TRUENORTH
CONSULTANTS

ASBESTOS ABATEMENT AND REMEDIAL ACTION DESIGN PLAN

Kroger Store J-888
201 E. Bidwell Street
Taylorville, Illinois 62568

Prepared for:

The Kroger Co.
5960 Castleway W. Drive
Indianapolis, Indiana 46250

Prepared by:

True North Consultants, Inc.
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Naperville, IL 60564

Phone: 630.717.2880

Date: September 6, 2022

Project Number: T122498

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SECTION 1

Project Information

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SECTION 1: PROJECT INFORMATION

Kroger Store J-888	
1. Facility Information	
Facility Name:	Kroger Store J-888
School Building ID:	N/A
Square Feet:	48,0000
Number of Floors:	1
Age:	1990
Present Use:	Grocery Store
Address:	201 E. Bidwell Street
City:	Taylorville, IL
County:	Christian
ZIP:	62568
Contact Person:	david.arnett@kroger.com
Phone Number:	317-579-8178
2. Facility Owner:	
Facility Owner Name:	The Kroger Co.
Address:	5960 Castleway W. Drive
City:	Indianapolis
State:	Indiana
Zip:	46250
Contact Person	David Arnett
Email	david.arnett@kroger.com
Phone:	317-579-8178
3. Abatement Schedule (Tentative)	
Start Date:	September 12, 2022 (No later than)
Finish Date:	October 7, 2022 (No later than)
Work Schedule:	7:00am – 12:00am
4. Consultant Information	
Project Designer ID:	100-06983
Project Designer Name:	Ryan M. LaDieu
Asbestos Inspector ID:	100-19959
Asbestos Inspector Name:	Mark Dreher
Analytical Method:	Polarized Light Microscopy
Name of Testing Lab:	Eurofins CEI, Inc.
Project Manager ID:	100-08350
Project Manager Name:	Gregory Jones
Air Sampling Professional ID:	100-08350
Air Sampling Professional Name:	Gregory Jones

SECTION 2

Asbestos Abatement and Remedial Action Scope of Work

SECTION 2: SCOPE OF WORK

Asbestos Abatement and Remedial Action Design Plan
Kroger Store J-888
201 E. Bidwell Street, Taylorville, Illinois 62568

True North Consultants, Inc. (Consultant) on behalf of The Kroger Co. (Client) has developed the following Scope of Work for the aforementioned project. The Scope of Work, also described within this Project Manual, will include the following:

ASBESTOS ABATEMENT

A. Conduct supplemental assessment activities at specified locations to evaluate potential impacts on mechanical systems as follows:

1) All Zones (Supplemental Mechanical System Assessment)
   - Pre-clean supply and return vents and conduct TEM air monitoring at each supply vent during system operation to determine if indications of contamination exist within the Heating, Ventilation and Air Conditioning (HVAC) system. If the results of air sample analysis indicate concentrations of airborne asbestos fibers above the US EPA clearance criteria of 70 structures per square millimeter (70 s/mm^2) at any location, interior duct cleaning will be required as part of remedial activities. In the event that the results of analysis do not indicate the presence of airborne asbestos fibers above the US EPA clearance criteria, supply and return vents will be adequately protected during abatement activities within each work zone.

B. Install containment barriers between remedial action areas and adjacent zones and perform precleaning/decontamination at specified locations to allow for additional abatement activities to be performed in accordance with provided specifications and applicable federal, state and local regulations as follows:

1) Zones 5-9 (Preparation and Cleaning to Provide Access for Flooring Abatement)
   - Install polyethylene barriers to separate each distinct work zone as identified on **Figure 1** to allow for supplemental abatement activities.
   - Conduct pre-cleaning where critical barriers are to be installed and install critical seals over windows, doors and other openings to each work zone.
   - Conduct proactive cleaning at all locations where asbestos structures had been detected during surface sampling. Any products present within the general vicinity (minimum of five feet in each direction from point of detection) of locations where asbestos fibers had been detected shall be discarded as potentially asbestos-contaminated waste materials. NOTE: Although concentrations of asbestos were not identified above assumed background levels during surface sampling, those locations where any asbestos structures were detected shall be cleaned and

decontaminated as a proactive measure regardless of the concentrations of settled asbestos fibers detected.

- Conduct aggressive TEM air monitoring within each work zone (excluding Zone 1) as identified in **Figure 1**. A minimum of five (5) TEM air samples shall be collected from each work zone to determine if indications of asbestos contamination are present. Portable leaf blowers shall be used to direct airflow across floors, walls, ceiling systems, and contents to create conditions representative of the worst-case scenario. In the event that concentrations of airborne asbestos fibers are detected above the US EPA clearance criteria of 70 s/mm^2 within any work zone, all products within the work zone shall be disposed of as potentially asbestos contaminated material and all remaining surfaces and contents shall be cleaned and retested until which point all samples are determined to be less than the stated clearance criteria.
- Shelving units and other contents present within each "clean" work zone shall be relocated to an adjacent clean work zone to allow for the removal and disposal of remaining floor tile and adhesive. Electrical disconnects and relocation of shelving within each clean work zone will be performed by appropriately qualified personnel to provide access to underlying flooring materials.

