inside of the containment. The local exhaust system shall be operated 24 hours per day, until clearance criteria has been achieved and removal of the asbestos regulated containment area is approved by the Consultant. The exhaust equipment shall be leak proof to the HEPA filters. Local exhaust equipment shall be sufficient to maintain a minimum pressure differential of minus 0.02 inch of water column relative to adjacent, unsealed areas. Pressure differential shall be monitored continuously, 24 hours per day, with an automatic recording instrument. In no case shall the building ventilation system be used as the local exhaust system for the asbestos regulated work area. Filters on local exhaust system equipment shall conform to ANSI Z9.2 and UL 586. Filters shall be UL labeled. The local exhaust system shall terminate out of doors away from any intakes for the building's HVAC system. All filters used shall be new at the beginning of the project and shall be periodically changed as necessary and disposed of as ACM waste during the project and at end of project.

## 1.16 TOOLS

Vacuums shall be leak proof to the filter, equipped with HEPA filters, be of sufficient capacity and provide the necessary capture velocity at the nozzle or nozzle attachment to efficiently collect, transport and retain the ACM waste material. Power tools shall not be used to remove ACM unless the tool is equipped with effective, integral HEPA filtered exhaust ventilation capture and collection system or has otherwise been approved for use by the Consultant. All residual asbestos shall be removed from reusable tools prior to storage and reuse. Reusable tools shall be thoroughly decontaminated prior to being removed from asbestos regulated work areas.

## 1.17 RENTAL EQUIPMENT

If rental equipment is to be used, written notification shall be provided to the rental agency, concerning the intended use of the equipment, the possibility of asbestos contamination of the equipment and the steps that will be taken to decontaminate such equipment. A written acceptance of the terms of the Contractor's notification shall be obtained from the rental agency and submitted to the Consultant.

## 1.18 AIR MONITORING EQUIPMENT

The Contractor's Competent Person shall select and approve the air monitoring equipment to be provided and used by the Contractor for evaluation of personal exposure airborne asbestos fiber concentrations. The equipment shall include, but not be limited to:

A. Low-volume, battery powered, body-attachable, portable personal pumps that can be calibrated to a constant airflow up to approximately 3.5 liters per minute when equipped with a sampling train of tubing and filter cassette, and a self-contained rechargeable power pack capable of sustaining the calibrated flow rate for a minimum of 10 hours. The pumps shall also be equipped with an automatic flow control unit which shall maintain a constant flow even as filter resistance increases due to accumulation of fiber and debris on the filter surface.

B. Standard 25-millimeter diameter, 0.8-micron pore size, mixed cellulose ester membrane filters and cassettes with nonconductive barrels and shrink bands, to be used with low flow pumps in accordance with CFR 29 Part 1926, for personal air sampling.

C. Appropriate plastic tubing to connect the air sampling pump to the selected filter cassette.

D. A flow calibrator capable of calibration to within plus or minus 2 percent of reading over a temperature range of minus 4 degrees Fahrenheit to plus 140 degrees Fahrenheit and traceable to a National Institute for Standards and Technology (NIST) primary standard.

## 1.19 EXPENDABLE SUPPLIES

A. Duct Tape: Industrial grade duct tape shall be provided in 2 inch and 3 inch widths and shall be suitable for bonding sheet plastic and disposal containers specified herein.

B. Disposal Containers: Leak-tight disposal containers shall be provided for ACM generated wastes as specified herein. Leak-tight means that solids, liquids, or dust cannot escape or spill out. All disposal containers shall be either pre-labeled or affixed with all required OSHA and DOT warning labels

C. Disposal Bags: Six-mil thick leak-tight bags shall be provided for placement of ACM waste that are sized to readily fit in the bags. Waste placed in bags shall be restricted to materials that are unlikely to puncture the bags.

C. Leak-tight Wrapping: Two layers of 6-mil (minimum) thick polyethylene sheet stock shall be used for the containerization of ACM too large to be placed in disposal bags. Any shape of the ACM or component with attached/adhered ACM shall be covered by protective padding before wrapping with poly sheeting. Each layer of poly wrapping shall be individually leak-tight sealed with duct tape.

E. Fiber Reinforced Drums: Fiber reinforced drums shall be used for disposal of relatively small ACM waste with sharp items that would puncture polyethylene.

F. Polyethylene Sheet - General: Six-mil (minimum) thick polyethylene film shall be clear and conform to ASTM D 4397 and shall be provided in the largest sheet size necessary to minimize seams

G. Polyethylene Sheet - Flame Resistant: Where a potential for fire exists, 6-mil (minimum) thick flame-resistant polyethylene sheet shall be provided. Flame-resistant polyethylene film shall be frosted or black and shall conform to the requirements of NFPA 701.

H. Polyethylene Sheet-Reinforced: Six-mil or thicker reinforced polyethylene sheet shall be provided where high skin strength is required such as where it constitutes the only barrier between the asbestos regulated work area and the outdoor environment. Plastic tarpaulins may be substituted. The sheet stock shall consist of translucent, nylon-reinforced or woven-polyethylene thread laminated between two layers of polyethylene film. Film shall meet flame resistant standards of NFPA 701.

I. Amended Water: Amended water shall meet the requirements of ASTM D 1331.

J. Removal Encapsulant: Removal encapsulant (a penetrating encapsulant) shall be provided when conducting removal abatement activities that require a long removal time or are subject to rapid evaporation of amended water. The removal encapsulant shall be capable of wetting the ACM and retarding fiber release during disturbance of the ACM equal to or greater than provided by amended water. Performance requirements for penetrating encapsulants are specified in Part 2.01 ENCAPSULANTS.

## 1.20 SAFETY DATA SHEETS

Safety Data Sheets (SDSs) shall be provided for all hazardous materials brought onto the work-site. One copy shall be provided to the Consultant.

## 1.21 OTHER ITEMS

A sufficient quantity of other items shall be provided that may include, but not be limited to: scrapers, brushes, brooms, staple guns, tarpaulins, shovels, rubber squeegees, dust pans, scaffolding, staging, ladders, lumber necessary for the construction of regulated areas, UL approved temporary electrical equipment and lighting, electrical chords, ground fault circuit interrupters, water hoses of sufficient length, fire extinguishers, first aid kits, portable toilets, and work area barricades.

## PART 2 PRODUCTS

### 2.01 ENCAPSULANTS

Encapsulants shall conform to USEPA requirements, shall contain no toxic or hazardous substances or solvents, and shall meet the following requirements:

ALL ENCAPSULANTS

| REQUIREMENT | TEST STANDARD |
|---|---|
| FLAME SPREAD - 25, SMOKE EMISSION - 50 | ASTM E 84 |
| COMBUSTION TOXICITY - ZERO MORTALITY | UNIVERSITY OF PITTSBURGH PROTOCOL |
| LIFE EXPECTANCY - 20 YEARS | ASTM C 32 |
| PERMEABILITY - MIN. 0.4 PERMS | ASTM E 96 |

ADDITIONAL REQUIREMENTS FOR PENETRATING ENCAPSULANT

| REQUIREMENT | TEST STANDARD |
|---|---|
| COHESION/ADHESION TEST - 50 LBS. OF FORCE PER FOOT | ASTM E 736 |
| FIRE RESISTANCE - NEGLIGIBLE AFFECT ON FIRE RESISTANCE RATING OVER 3 HOUR TEST (CLASSIFIED BY UL FOR USE OVER FIBROUS AND CEMENTITIOUS SPRAYED FIREPROOFING) | ASTM E 119 |
| IMPACT RESISTANCE - MINIMUM 43 INCHES PER POUND | ASTM D 2794 GARDNER IMPACT TEST |
| FLEXIBILITY - NO RUPTURE OR CRACKING | ASTM D 522 MANDREL BEND TEST |