C. Conduct supplemental abatement activities at specified locations to remove remaining floor tile and adhesive materials as follows:

1) Zones 5-9 (Abatement of Remaining Floor Tile and Adhesive)
   - Remove and dispose of remaining floor tile and adhesive materials present within the specified work zones. Remaining floor tile and adhesive abatement activities shall be performed in accordance with the specifications provided in Section 4 of this plan and each work zone shall be cleared independently at the completion of abatement activities.
   - In the event that floor tile and adhesives may exist underneath fixed objects that may not reasonably be disconnected and/or moved as part of abatement activities, the remaining materials will remain and be managed in place. Floor tile removal activities performed adjacent to fixed objects shall extend to the furthest accessible full tile. Partial or broken floor tile and residual mastic shall be removed where present. Any floor tile that may remain in areas where a high potential for damage exists, the edges of the existing tile will be protected with a transition strip or equivalent method to minimize the potential for disturbance.
   - At the completion of floor tile and mastic abatement within each zone, aggressive TEM air monitoring will be conducted to verify air quality is equal to or less than the specified clearance standard. A minimum of five (5) TEM air samples shall be collected from each work zone to evaluate concentrations of asbestos within air in the work zone. Portable leaf blowers shall be used to direct airflow across floors, walls, ceiling systems, and contents to agitate settled dust/fibers and make this material airborne. Stationary fans shall be used to maintain air movement

within each zone during air sampling activities. In the event that concentrations of airborne asbestos fibers are detected above the US EPA clearance criteria of 70 s/mm^2 as averaged within the collected samples per the specified USEPA AHERA sampling protocol, the zone will be re-cleaned and aggressive TEM air sampling procedures shall be repeated until clearance criteria has been met.

D. Conduct cleaning and decontamination and remove and dispose of remaining asbestos-containing flooring materials within defined remedial action areas in accordance with provided specifications and applicable federal, state and local regulations as detailed below:

1) Zone 1 (Previous Abatement Areas and Buffer Zone)
   - Conduct pre-cleaning where critical barriers are to be installed and install critical seals over windows, doors and other openings to each work zone.
   - Pre-clean all fixed objects and surfaces in the work area that will be covered with polyethylene sheeting using HEPA filtered vacuums and/or wet cleaning techniques as appropriate.
   - All ceiling systems within this zone shall be HEPA vacuumed prior to the installation of a polyethylene sheeting ceiling.
   - Install polyethylene sheeting on the walls and ceiling to fully isolate the work area from adjacent areas and utilize High Efficiency Particulate Air (HEPA) air filtration devices (AFDs) to establish a negative pressure within the contained area.
   - Cover all remaining shelving units and associated products with a minimum of one layer of 4-mil polyethylene sheeting or as otherwise specified herein.
   - Remove all accessible floor tile and mastic located beneath refrigeration units, freezer units, and shelving. Floor tile removal shall extend to the furthest accessible full tile. Partial or broken floor tile and residual mastic shall be removed where present. Any remaining floor tile and mastic that is not readily accessible under existing freezers and refrigerators will remain in place.
   - Remove all remaining accessible floor tile and mastic located within the defined abatement as noted on the attached Asbestos Abatement and Remedial Action Design (**Figure 1**).
   - Remove tape from edges of broken floor tile within the abatement area and remove any broken floor tile and associated mastic located underneath the tape up to the next adjoining full floor tile.
   - Conduct wet wiping and HEPA vacuuming of all floor surfaces throughout the abatement area including under existing refrigeration units, freezer units and shelving.
   - Dispose of all waste materials as asbestos-containing waste materials in accordance with federal, state and local regulatory requirements.

2) Zone 2 (Interior Equipment Storage and Waste Transfer)
   - Install critical barriers at all windows, doors, and other openings to the work area.
   - Pre-clean all fixed objects and surfaces in the work area that will be covered with polyethylene sheeting using HEPA filtered vacuums and/or wet cleaning techniques as appropriate.
   - Install a polyethylene barrier to isolate the waste transfer area from adjacent storage locations as noted on the attached Remedial Action Design and Phasing Plan (**Figure 2**). Utilize High Efficiency Particulate Air (HEPA) air filtration devices (AFDs) to establish a negative pressure within the contained area.
   - Conduct HEPA vacuuming and wet wiping of all surfaces within the abatement area including existing equipment, tools, contents, walls, ceilings and floors.
   - Dispose of all waste materials as asbestos-containing waste materials in accordance with federal, state and local regulatory requirements.

3) Zone 3 (Existing ACM Dumpster)
   - Install barrier tape and signage indicating the presence of asbestos and forbidding entry by unauthorized personnel to the noted regulated area.
   - Provide a clean, empty, and lined ACM disposal dumpster to transfer waste materials from the existing ACM waste dumpster.
   - Install polyethylene sheeting to contain the area between the existing ACM dumpster and the new ACM waste dumpster. The tunnel shall be accessible by an installed air-lock chamber as noted on the attached Remedial Action Design and Phasing Plan (**Figure 2**).
   - Remove all containerized waste materials from the existing dumpster and transfer materials to the new dumpster.
   - Conduct HEPA vacuuming and wet wiping of remaining polyethylene sheeting throughout the interior of the existing dumpster and appropriately containerize materials prior to transfer to the new ACM waste dumpster.
   - Conduct HEPA vacuuming and wet wiping of remaining surfaces within the existing dumpster prior to clearance air monitoring. The new dumpster shall be closed and locked prior to the performance of clearance air monitoring and the entry secured with polyethylene sheeting.
   - Dispose of all waste materials as asbestos-containing waste materials in accordance with federal, state and local regulations.

4) Zone 4 (Equipment Storage Container)
   - Install polyethylene over the entrance to the storage container and install High Efficiency Particulate Air (HEPA) air filtration devices (AFDs) to establish a negative pressure within the storage container.
   - Conduct HEPA vacuuming and wet wiping of the surface of all existing machinery, tools and equipment throughout the interior of the container.
   - Conduct HEPA vacuuming and wet wiping of all remaining wall, ceiling and floor

surfaces.

- Dispose of all waste materials as asbestos-containing waste materials in accordance with federal, state and local regulations.

E. Any building materials or components (i.e. Refrigeration Units, Freezers, Shelving) to remain within the abatement area shall be protected from contamination. If existing components or adjacent areas are contaminated by the Contractor, the Contactor shall pay all costs associated with the clean-up and/or disposal of contaminated materials.

F. The Contractor shall ensure that all areas adjacent to abatement areas are adequately protected and that abatement areas are maintained under negative pressure for the duration of abatement activities in accordance with applicable regulatory requirements.

G. The Contractor shall assume that any visible dust and debris generated during planned asbestos abatement activities is contaminated with asbestos and shall adequately protect adjacent areas from contamination as necessary.

H. The Contractor shall ensure that surfaces within each work area have been HEPA vacuumed and wet wiped and are free of visible dust and debris at the completion of abatement prior to the initiation of clearance air monitoring.

I. The abatement work specified herein shall be performed by appropriately trained and licensed personnel under the supervision of a competent persons trained, knowledgeable and qualified in the techniques of abatement, handling and disposal of asbestos-containing and asbestos-contaminated materials, and the subsequent cleaning of contaminated areas in compliance with all applicable Federal, State, and Local regulations.

J. The Client has retained an independent Consultant to conduct air monitoring during asbestos abatement activities and aggressive clearance air monitoring at the completion of asbestos abatement activities within each contained area. The Contractor shall ensure that air quality within each abatement area meets applicable USEPA/OSHA/IDPH clearance criteria prior to the removal of work barriers and engineering controls. In the event that additional cleaning is required to achieve the noted clearance criteria, said cleaning shall be performed until which time stated clearance criteria have been achieved.

K. The building interior shall only be accessible to IDPH licensed personnel prior to and during aggressive TEM air clearance sampling specified in Item B-1 above. Upon verification that air clearance sampling has met the referenced USEPA AHERA clearance criteria within each zone, inclusive of post abatement clearance within zones 1 through 4, personnel authorized by Kroger shall be allowed to enter the cleared work zones to perform work activities necessary to prepare areas for abatement of flooring

material and re-occupancy.

L. Remedial action and abatement activities may be performed sequentially or concurrently based upon the nature of the work and potential impacts on adjacent abatement areas. The following general sequencing is anticipated for this project:

i. All Zones (Supplemental Assessment of HVAC)
ii. Zone 3 (Existing ACM Dumpster)
iii. Zone 4 (Equipment Storage Container)
iv. Zones 5-9 (Preparation and Cleaning to Provide Access for Flooring Abatement)
v. Zone 2 (Interior Equipment Storage and Waste Transfer)
vi. Zone 1 (Previous Abatement Area and Buffer Zone)
vii. Zones 5-9 (Abatement of Remaining Floor Tile and Adhesive)

M. For proposal purposes, the Contractor shall assume that abatement activities will take place as soon as reasonably possible and no later than 14 days from authorization to proceed.

SECTION 3

Remedial Action Work Plan

ASBESTOS ABATEMENT AND REMEDIAL ACTION WORK PLAN

Asbestos Abatement Remedial Action Design Plan
Kroger Store J-888
201 E. Bidwell Street, Taylorville, Illinois 62568

The purpose of this asbestos abatement and decontamination protocol is to prescribe the means to safely and effectively remove asbestos-containing materials and decontaminate asbestos-contaminated surfaces of potential asbestos-contamination at the subject Site in a manner which minimizes the potential for adverse impacts on human health and the environment. The scope of abatement and decontamination activities addressed within this work plan consists of the removal and disposal of asbestos-containing building materials, decontamination of previously noted areas of suspect impacts, cleaning and detailing of areas of mastic staining, and disposal of asbestos-containing debris and materials generated during asbestos abatement activities.

Abatement activities shall be conducted in accordance with applicable United States Environmental Protection Agency (USEPA), Occupational Safety and Health Administration (OSHA), Illinois Environmental Protection Agency (IEPA), and Illinois Department of Public Health (IDPH) regulations and all other standards and codes governing asbestos abatement and any other environmental work or trade work performed in conjunction with the abatement.

1.0 Scope of Work

Asbestos abatement activities to be addressed during the project will include the removal of asbestos-containing materials, cleaning of potentially contaminated surfaces, and decontamination of areas impacted by recent asbestos abatement activities in accordance with the following general scope of work:

1.1. *Asbestos Abatement:* Prior to the initiation of asbestos abatement activities, ensure that all non-fixed items to be salvaged have been cleaned and removed from the work area.