ADDITIONAL REQUIREMENTS FOR LOCK-DOWN ENCAPSULANT

| REQUIREMENT | TEST STANDARD |
|---|---|
| BOND STRENGTH - 100 LBS. OF FORCE PER FOOT (TESTS COMPATIBILITY WITH CEMENTITIOUS AND FIBROUS FIREPROOFING) | ASTM E 736 |
| FIRE RESISTANCE - NEGLIGIBLE AFFECT ON FIRE RESISTANCE RATING OVER 3 HOUR TEST (TESTED WITH FIREPROOFING OVER ENCAPSULANT APPLIED DIRECTLY TO STEEL MEMBER) | ASTM E 119 |

## PART 3 EXECUTION

### 3.01 GENERAL

Asbestos abatement work tasks shall comply with the detail of all parts of this specification section, and as summarized under paragraph 3.08 herein, and per applicable notes shown on the drawings. Personnel shall wear and utilize protective clothing and equipment as specified herein. Eating, smoking, or drinking shall not be permitted in the asbestos regulated work area. Personnel of other trades not engaged in asbestos abatement activities shall not be exposed at any time to airborne concentrations of asbestos unless all the administrative and personal protective provisions as required herein are complied with. If an asbestos spill or release occurs outside of the asbestos regulated work area, work shall be stopped and the Consultant shall be notified. The condition shall be corrected to the satisfaction of the Consultant including air sampling, prior to resumption of work. The Contractor shall stop abatement work in the asbestos regulated work area immediately when the measured airborne total fiber concentrations, as sampled and analyzed as required herein, (1) equals or exceeds 0.01 f/cc or the pre-abatement concentration, whichever is greater, - outside the asbestos regulated work area, or (2) equals or exceeds 0.1 f/cc inside the asbestos regulated work area. The Contractor shall correct the condition to the satisfaction of the Consultant, including visual inspection and air samplings. Work resumption will only be allowed upon notification by the Consultant. Corrective actions shall be documented.

### 3.02 PROTECTION OF ADJACENT WORK OR AREAS

Asbestos abatement work shall be performed without contamination of adjacent work or area. Where such work or area is contaminated, as verified by the Consultant using visual inspection and/or sample analysis, it shall be decontaminated by the Contractor at no expense to the School System, as deemed appropriate by the Consultant. This includes inadvertent spills of dust or debris in which it is reasonable to conclude that asbestos may exist. When these spills occur, work shall stop in all effected areas immediately and the spill shall be cleaned. When satisfactory visual inspection and/or sampling analysis results are obtained and have been evaluated by the Contractor's competent person and the Consultant, work may proceed.

### 3.03 INCIDENTAL REMOVAL AND RELOCATION OF NON-ACM

The Contractor shall provide all clean-up, relocation and incidental demolition necessary to access and fully remove all ACM (e.g. demolish/relocate cabinets or appliances installed over ACM flooring). These non-ACM items shall be separated from the ACM and completely removed from the control area prior to disturbance of the ACM. The non-ACM may be left in the building provided they do not become contaminated.

### 3.04 CRITICAL BARRIERS

Critical barriers shall be installed, as specified herein, over any HVAC system air intakes within or directly adjacent to the ACM removal areas. The barriers over small existing building openings shall be at least 6 mil polyethylene sheeting securely attached and

sealed along all edges and seams. More durable membranes, such as reinforced poly or plastic tarpaulins, and temporary framing shall be provided as necessary for use at large openings.

## 3.05 ELECTRICAL SYSTEM AND LIGHTING

Electrical power will be available at the building. The Contractor shall provide temporary service connections with GFI protection for each outlet. The Contractor shall also provide all cords necessary to power his equipment and any temporary lighting needed to facilitate the removal work and Consultant's inspections. Temporary lighting shall be adequate to accomplish the work in a safe manner and illuminate the surfaces to be abated. All electrical work shall be provided in accordance with applicable codes.

## 3.06 WATER AND TOILETS

Water will be available at the building. Water may be obtained from the existing system on site using Contractor provided connections to include back flow preventors. The Contractor shall provide adequate water for all requirements including but not limited to wet removal, waste wetting, personnel decontamination, equipment decontamination and work area decontamination.

## 3.07 PRECLEANING

Walls, ceilings, and surfaces other than floors within the interior work areas shall be pre-cleaned prior to installation of poly sheeting so that when the wall poly is taken down at the end of gross removal the space will be ready for aggressive final air clearance. This will help ensure that their will not be an additional release of fibers that will require longer settling time prior to the final air sampling.

## 3.08 CONTROL AREA ESTABLISHMENT AND ACM REMOVAL REQUIREMENTS

Under the following ACM removal item the specified procedures shall be performed sequentially and each activity shall be completed, to the extent feasible, before proceeding to the next. The steps described below are condensed. More detailed requirements related to the specific steps are specified elsewhere in this section.

A. General Removal Criteria:

1. Issue additional insured insurance certificate, EPA/ADEM notification, and other items of the pre-work submittal package at least 10 working days prior to commencement of on-site ACM abatement activities. These items shall be issued such that they are received by the Consultant in time to be reviewed and for any needed corrective actions to be taken without impacting the project schedule.
2. Coordinate ACM work with the work of all other trades to ensure that those personnel are aware of the ACM and do not disturb it.
3. Coordinate the ACM work to ensure that the Consultant has ample opportunity to conduct visual inspections and air monitoring prior to, during, and after abatement.

Promptly correct and deficiencies identified by the Consultant, at no additional cost to the Construction Manager or Property Owner.

4. Ensure that the competent person / abatement supervisor is on site at all times during preparation, removal, and cleaning operations.

B. Removal of Interior ACM – TSI Elbows, Fittings and Associated Mechanical Mastics:

Note: The vast majority of ACM thermal system insulation fittings are still present. There is newer non-ACM TSI that has been installed on the main mechanical systems located in the basement areas (chillers, boiler, air handlers, etc.). The remaining ACM TSI is found in elbows, fittings and black mechanical mastics associated with the potable, chilled and hot water systems. These ACM materials are primarily located within the mechanical rooms on each floor, wall and ceiling cavities, and plumbing chases associated with the restrooms. Demolition of wall systems may be required in localized areas to access these materials. Glove bag removal techniques may be used on this material. If gross removal techniques are utilized in conjunction with the removal of other asbestos containing materials the following requirements will apply.

1. Ensure that the criteria described above at “3.08.A General Removal Criteria” have been fulfilled.
2. Temporary lighting shall be established as required for safe working conditions.
3. Remove from the building all loose non-ACM materials in the work area.
4. Tools, ladders, etc., necessary for the work, shall be placed in the area to be isolated prior to erection of the control barriers.
5. Personnel Decontamination Unit shall be constructed as specified in paragraph 1.12. The Personnel Decontamination Unit shall be physically attached to the removal area at a location where uninterruptable water and power has been established by the Contractor. A waste Load-Out unit shall be constructed as specified herein and physically attached to the control area.
6. Below ceiling surfaces shall be precleaned by removing all dust and debris using HEPA filtered vacuums and wet wiping.
7. Critical barriers of at least 6 mil polyethylene sheeting shall be installed and sealed over all building and HVAC system openings in the work area and over all perimeter wall windows. Seal all polyethylene sheeting seams with spray adhesive and duct tape. Secure all polyethylene sheeting edges using combination of adhesive, tape and staples.
8. HEPA filtered local exhaust ventilation system shall be installed as specified, creating a negative pressure enclosure (NPE). A minimum of four air changes per hour shall occur in the NPE with air exhausted through the HEPA filtered unit. A minimum of negative 0.02 column inches of water pressure differential relative to outside pressure shall be maintained in the NPE 24 hours per day until the final air clearance release criteria has been achieved.
9. Cover walls with one (1) layer of 4 mil polyethylene sheeting. (Not required within areas where perimeter wall systems are to be abated.)
10. Install clearly visible warning signs outside the decontamination unit, load out unit, and all entrances and approaches to the asbestos work area.
11. Obtain visual inspection from the Consultant and proceed after approval.
13. Thoroughly wet and remove asbestos containing TSI while maintaining the specified negative pressure in the containment. Carefully place all ACM in 6 mil polyethylene

bags or other approved containers and seal. Advance bags to load out unit for washing and double bagging.