1.1.1. Restrict access to affected areas and post warning signs to prevent entry to the areas by persons other than authorized personnel.

1.1.2. Shut off or temporarily modify the air handling systems (where required) to prevent the distribution of asbestos fibers to other areas.

1.1.3. Conduct pre-cleaning of remaining surfaces to be protected during abatement activities.

1.1.4. Install polyethylene "critical" barriers at entries/exits to the work areas, windows, refrigeration units, freezers, shelving, and other penetrations to the work areas.

1.1.5. Install additional polyethylene barriers to fully isolate each abatement area from adjacent spaces.

1.1.6. Install HEPA air filtration in the work area and establish negative pressure within each abatement area with respect to adjacent areas.

1.1.7. Remove and dispose of asbestos-containing materials, asbestos-contaminated materials and residual dust and debris.

1.1.8. Conduct cleaning and decontamination of all remaining surfaces throughout the contained area.

1.1.9. Discard all waste materials as asbestos-containing waste materials.

1.1.10. Ensure that air quality within abatement areas meets applicable clearance criteria prior to the removal of workplace barriers and engineering controls.

1.2. *Decontamination:* Conduct decontamination of surfaces that may have been reasonably impacted by the disturbance of asbestos-containing materials as identified in the Scope of Work in accordance with applicable regulations as follows:

1.2.1. Restrict access to affected areas and post warning signs to prevent entry to the areas by persons other than those necessary to respond to the incident.

1.2.2. Shut off or temporarily modify the air handling system (where required) to prevent the distribution of asbestos fibers to other areas.

1.2.3. Seal all openings between the contaminated and uncontaminated areas and establish negative air pressure within the contaminated areas utilizing polyethylene sheeting to cover entries to the work areas.

1.2.4. Evaluate contents (closed or sealed containers, boxes, etc.) within previous abatement areas to determine if surfaces are cleanable. If no indications of contamination pathways are present, pre-clean surfaces and ensure that contents remain protected during decontamination activities and/or containerize and relocate items to a clean area.

1.2.5. Clean or discard contaminated contents within abatement areas.

1.2.6. HEPA vacuum or wet clean all surfaces in potentially contaminated areas.

1.2.7. Discard all waste materials in accordance with applicable regulations.

1.2.8. Conduct clearance air monitoring utilizing aggressive methods

2.0 General Requirements

The following general requirements apply to asbestos-related activities performed at the Site:

2.1. Provide all labor, equipment, materials, insurance, and permits necessary to remove, cleanup and dispose of all asbestos-containing materials (ACM) and ACM contaminated materials as specified herein.

2.2. Perform all work activities including the treatment, removal, handling, and disposal of asbestos-containing and asbestos-contaminated materials in accordance with this work

plan, applicable U.S. Environmental Protection Agency (EPA), U.S. Department of Labor – Occupational Safety and Health Administration (OSHA), and other applicable industry standards and codes that may apply.

2.3. Complete the scope of work in accordance with this work plan including but not limited to pre-cleaning work areas, establishing regulated areas, isolating regulated work areas, protecting adjacent areas, decontamination of work areas, and transport and disposal of regulated materials.

2.4. Protect any building materials or components which are scheduled to be recycled, re-used or salvaged from contamination.

2.5. Restore work areas and auxiliary areas utilized during abatement activities to conditions equal to or better than original.

2.6. Ensure that work activities that will require electrical, plumbing or other contractor services are conducted in accordance with State and local municipality requirements and/or building codes.

2.7. Obtain all permits and authorizations for the work to be performed, where required.

2.8. Dispose of all waste materials in accordance with all applicable Federal, State, and Local laws and regulations.

2.9. Maintain and provide to Owner with project related records to document compliance with applicable regulatory requirements.

3.0 Training and Qualifications

3.1. Work activities contained within this work plan must be performed by competent persons trained, knowledgeable and qualified in the techniques of abatement, handling and disposal of asbestos-containing and asbestos-contaminated materials, and the subsequent cleaning of contaminated areas in compliance with all applicable Federal, State, and Local regulations.

3.2. All personnel who will be required to enter the work area or handle containerized asbestos containing materials must have received adequate training in accordance with 29 CFR 1926.1101 as well as any other applicable Federal, State and/or Local requirements.

3.3. Provide special on-site training on equipment and procedures unique to this job site to job related personnel.

3.4. All personnel entering the Site shall have the appropriate Illinois Department of Public Health (IDPH) licensing applicable to the work activities performed.

4.0 Personal Protective Equipment

4.1. Provide sufficient means, methods, and equipment to protect workers from any hazards associated with the work. Contractor is fully responsible for complying with OSHA rules for

other Safety equipment such as hard hats, safety harnesses, eye protection, gloves, footwear, and any other safety devices used on the Site.

4.2. Provide respiratory protection to all workers in accordance with a written respiratory protection program which complies with all requirements of OSHA 29 CFR 1910.134. Respirators must be NIOSH approved for use with asbestos, or other contaminants anticipated in the work.

4.3. Perform positive and negative air pressure fit test each time negative pressure respirators are used. All proper medical clearance and monitoring and fit testing must be completed prior to using a respirator.

4.4. The minimum level of respiratory protection allowed during abatement activities must be based upon historical or objective data as well as the results of personal exposure monitoring.