14. Remove all visible dust and debris from all surfaces in the work area.
15. Obtain visual inspection from Consultant and correct (at contractor's expense) any deficiencies identified. Consultant will conduct final air monitoring only upon achieving an acceptable visual inspection.
16. Dismantle barriers, decontaminate facility, and load out unit upon achieving final clearance criteria. Double bag and dispose of polyethylene sheeting as ACM waste.

C. Removal of Interior ACM – Sprayed Applied Acoustical Ceiling Texture:

1. Isolate regulated area by sealing all wall surfaces, including windows, from floor to ceiling with a minimum of two layers of six-mil plastic sheeting. Seal all seams with spray adhesive and duct tape to prevent air movement across the seams.
2. Cover floor surfaces with a minimum of two layers of six-mil plastic sheeting overlapping wall sheeting a minimum of 12 inches and securing edges with duct tape.
3. Construct airlocks, shower, and decontamination unit in compliance with OSHA Standards and EPA guidelines at the entry/exit to the regulated area.
4. Provide temporary electric power and lighting (equipped with ground fault circuit interrupters), as necessary, to maintain a safe work environment.
5. Place regulated area under diminished air pressure of -0.02 inches of water column and a minimum of four (4) air changes per hour utilizing HEPA filtration systems which comply with ANSI Z9.2-79. Discharge filtered exhaust air outside the building and away from any HVAC air intakes.
6. Ensure that all barriers and enclosures remain effectively sealed during the duration of abatement, cleaning, and clearance inspection activities.
7. Notify the Consultant for inspection of the regulated area prior to any asbestos removal activities.
8. Wet ceiling texture with amended water and remove from substrate by scraping. Do not allow ACM waste material to fall more than three feet. Collect and bag ACM waste material as it is removed. Do not allow material to build up on floor.
9. Seal removed material in second properly labeled asbestos disposal six-mil bag. Remove bagged material from the regulated area.
10. Clean gross debris from the floor sheeting. Remove the floor sheeting and dispose of as asbestos contaminated waste.
11. Wet wipe and HEPA vacuum all surfaces until clean of visible dust and debris.
12. After visual observation and approval by the Consultant, encapsulate the cleaned ceiling surfaces with an approved lock-down encapsulant.
13. Properly dispose, at Contractor’s expense, all removed or otherwise asbestos-contaminated materials and waste in an ADEM - State of Alabama or EPA approved landfill.
14. Do not generate visible emissions during removal.

## 3.09 FINAL CLEANING AND VISUAL INSPECTION

The abated asbestos regulated work area shall be initially cleaned by collecting, packing, and storing all gross contamination. A final cleaning shall use HEPA vacuum and wet wiping of all exposed surfaces and equipment in the asbestos regulated work area. Upon completion of the final cleaning, the Contractor and the Consultant shall conduct a final visual inspection of the cleaned work area. If the Consultant rejects the abatement area as not meeting final cleaning requirements, the Contractor shall reclean as necessary and have a follow-up inspection conducted with the Consultant.

## 3.10 MONITORING & AIR SAMPLING

A. Purpose

1. Regulatory & Contractual Compliance: The purpose of the Consultant's services is to document for the Owner that the project has been has performed in accordance with applicable asbestos regulations and this contract specification.

2. Work Area Isolation: The Consultant will conduct visual inspections and air monitoring to detect deficiencies in the work area isolation such as failure of the HEPA filtration units or rupture of the work area barriers that might cause contamination of the building or other areas outside the control area with airborne asbestos fibers. Should any such breach in the system occur, the Contractor shall immediately cease asbestos abatement activities until the problem is corrected. Work shall not recommence until authorized by the Consultant. The work shall be considered complete when the area is visually clean and airborne fiber levels have been reduced to the level specified in this section.

3. Work Area Airborne Fiber Concentrations: The Consultant will monitor airborne fiber concentrations in the work area. The purpose of this air monitoring will be to detect airborne fiber counts that may significantly challenge the ability of the work area isolation procedures to protect the balance of the building or outside of the building from contamination by airborne fibers. This monitoring will not satisfy the Contractor's obligations to assess worker exposures as required by OSHA. The Consultant will conduct air monitoring throughout the course of the project.

4. Work Area Clearance: To determine if the elevated airborne fiber counts encountered during abatement operations have been reduced to an acceptable level for occupancy by non-abatement personnel. The Consultant will sample and analyze air as outlined in this section.

B. Payment for Consultant's Air Sampling and Inspection Services

1. The Construction Manager and Property Owner has designated Terrell Technical Services, Inc. as the Consultant to provide these services. The Consultant must be independent of the Contractor as required by EPA –

AHERA regulations. However, in order to ensure that the inspections and testing are performed in a timely manner that does not unduly impede the progress of the project; it shall be the Contractor's responsibility to coordinate and schedule the Consultant's services to coincide with the abatement work. The Consultant will report directly to the Owner, and the Consultant's services will be paid by the Construction Manager or Property Owner except for the cost associated with clearance failure. If the initial final clearance air sampling fails, the Contractor shall pay for the Consultant's services thereafter in accordance with the following:

| Service | Rate | Notes |
|---|---|---|
| Inspection & Sampling | Cost / man-day as per approved contract | Includes up to 10 hours on site during one day. Work days of 5 hours or less will be billed at ½ day rates. |
| PCM Analysis | NA | 12 samples Included in man-day rate above. |

C. Baseline Air Samples

1. The Consultant will secure the following air samples to establish a baseline before start of work area preparation.

| Location Sampled | No. of Samples | Sample Analysis Method | Detection Limit (f/cc) | Volume (Liters) | Flow Rate (LPM) |
|---|---|---|---|---|---|
| Work Area | 1/1000 sf (5 min.) | PCM | 0.001 | 3000 | 2-16 |
| Ambient | 2 minimum | PCM | 0.001 | 3000 | 2-16 |

2. Baseline: An action level expressed in f/cc that is 25 percent greater than the largest of either the average of the ambient PCM samples collected or 0.01 f/cc. Samples may be collected for possible TEM analysis, but will be held without analysis, if requested by the Contractor. These TEM samples will only be analyzed if the Contractor requests the results and agrees to pay for the analysis.

D. Daily Monitoring Air Samples

1. From the start of work area preparation through the final cleaning work, the Consultant may be taking the following samples on a daily basis:

| Location Sampled | No. of Samples | Sample Analysis (Method) | Detection Limit (f/cc) | Volume (Liters) | Flow Rate (LPM) |
|---|---|---|---|---|---|
| Work Area | 1/2000 sf | PCM | 0.001 | 1000-3000 | 2-16 |
| Barrier | 1 | PCM | 0.001 | 1000-3000 | 2-16 |
| Clean Room | 1 | PCM | 0.001 | 1000-3000 | 2-16 |
| Load Out | 1 | PCM | 0.001 | 1000-3000 | 2-16 |
| Ambient | 1 | PCM | 0.001 | 1000-3000 | 2-16 |
| Exhaust | 1 | PCM | 0.001 | 1000-3000 | 2-16 |
| Output | 1 | PCM | 0.001 | 1000-3000 | 2-16 |

2. Additional samples may be taken at the Consultant's discretion. If airborne fiber counts exceed allowed limits, additional samples will be taken as necessary to monitor fiber levels.