4.5. Ensure that disposable clothing including head, foot, and full body protection are provided in sufficient quantities and sizes for all workers. Disposable suits, hoods, and foot coverings shall be TYVEK or similar.

5.0 Equipment and Materials

5.1. Provide sufficient equipment to protect workers and occupants from any hazards associated with the work.

5.2. Provide a sufficient quantity of negative pressure ventilation units equipped with HEPA filtration and operated in accordance with ANSI Z 9.2-79 (Local Exhaust Ventilation requirements) and EPA guidance document EPA 560/5-85-024 Guidance for Controlling Friable Asbestos-Containing Materials in Buildings Appendix J: Recommended Specifications and Operating Procedures For the Use of Negative Pressure Systems for Asbestos Abatement to provide a minimum of one workplace air change every 15 minutes.

5.3. Ensure that encapsulants and sealants used as primers, basecoats, or covering existing materials are compatible with the respective existing or reinstalled materials and their manufacturers' warranties.

5.4. Polyethylene sheeting for all applications must be 6-mil nominal thickness for floors and drop cloths, and 4-mil polyethylene sheeting for walls. Polyethylene sheeting utilized for worker decontamination enclosures must be opaque white or black in color.

5.5. Tape shall be 2" or 3" duct tape or other waterproof tape suitable for joining poly seams and attaching polyethylene sheeting to surfaces.

5.6. Spray adhesives shall be non-flammable and free of methylene chloride solvents.

5.7. Disposal bags shall be 6-mil nominal thickness, pre-printed with labels as required by applicable EPA and OSHA requirements with the Owner's name, date of the project, and shall include the following information:

DANGER
Contains Asbestos Fibers
May Cause Cancer
Causes Damage to Lungs
Do Not Breathe Dust
Avoid Creating Dust

5.8. Utilize nylon or fiber brushes for removing loose asbestos-containing material to minimize the potential for ripping polyethylene sheeting.

5.9. Solvents shall be compatible with any primers, mastics, adhesives, paints, coatings, or other surfacing materials to be installed following their use.

5.10. A sufficient supply of disposable mops, rags and sponges for work area decontamination shall be present at all times.

5.11. All equipment and materials must be completely clean before being brought on site.

6.0 Decontamination Enclosure Systems

6.1. A decontamination area must be established the decontamination of personnel and equipment. Personnel shall be required to remove disposable coveralls and clean equipment before exiting the established abatement and/or decontamination area.

6.2. Worker decontamination enclosure systems constructed at the work site shall utilize 6-mil opaque black or white polyethylene sheeting or other acceptable materials for privacy.

6.3. Construct worker decontamination enclosure systems with three (3) chambers including, at a minimum, a clean room, shower room, and an equipment room, each separated from each other by a curtained doorway.

6.4. Entry to and exit from decontamination enclosure system chambers shall be through curtained doorways consisting of three sheets of overlapping polyethylene sheeting. All sheets will be secured at the top. The first and third sheets will be secured at the side opposite the side from which the middle sheet is secured. All sheets shall have weights attached to the bottom to ensure that they straight and maintain a seal over the doorway when not in use.

6.5. The clean room should be of sufficient size to adequately accommodate the work crew. Clean work clothes (if required under disposables), clean disposable clothing, replacement filters for respirators, towels, and other necessary items shall be provided in adequate supply at the clean room. Whenever possible, a lockable door shall be used to permit access to the clean room from outside the work area. This space should not be used for office space, or for storage of other than specifically designated tools, equipment or materials.

6.6. Shower facilities must comply with 29 CFR 1910.141 (d)(3). The shower room shall contain one or more showers as necessary to adequately accommodate workers. Each shower

head shall be supplied with hot and cold water adjustable at the tap. The shower enclosure shall be constructed to ensure against leakage of any kind. An adequate supply of soap, shampoo, and towels should be available at all times. Shower water shall be drained, collected, and filtered through a system with at least 0.5-1.0 micron particle size capability.

6.7. Establish an equipment room for storage of equipment and tools at the end of the shift after they have been decontaminated using a HEPA filtered vacuum and/or wet cleaning techniques as appropriate. Replacement filters (in sealed containers until used) for HEPA vacuums and negative pressure ventilation equipment, extra tools, containers of surfactant and other materials and equipment that may be required during abatement may also be stored here.

7.0 Equipment/Waste Load-Out

7.1. Containments must be constructed to include a waste load-out area. The waste load out may be used as a temporary storage area for bagged waste prior to transferring waste to the transport dumpster. The waste load-out must be a minimum of two separate chambers separated by airlocks, the waste container pass-out airlock shall be located where there is direct access from the work area to the outside of the building.

7.2. The airlock system consists of a container staging area and another airlock with access to outside the work area.

7.3. Construct the waste container pass-out airlock in similar fashion to the worker decontamination enclosure system using similar materials and airlock and doorway designs.

7.4. This waste-container pass out and associated airlock system should not be used to enter or exit the work area.

7.5. Where waste materials may be loaded directly into a closed dumpster, a rigid barrier system shall be constructed between the waste container pass out and the waste dumpster and walls, floors and ceilings within the walkway between the waste load-out and dumpster shall be covered with a minimum of one layer of 6-mil polyethylene sheeting.