E. Interior Work Area Clearance Air Samples Using TEM (Optional). Note: If the structure is not to be re-occupied by staff, students or the public, clearance sampling shall be performed by PCM analysis as outlined in 3.10 F below.

1. In each interior work area, after completion of all cleaning work, a minimum of 13 samples will be taken and analyzed as follows:

| Location Sampled | No. of Samples | Sampling Sensitivity (f/cc) | Recommended Volume (Liters) | Flow Rate (LPM) |
|---|---|---|---|---|
| Each Work Area | 5 | 0.005 | 1300 to 1800 | 1-10 |
| Outside Each Work Area | 5 | 0.005 | 1300 to 1800 | 1-10 |
| Work Area (Blank) | 1 | 0.005 | 0 | Open for 30 Seconds |
| Outside (Blank) | 1 | 0.005 | 0 | Open for 30 Seconds |
| Laboratory (Blank) | 1 | 0.005 | 0 | Do Not Open |

2. Analysis will be performed using the analytical method set forth in the AHERA Regulation 40 CFR Part 763 Subpart E, Appendix A.

3. "Asbestos structures" referred to in this section include asbestos fibers, bundles, clusters or matrices, as defined by method of analysis.

4. Release Criteria: Decontamination of the work site is complete if either of the following two sets of conditions are met:

   a. When work area samples are below filter background levels.

      i. All work area sample volumes are greater than 1,199 liters for a 25-mm sampling cassette.
      ii. The average concentration of asbestos on the five work area samples does not exceed the analytical sensitivity level of 0.005 f/cc.

   b. When work area samples are not statistically different from outside samples.

      i. All sample volumes except for blanks are greater than 1,199 liters for a 25-mm sampling cassette.
      ii. The average asbestos concentration of the three blanks is below the analytical sensitivity level of 0.005 f/cc.
      iii. Average asbestos concentrations of work area samples are not statistically different from outside samples, as determined by the Z-test calculation found in 40 CFR Part 763, Subpart E, Appendix A (Z is less than or equal to 1.65).

   c. If these conditions are not met, then the decontamination is incomplete and the cleaning procedures and air sampling, shall be repeated.

5. Termination of Analysis: If the arithmetic mean (average) asbestos concentration on the blank filters exceeds 70 structures per square millimeter of filter area, the analysis will cease and new samples will be collected.

F. Interior Work Area Clearance Air Samples Using PCM

1. In each building interior work area, after completion of all cleaning work, a minimum of 5 samples will be taken and analyzed as follows:

| Location Sampled | No. of Samples | Detection Limit (f/cc) | Recommended Volume[1] (Liters) | Flow Rate (LPM) |
|---|---|---|---|---|
| Each Work Area | 5 | 0.001 | 3000-10000 | 2-16 |

1 – as per NIOSH Method 7400, Issue 3

2. Termination of Analysis: If all samples contain less than 0.010 f/cc, the EPA/AHERA Clearance/Re-Occupancy Value, then the air sampling clearance criteria has been achieved and the sampling will terminate. If any sample exceeds 0.01 f/cc, then recleaning must occur and new samples will be collected.

G. Exterior work Area Clearance Air Samples by PCM

1. After completion of all cleaning work in each abatement work area, samples will be taken and analyzed as follows:

| Location Sampled | No. of Samples | Detection Limit (f/cc) | Minimum Volume[1] (Liters) | Flow Rate (LPM) |
|---|---|---|---|---|
| Work Area | 1/1000 $ft^2$ 5 minimum | 0.001 | 3000 | 2-16 |

1 – as per NIOSH Method 7400, Issue 3

2. Analysis: Each sample will be analyzed using NIOSH Method 7400, Issue 3

3. Release Criteria: Decontamination of the work site is complete when every work area sample is at or below the EPA/AHERA clearance limit of 0.010 f/cc indicated above. If any sample is above the EPA/AHREA clearance limit, then the decontamination is incomplete and re-cleaning is required.

H. Personal Air Samples Using PCM: The Contractor shall be responsible for collection of personal exposure air samples for his/her crew in accordance wit 29 CFR 1926.1101. Monitor at least 25% of work force each day. Competent person may collect the samples. Samples must be analyzed by a person trained in accordance with NIOSH 582 criteria.

## 3.11 CLEAN-UP AND DISPOSAL

A. Housekeeping: Surfaces of the regulated work area shall be kept free of accumulation of asbestos-containing debris. Meticulous attention shall be given to restricting the spread of dust and debris. HEPA filtered vacuum cleaners shall be used. The space shall not be blown down with compressed air. When asbestos removal is complete, all asbestos waste is removed from the work site, and final clean-up is completed, the Consultant will certify the areas as safe before the warning signs and boundary warning tape can be removed. The Contractor and Consultant will visually inspect all surfaces within the containment for residual material debris that may have collected behind the barriers. The Contractor shall reclean all areas showing dust or residual materials. The Consultant shall certify in writing that the area is safe before unrestricted entry is permitted.

B. Title to Materials: Material resulting from abatement work, except as specified otherwise, shall become the property of the Contractor and shall be disposed of as specified in applicable local, state, and Federal regulations and herein.

C. Collection and Disposal of Asbestos: Asbestos waste, asbestos contaminated water, scrap, debris, bags, containers, equipment, and asbestos contaminated clothing, shall be collected and placed in sealed 6-mil bags, sealed 6-mil double wrapped polyethylene sheet, or other approved containers. Waste within the containers must be wetted in case the container is breached. An OSHA warning and Department of Transportation (DOT) label shall be affixed or preprinted on each container. Generator labels shall also be affixed as required by CFR 40 Part 61 Subpart M. Waste asbestos material shall be disposed of in a state approved asbestos landfill. For temporary storage, sealed double bagged waste shall be stored in secured waste containers with hard impermeable sides, top, and bottom. Waste storage within open top dumpsters is strictly prohibited. Waste storage containers shall be at locations approved by the Lauderdale County Commission. The container shall include external warning signs in accordance with applicable regulations and shall be locked or otherwise secured at all times. Procedure for hauling and disposal shall comply with CFR 40 Part 61, Subpart M, state, regional, and local standards.

D. Asbestos Waste Shipment Record: The Contractor shall complete and provide final completed copies of the Waste Shipment Record for all shipments of waste material, as specified in CFR 40 Part 61, Subpart M, to the Consultant before submitting application for payment.

**End of Section 02080**

# APPENDIX A

## JULY 2025 LIMITED CLIENT DIRECTED BULK ASBESTOS SAMPLING EVENT

Terrell
Technical Services, Inc.
Environmental, Health & Safety Solutions

26675 Success Drive SW
Madison, AL 35756
P. O. Box 1116
Madison, AL 35758

Phone: 256-461-9278
Fax: 256-461-9279
Email: terrelltsi@terrelltsi.com

**August 21, 2025**

**Client:** Lauderdale County Commission
P.O. Box 1059
Florence, AL 35631

**TTSI Project No.:** 2025-0767
**Re:** Lauderdale County Courthouse
200 South Court Street
Florence, AL 35630
**Sample Date:** 07/11/2025
**Collected by:** Jonathan Cervantes, U.S. EPA Accredited Asbestos Inspector

**Services Rendered:** Limited Bulk Asbestos Sampling Event and Analysis Conducted as per project applicable sections of ASTM Standard E2308 "Guide for Limited Asbestos Screens of Buildings".

**Methodology:** Samples were analyzed utilizing Polarized Light Microscopy according to EPA Method 600/R-93/116 by a NVLAP-accredited laboratory

**Results:**

| Sample ID | Location | Description | Asbestos | Other Fibrous | Non-Fibrous |
|---|---|---|---|---|---|
| #1 | Basement Mechanical Room 3" Elbow TSI | Cream/Gray Pipe Insulation | 2% Amosite <1% Chrysotile | 20% Mineral Wool | 78% |
| #2 | 1st Floor Entry Lobby Ceiling | White/Cream Ceiling Texture | 3% Chrysotile | None Detected | 97% |
| #3 | 2nd Floor Elevator Lobby Ceiling | White/Cream Ceiling Texture | 2% Chrysotile | None Detected | 98% |
| #4 | 5th Floor Hallway Ceiling | White/Cream Ceiling Texture | 4% Chrysotile | None Detected | 96% |

Materials found to contain asbestos fibers in percentages greater than one percent are regulated by EPA and OSHA.

Terrell Technical Services, Inc. appreciates the opportunity to provide you with these services. If you should have any questions regarding this report, please feel free to contact me at (256) 461-9278.

Sincerely,

Elliott Terrell, Senior Project Manager
EPA / AHERA / State of Alabama
Accredited Asbestos Inspector

**Safety Environmental Laboratories and Consulting, Inc.**

989 Yeager Parkway
Pelham, AL 35124

Phone: (205) 823-6200
Fax: (205) 823-9066

TESTING
LAB CODE: 200873-0

August 20, 2025

Terrell Technical Services, Inc.
26675 Success Drive
Madison, AL 35758

Re: **Amended Asbestos Bulk Sample Analysis Report**

| | |
|---|---|
| Project No.: | 2025-0767 |
| Project Name: | Lauderdale County Commission |
| Project Location: | 200 South Court Street, Florence, AL |
| SELC Project No.: | 2025-1853 |

Safety Environmental Laboratories and Consulting, Inc. (SELC) is pleased to present you with an amended Asbestos Bulk Sample Analysis Report.

The following is a list of the revisions provided on the attached report:

1) Project Name has been modified to reflect amended Chain of Custody form.

SELC appreciates the opportunity to have provided you with these services. If you have any questions or need assistance in the future, please feel free to contact me at 205-823-6200.

Thank you,

Christy McKee
Laboratory Director

Safety Environmental Laboratories and Consulting, Inc.
989 Yeager Pkwy.
Pelham, AL 35124
Phone: (205) 823-6200
Fax: (205) 823-9066

# Asbestos Bulk Sample Analysis Report

NVLAP TESTING
LAB CODE: 200873-0

Customer: **Terrell Technical Services, Inc.**
**26675 Success Drive SW**
**Madison, AL 35758**

Telephone: **256-461-9278** Fax: **256-461-9279**

TTSI Project #: **2025-0767**
Project Name: **Lauderdale County Commission**
Project Location: **200 South Court Street, Florence, AL**

SELC Project #: **2025-1853**

Sample Receipt Date: 07/14/2025
Sample Analysis Date: 07/14/2025
Sample Report Date: 07/14/2025
Amended Report Date: 08/20/2025

**Analysis:** Asbestos Identification in Bulk Materials by Polarized Light Microscopy
**Methods:** EPA – Appendix E to Subpart E of 40 CFR Part 763, EPA Method 600/R-93/116
Note: See Attached Notes and Descriptions Sheet for Applicable Abbreviations and Notes

| Customer Sample No. | Lab Sample No. | Sub-sample No. | Layer No. | Sample Location / Description | Homo-geneous (yes/no) | Asbestos % and Type | % Non-Asbestos Fibers | % Non-Fibrous Material |
|---|---|---|---|---|---|---|---|---|
| 1 | 1 | N/A | 1 | Basement Mechanical Room – 3 Inch Elbow TSI<br>TSI – Cream/Gray, Soft, Fibrous | N | 2% Amosite<br><1% Chrysotile | 20% Mineral Wool | 78% |
| 2 | 2 | N/A | 1 | 1st Floor Entry Lobby – Ceiling Texture<br>Paint/Ceiling Texture – White/Cream, Soft, Foamy | N | 3% Chrysotile | None Detected | 97% |
| 3 | 3 | N/A | 1 | 2nd Floor Elevator Lobby – Ceiling Texture<br>Paint/Ceiling Texture – White/Cream, Soft | N | 2% Chrysotile | None Detected | 98% |
| 4 | 4 | N/A | 1 | 5th Floor Hallway – Ceiling Texture<br>Paint/Ceiling Texture – White/Cream, Soft, Foamy | N | 4% Chrysotile | None Detected | 96% |

☒ This report is **FINAL** ☐ This report is **PRELIMINARY** – pending final QC

Template-QMS-012 ver. 1.7



Carly Glidewell
**Analyst**
Carly Glidewell – Technical Manager

K. Elizabeth Smith
**Technical Review**
Elizabeth Smith – Laboratory Analyst

K. Elizabeth Smith
**Quality Review**
Elizabeth Smith – Laboratory Analyst

989 Yeager Pkwy.
Pelham, AL 35124

Phone: (205) 823-6200
Fax: (205) 823-9066



## PLM Notes and Descriptions

1. Upper detection limit: 100%. Lower detection limit: <1%.
2. Bulk Samples will be stored for 3 months and will then be disposed of in an approved EPA landfill.
3. Analysis of floor tile or any other resinously bound materials by polarized light microscopy (PLM) using EPA – Appendix E to Subpart E of 40 CFR Part 763, EPA Method 600/R-93/116 may yield false-negative results because of method limitations in separating closely bound fibers from matrix material and in detecting fibers of small length and/or diameter. When analysis of such materials by the EPA PLM Method yields negative results for the presence of asbestos we recommend utilizing alternative methods of identification such as Gravimetry, XRD or AEM.
4. Analysis of vermiculite samples by polarized light microscopy (PLM) using EPA – Appendix E to Subpart E of 40 CFR Part 763, EPA Method 600/R-93/116 may yield false-negative results because of method limitations in separating particulate materials from the vermiculite as well as limitations in detecting fibers of small length and/or diameter. It is recommended that vermiculite samples identified as negative be analyzed further by alternative methods such as the Cincinnati method.
5. Samples are not homogenized by SELC prior to analysis. Distinct material layers within a sample are analyzed and reported separately by SELC. When multiple products are submitted by the customer under one sample number, SELC indicates those distinct products as sub-samples. SELC retains all samples numbers but will designate a sample number to those that are not given a sample number by the customer.
6. Percentages given are based on a visual estimated calibration.
7. Safety Environmental Laboratories and Consulting, Inc. is a NVLAP accredited laboratory, Lab Code: 200873-0 (ISO/IEC Standard 17025:2017 Compliant).
8. All tests were performed under the scope of SELC's NVLAP accreditation, unless indicated otherwise.
9. All samples were tested in the condition received ("Good", unless otherwise noted).
10. This report must not be used to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.
11. Analysis performed using a Leica DM750P Polarized Light Microscope.
12. These results only apply to samples tested with customer provided information. Please see attached Chain of Custody.



| Analyst | Technical Review | Quality Review |
|---|---|---|
| Carly Glidewell – Technical Manager | Elizabeth Smith – Laboratory Analyst | Elizabeth Smith – Laboratory Analyst |