7.6. Waste-out activities should be conducted on a daily basis (at a minimum). Double bag and seal all waste with duct tape "goose neck" ties or by double wrapping materials and sealing with duct tape. Do not overload gurneys, so as not to expose the polyethylene bags to punctures and/or tears.

8.0 Work Area Isolation and Preparation

Work area preparation procedures will be provided prior to the initiation of asbestos abatement activities. The following is a summary of isolation methods to be utilized during the project:

8.1. *Precleaning:* Pre-cleaning of surfaces to be protected during abatement activities shall be performed utilizing HEPA vacuum or wet wiping methods. All movable objects to be

salvaged and surfaces to be covered with critical barriers must be cleaned by HEPA vacuum or wet wiping before removal from the work area or covering with polyethylene sheeting.

8.2. *Movable Objects:* Any movable objects within the work area shall be cleaned and covered with polyethylene sheeting and sealed to create an airtight barrier.

8.3. *Fixed Objects:* Cover all fixed objects in the work area with one (1) layer of 6-mil polyethylene sheeting, secured in place.

8.4. *Isolation Barriers:* Separate abatement areas from occupied areas of the structure through the construction of polyethylene barrier systems and the use of lockable doors. Appropriate entry and egress routes should be maintained at all times in accordance with applicable codes and regulations. Regulated areas shall be established in accordance with 29 CFR 1910.1001(e)(1) and (2). Access to work areas shall be limited to authorized personnel.

8.5. *Signs and Demarcation:* Caution signs and/or other forms or demarcation must be placed at any location and approaches to locations where airborne concentrations of asbestos may exceed ambient background levels. Signs should be posted a sufficient distance from the work areas to permit employees or occupants to read the sign and take necessary precautions to avoid exposure. Entrances to the work area must be clearly demarcated to restrict unauthorized access.

8.6. *Heating, Ventilating and Air Conditioning:* Shut down and lock out all HVAC equipment including supply diffusers, return registers and mechanical closets serving or passing through the regulated area prior to the initiation of abatement activities. Seal all intakes, exhaust vents and seams on system components in the work areas with a minimum of one layer of 6-mil polyethylene sheeting. Remove all HVAC system filters and place in labeled 6-mil polyethylene bags for staging and disposal as asbestos-contaminated waste. Appropriate equipment and control measures shall be utilized to prevent contamination of building spaces during abatement activities.

8.7. *Electric Power:* Shut down and lock out electric power that may not be adequately protected during abatement to all work areas and provide temporary power and lighting. Ensure safe installation (including ground fault circuit interrupters) at the source for temporary power sources and equipment in compliance with all applicable electrical code requirements and OSHA requirements for temporary electrical systems.

8.8. *Critical Barriers:* All remaining wall or ceiling openings to abatement areas shall be sealed with tape and a minimum of one layer of 6-mil polyethylene sheeting. The interior of the isolation barrier shall be covered with a minimum of one additional layer of 6-mil fire retardant polyethylene sheeting secured in place and sealed with duct tape to fully isolate the interior of the work area from adjacent areas. The entrance to the regulated area shall be established on the interior of the barrier system through the construction of a zip wall or

equivalent. Barrier systems should extend to the furthest reasonably anticipated extent of impacts to reduce the likelihood for modifications to the barrier system.

8.9. *Polyethylene Barriers*: For interior abatement and decontamination activities to be performed within containments, cover walls and ceilings of the work area with polyethylene sheeting as follows:

8.9.1. Cover walls with one layer of 4-mil polyethylene sheeting.

8.9.2. Cover the ceilings with one layer of sheeting following the procedures noted above. The second layer of sheeting shall extend at least six inches down the wall.

8.9.3. Plastic must be sized to minimize seams. Seams should be staggered and separated by a distance of at least 6 feet.

8.9.4. Secure wall sheeting adequately to prevent it from falling away from walls as a result of negative pressure abatement activities.

8.10. *Sanitary Facilities*: Ensure that sanitary facilities are provided for abatement personnel outside of the enclosed work area and maintain them in a clean and sanitary condition throughout the project.

8.11. *Air Filtration and Dehumidification:* High Efficiency Particulate Air (HEPA) Air Filtration Devices (AFDs) shall be utilized prior to and during abatement activities to mitigate potential impacts on indoor air quality as follows:

8.11.1. *Negative Pressure Ventilation:* Install and initiate operation of negative pressure ventilation equipment as needed to provide a minimum of 4 work area volumes of air exchange per hour. Openings made in the enclosure system to accommodate these units shall be made airtight with tape and/or caulking as needed. The discharge of negative air exhaust ventilation must be to the outside of the building and shall not be exhausted into occupied areas. If more than one unit is installed, they should be turned on one at a time checking the integrity of wall barriers for secure attachment and need for additional reinforcement. Ensure that adequate power supply is available to satisfy the requirements of the ventilating units. Negative air filtration units must be provided with HEPA filters and shall exhaust to the exterior, unless prohibited by unit configuration. AFDs shall be maintained in operation from the time the containment has been established until which time remedial areas have successfully completed. Units should be cleaned and filters replaced as necessary during remediation activities to prevent contamination of adjacent areas.

8.11.2. *Pressure Differential:* Negative air pressure differential of at least - 0.02 inches of water column, relative to outside ambient air pressure, shall be maintained at all times throughout the contained areas. Instrumentation for measuring pressure

differential shall be provided by the Contractor in accordance with OSHA Regulations 29 CFR 1926.1101.