# Safety Environmental Laboratories and Consulting, Inc.

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*Environmental, Health, and Safety Solutions*

SELC

## Chain of Custody Form

Customer: Terrell Technical Services, Inc.
Address: 26675 Success Drive
Madison, AL 35758
Phone: 256-461-9278 Fax:
E-mail: jonnie.cervantes@terrelltsi.com

Project Number: 2025-0767
Project Name: Lauderdale County Commission
Project Location: 200 South Court Street, Florence, AL
PO Number:
SELC Proj. #: 25-1853

**Sample Type**
- ☐ Air
- ☒ Bulk
- ☐ Paint
- ☐ Soil
- ☐ Waste
- ☐ Other:

**Asbestos Analysis**
- ☐ Asbestos Air - PCM
- ☐ Asbestos Air - TEM
- ☒ PLM*
- ☐ PLM (EPA Point Count)
- ☐ Other:

**Metals Analysis**
- ☐ Total Conc. - Lead
- ☐ Total Conc. - RCRA 8-Metals
- ☐ TCLP - Lead
- ☐ TCLP - RCRA 8-Metals
- ☐ TCLP - Full (w/ organics)
- ☐ Other:

**Turn-Around Time****
- ☒ Rush/Same Day'
- ☐ Next Day
- ☐ 2 Business Days
- ☐ 3 Business Days
- ☐ 4 Business Days
- ☐ Other:

* *EPA-Appendix E to Subpart E of 40 CFR Part 763, EPA Method 600/R-93/116.*
** *Some TAT not available for all tests. Must schedule rush organics, multi-metals, and weekend tests in advance. Results will be submitted by close of business (5:00pm Central Standard Time) Business Hours: Monday-Friday 8:00am-5:00pm CST ' Same day not available after 12:00 PM.*

- Field blanks should be submitted with all samples -

| Sample # | Date Sampled | Sample Description (e.g. Employee Name, SSN, Bldg, Material) | Area Wiped (ft²) | Type ‡ A/B/P/E | Time of Sampling Start | Time of Sampling Stop | Flow Rate (L/min) Start | Flow Rate (L/min) Stop | Total Vol. (L) | SELC USE ONLY # | SELC USE ONLY Cond |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 7/11/2025 | Basement Mechanical Room - 3 Inch Elbow TSI | | | | | | | | 1 | G |
| 2 | 7/11/2025 | 1st Floor Entry Lobby - Ceiling Texture | | | | | | | | 2 | " |
| 3 | 7/11/2025 | 2nd Floor Elevator Lobby - Ceiling Texture | | | | | | | | 3 | " |
| 4 | 7/11/2025 | 5th Floor Hallway - Ceiling Texture | | | | | | | | 4 | " |
| | | | | | | | | | | | |
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| | | | | | | | | | | | |

‡ A - Area, B - Blank, P - Personal, E - Excursion

**Sampled By:**
Signature

| Relinquished by: Signature | Date | Time | Received By: Signature | Date | Time |
|---|---|---|---|---|---|
| | 7/11/2025 | 17:00 | Betty Lineberry | 7/14/25 | 10:20a |
| | | | | | |
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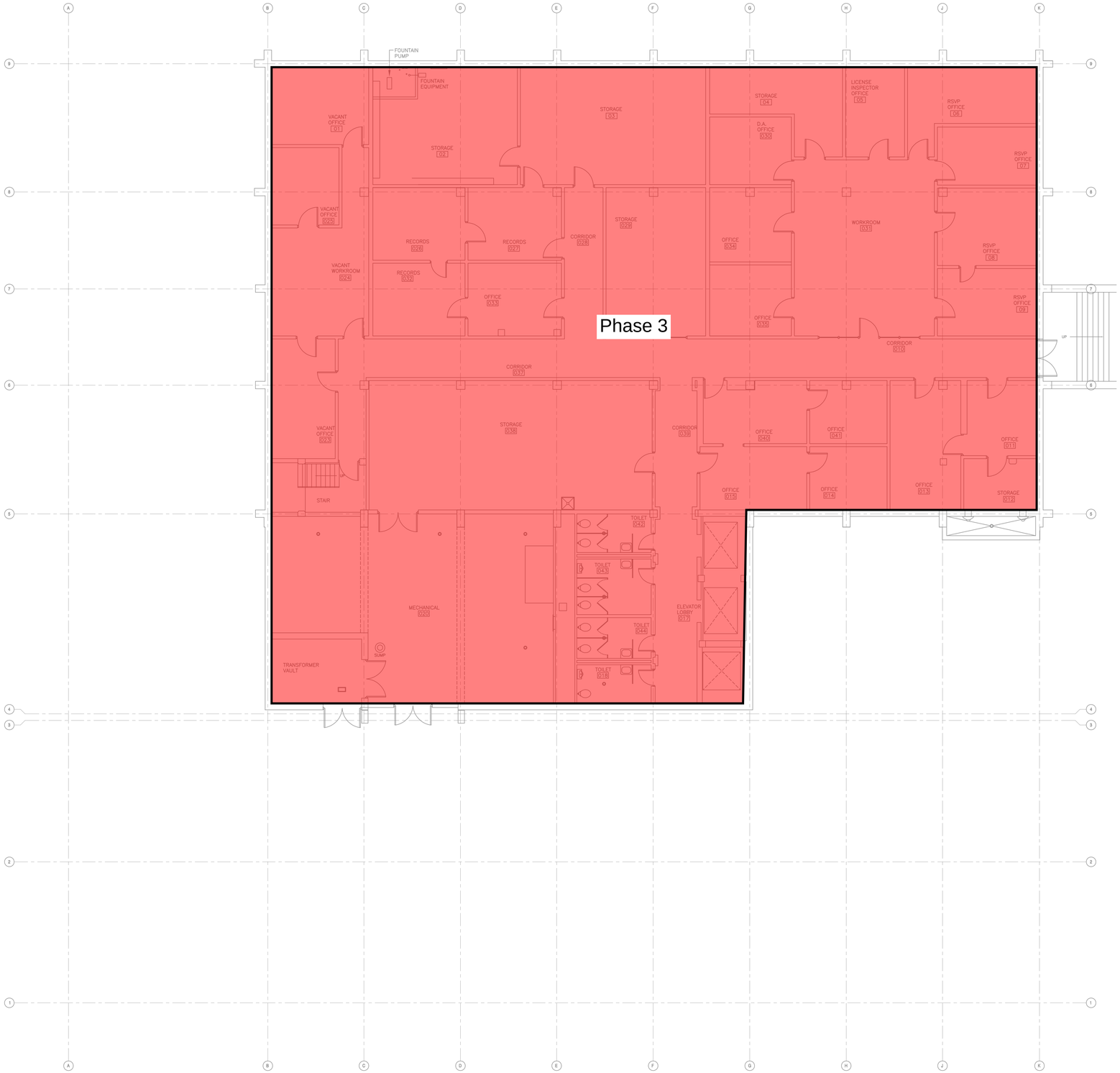
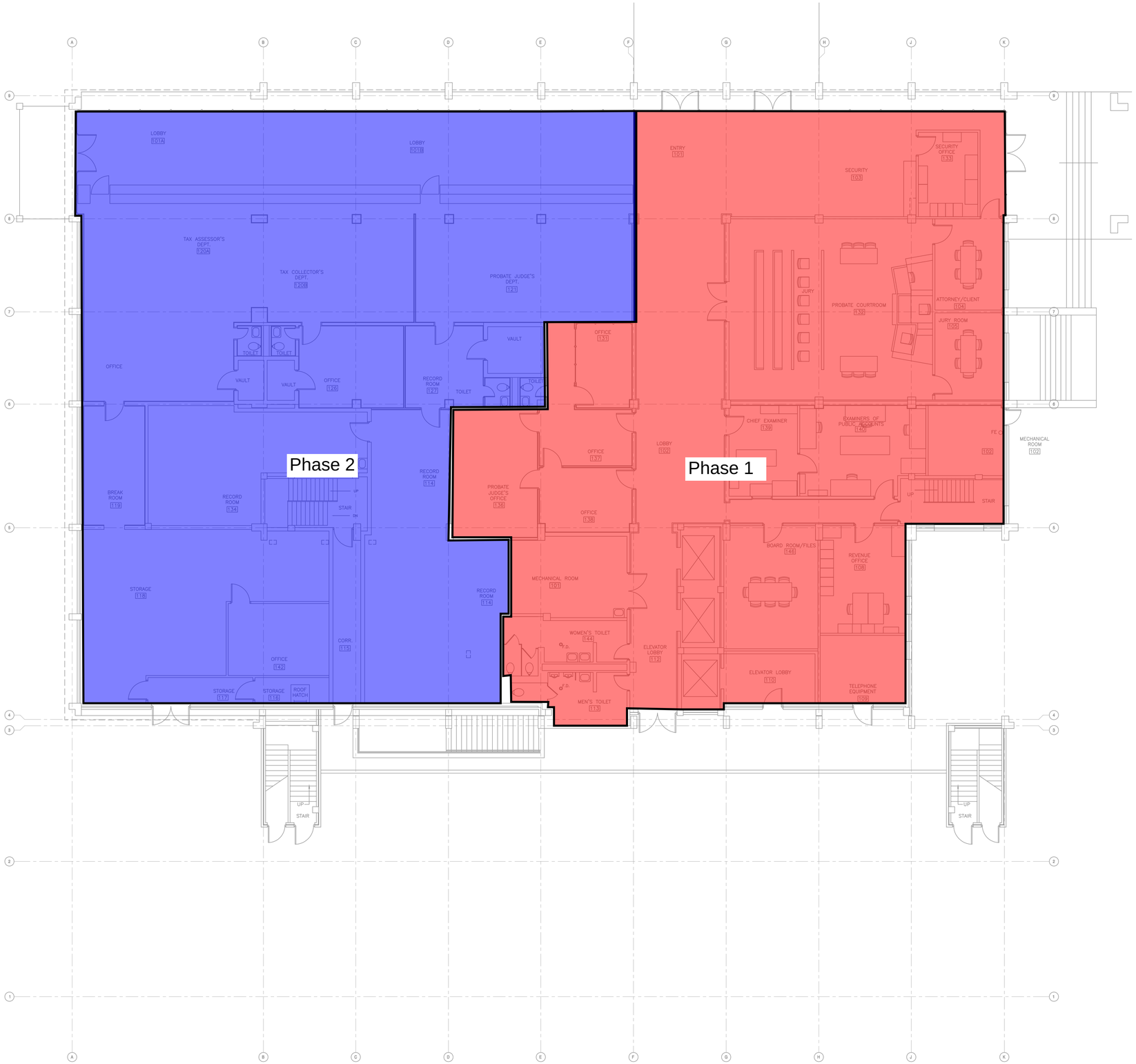
# APPENDIX B