8.11.3. *Operational and Occupancy Considerations:* The locations of AFD's and should be reviewed with the Owner prior to installation. Air exhaust locations should be installed in a manner that provides adequate protection to the interior environment. Provisions for make-up air and make-up air filtration should also be considered prior to installation.

9.0 Maintenance of Workplace Barriers

Work area preparation procedures will be provided prior to the initiation of asbestos abatement activities. The following is a summary of isolation methods to be utilized during the project:

9.1. *Isolation Barriers:* Inspect all polyethylene barriers inside the work area, in the worker decontamination enclosure system, in the waste container pass-out airlock, and at partitions constructed to isolate the work area from occupied areas at least twice daily: prior to the start of each day's abatement activities, and subsequent to the finish of each day's abatement activities. Maintain documentation of these inspections and observations in the daily project log.

9.2. *Repairs:* At any time during the abatement activities after the barriers have been erected, if visible material is observed outside of the work area or if damage occurs to barriers, immediately stop work, repair barriers, and clean up debris/residue shall using appropriate HEPA vacuuming and wet cleaning procedures.

10.0 Abatement Procedures

Abatement procedures to be determined based upon the type of material being removed. The following general requirements shall apply to all abatement activities:

10.1 *Barriers and Engineering Controls*: Clean and isolate the work areas as identified Section 8.

10.2 *Wetting*: Wet all asbestos-containing and asbestos-contaminated materials with an amended water solution using equipment capable of providing a fine spray mist, to reduce airborne fiber concentrations when the material is disturbed. Saturate the material to the substrate, however, do not allow excessive water to accumulate in the work area. Keep all removed material wet enough to prevent fiber release until it can be containerized for disposal.

10.3 *Removal:* Saturated asbestos containing material shall be removed in manageable sections. Removed material shall be containerized before moving to a new location for continuance of work. Surrounding areas shall be periodically sprayed and maintained in a wet condition until visible material is cleaned up.

10.4 *Waste Containers*: Containers (6-mil polyethylene bags or drums) shall be sealed when full. Bags shall not be overfilled. They shall be securely sealed to prevent accidental opening and leakage by tying the tops of the bags in an overhand knot or by taping in gooseneck fashion. Bags shall be decontaminated on exterior surfaces by HEPA vacuuming and wet cleaning before being placed in clean drums or bags in the waste decontamination pass-out enclosure. Large components removed intact may be wrapped in two layers of 6-mil polyethylene sheeting secured with tape for transport to the landfill. Asbestos-containing waste with sharp-edged components (e.g. nails, screws, metal lath, tin sheeting) that will tear polyethylene bags or sheeting must be placed in drums and/or burlap bags for disposal.

10.5 *Contents and Furnishings*: Furnishings and contents to be salvaged should be adequately cleaned and removed from the work areas and/or protected prior to remedial activities. For furnishings and contents in areas where asbestos-contamination may be present, evaluate contents within drawers, containers, closets and other areas that may have been protected from contamination to determine if indications of contamination are present. If no indications of contamination are present, protect areas from contamination and/or containerize and relocate items to a clean area and conduct HEPA vacuuming and/or wet wiping as a precautionary measure.

10.6 All removed materials and wastes shall be bagged or containerized inside the work area to minimize tracking or the generation of debris outside of the work area.

11.0 Cleaning and Decontamination

Cleaning and decontamination procedures are to be employed for those locations where asbestos impacts are assumed to be present:

11.1. *Removal of Gross Contamination and Sanitation*: Remove and containerize all visible accumulations of asbestos-containing material and asbestos contaminated debris. Special care shall be taken to minimize damage to polyethylene sheeting. For all contents where electrical or other sensitive components may exist, due care should be exercised to ensure that said components are protected from water or chemicals which may result in corrosion or that may otherwise result in damage to electrical components and/or circuitry.

11.2. *Containerized Waste:* Remove all containerized waste from the area and waste container pass-out airlock.

11.3. *Equipment:* Decontaminate all tools and equipment and remove at the appropriate time in the cleaning sequence.

11.4. *Cleaning and Rinsing*: All surfaces within the abatement area shall be HEPA vacuumed and/or damp wiped with water to remove any remaining residues. To pick up excess water and gross wet debris, use a HEPA wet-dry vacuum.

11.5. *Air Filtration:* Negative pressure ventilation units shall remain in continuous operation until which time the work area has been deemed to be visibly free of dust and debris and the results of air monitoring indicate that air quality within the regulated area is within acceptable limits.

11.6. *Drying*: Upon completion of the cleaning process, adequate drying time shall be provided to allow fibers to settle at which point all objects and surfaces should be HEPA vacuumed and wet wiped a second time.

11.7. *Inspection:* Conduct a visual inspection of the work area. Any accumulations of residues observed should be assumed to contain asbestos and an additional settling period and cleaning cycle shall be performed.

11.8. *Encapsulants:* Any application of encapsulants/sealants must be performed in strict accordance with manufacturer recommendations and formulations must be suitable for application on subject surfaces. Spray-encapsulants are to be applied using only airless spray equipment with nozzle pressure adjustable between four hundred and fifteen hundred PSI and in accordance with the manufacturer-s recommendation for the particular encapsulant.