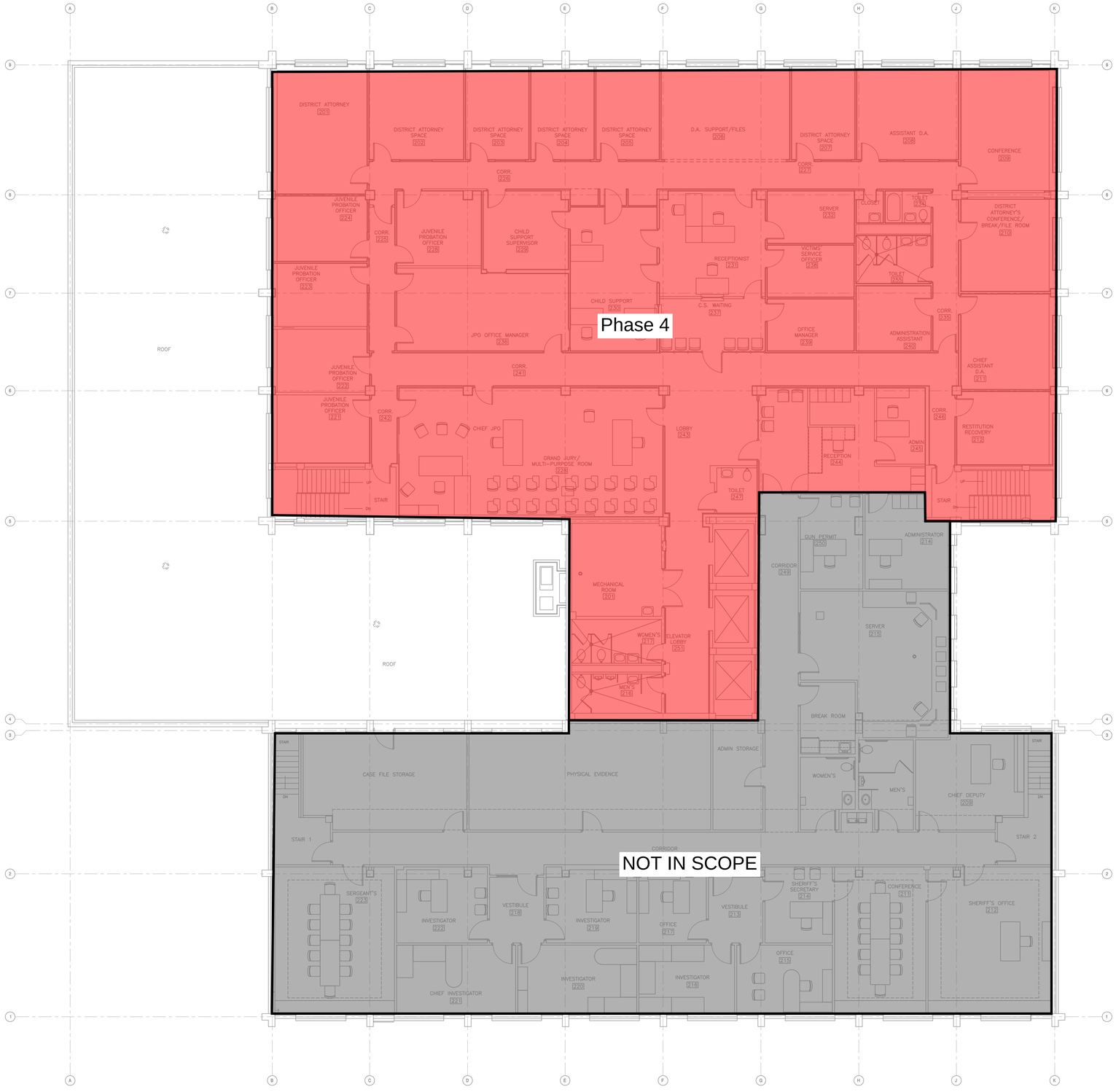
## ABATEMENT SITE DRAWINGS



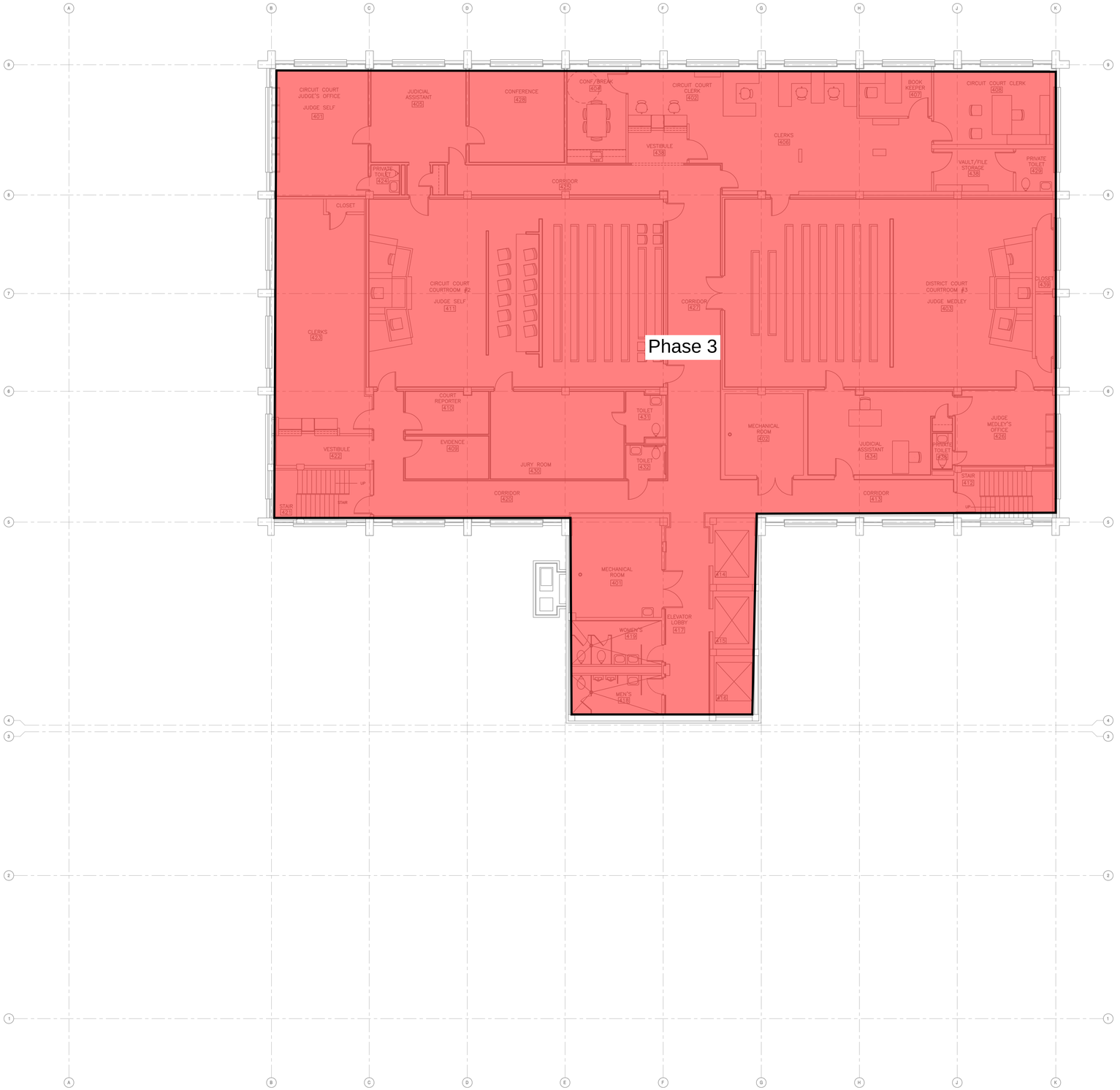

# BASEMENT PHASING PLAN



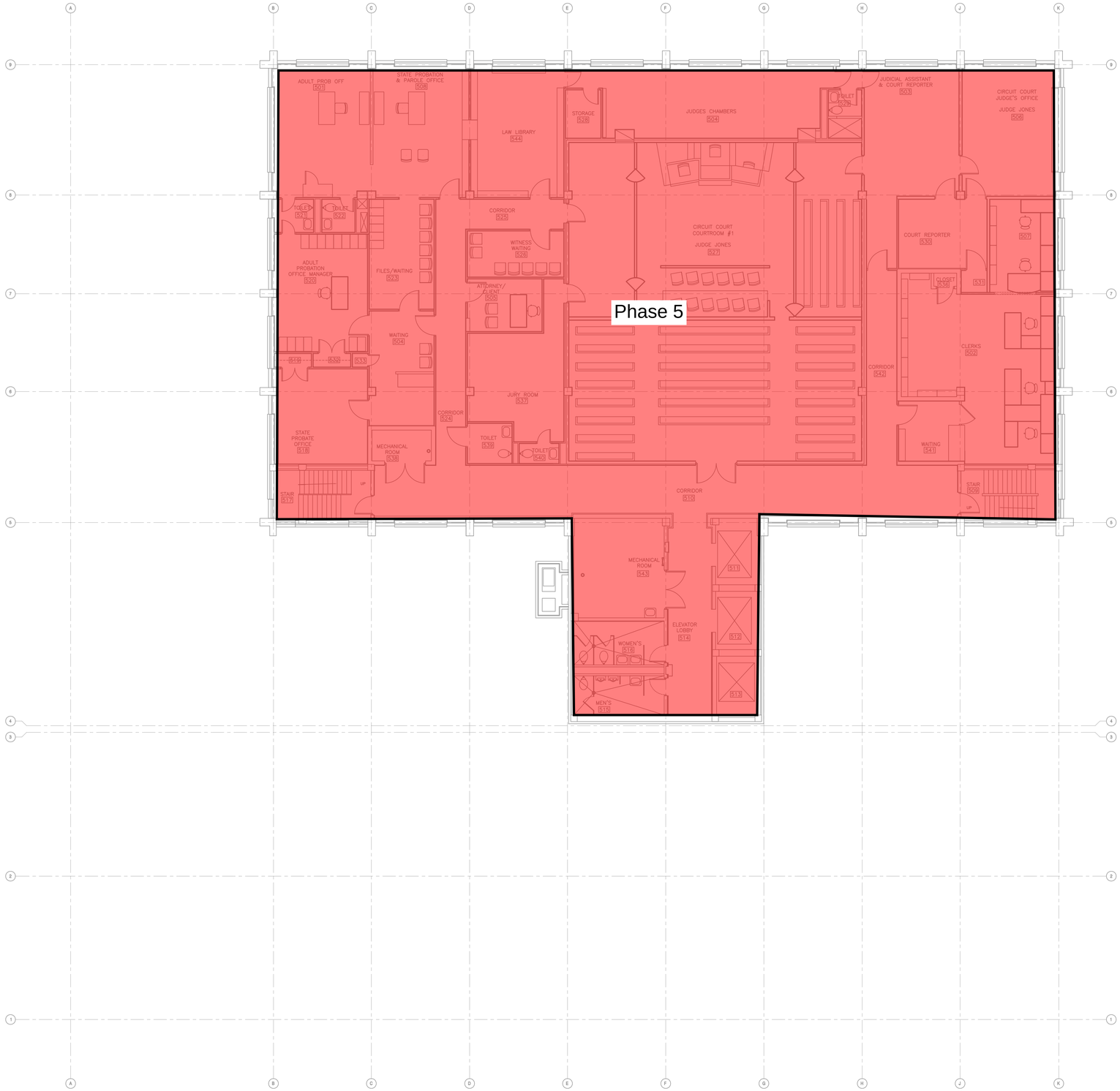

# 1ST FLOOR PHASING PLAN




# 2ND FLOOR PHASING PLAN




# 4TH FLOOR PHASING PLAN




# 5TH FLOOR PHASING PLAN