12.0 Waste Handling and Disposal

The following waste handling and disposal procedures will be employed following abatement for the subject areas as specified below:

12.1. *Waste Handling:* All abatement areas shall be inspected by the Contractor or the Consultant and verified to be clean prior to dismantling containment systems and critical barriers.

12.1.1. All abatement areas areas shall be visibly free of dirt, debris, particulate, residues and similar matter. The term "visibly" can include direct and indirect observation (e.g., using a white or black towel to wipe a surface to observe for cleanliness).

12.1.2. Disposal containers shall be leak-tight and waterproof when sealed. Disposal bags must be at least 6-mil polyethylene.

12.1.3. Temporary storage on-site shall be secured and free of debris and lined with 6-mil polyethylene sheeting to prevent contamination from leaking or spilled containers.

12.1.4. Temporary on-site storage container(s) shall be staged only within areas designated or approved by the Owner. If dumpsters are used for asbestos waste disposal or enclosed cargo area of a truck, they shall have metal doors or metal tops that can be closed and locked to prevent vandalism or other disturbances of bagged asbestos debris. Dumpsters and vehicles must be locked at all times

except when under the direct supervision of contractor personnel during waste loading activities.

12.1.5. Waste materials are to be removed from the Work Area on a daily basis (at a minimum). All bagged waste shall be double bagged and sealed with duct tape "goose neck" ties.

12.1.6. Any debris or residue observed on containers or surfaces outside of the work area resulting from clean-up or disposal activities must be cleaned up immediately using HEPA filtered vacuum equipment and/or wet methods as appropriate.

12.2. *Waste Disposal:* All regulated waste materials must be disposed of at an authorized site in accordance with the regulatory requirements of EPA NESHAPS, and any other applicable State and Local guidelines and regulations. All dump receipts, trip tickets, transportation manifests or other documentation of disposal shall be delivered to the Owner for their records.

12.3. *Waste Storage and Transportation:* Drums, bags, and wrapped components removed from the work area shall be loaded into an enclosed truck or dumpster and locked for transport to the landfill. Appropriate warning signage shall be affixed to all sides of the enclosed truck or dumpster identifying contents of the container as ACM.

13.0 Final Inspection and Clearance Air Monitoring

The following visual inspection and clearance procedures will be employed following abatement for the subject areas as specified below:

13.1. *Visual Examination:* All work areas must be inspected by the Contractor or the Consultant and verified to be clean prior to dismantling containment systems and critical barriers.

13.1.1. All remediation or restoration areas shall be visibly free of dirt, debris, particulate, residues and similar matter. The term "visibly" can include direct and indirect observation (e.g., using a white or black towel to wipe a surface to observe for cleanliness).

13.1.2. For surfaces that display indications of potential residues or debris, an evaluation of cleanliness shall be performed to evaluate the sufficiency of cleaning activities. Surfaces will be deemed to be clean if no residual is dislodged during surface wiping.

13.1.3. All abatement areas shall be visibly "dry" at the time of the visual examination.

13.1.4. If surfaces or contents are determined to not meet the criteria identified above, additional cleaning must be performed.

13.1.5. No encapsulant or other coatings shall be applied prior to performing the final visual clearance inspection. Following successful completion of the visual inspection, encapsulants or coatings may be applied as applicable.

13.1.6. Coordination and removal of containment areas and demobilization must be coordinated with the Owner. Containment areas must remain in place until air samples are determined to be within acceptable ranges.

13.2. *Air Monitoring:* Air monitoring is to be performed during and at the completion abatement activities detailed below:

13.2.1. Evaluate the concentrations of airborne asbestos fibers to which workers may be exposed as required by 29 CFR 1926.1101.

13.2.2. Ensure that no employee is exposed to an airborne fiber concentration in excess of 1.0 fiber per cubic centimeter (f/cc) of air as averaged over a sampling period of thirty (30) minutes or is exposed to concentrations that exceeds 0.1 f/cc when factoring in the protection factor of the provided respiratory protection.

13.2.3. Area monitoring shall be performed during all phases of abatement process. Abatement activities must cease when ambient air concentrations of asbestos fibers outside the work area exceeds 0.01 f/cc by Phase Contrast Microscopy (PCM) or background concentrations until control measures are instituted to reduce the fiber concentrations and until any contaminated area is cleaned using HEPA vacuum cleaner and/or wet cleaning methods.

13.2.4. Following completion of abatement and decontamination activities, the Consultant will be notified that the work area is ready for clearance air sampling. Air sampling will be conducted using sampling pumps calibrated at a flow rate of at least 6 and not more than 12 liters per minute using collection media and procedures in accordance with OSHA and EPA approved final air clearance sampling and analysis methods.

13.2.5. Aggressive sampling shall be performed with sufficient portable fans circulating air in the work area to simulate the worst-case scenario. Negative pressure ventilation will continue to operate during clearance air sampling.

13.2.6. The work areas shall be cleaned until the Consultant has determined that the results of the visual inspection are satisfactory. Clearance air testing will be passed when laboratory results indicate airborne fiber concentrations of less than or equal to 70 structures per square millimeter at all sampling locations by Transmission Electron Microscopy (TEM). Sample methodology and clearance criteria shall meet regulatory and specification requirements as identified herein.

13.2.7. In the event that air clearance samples are not acceptable, the interior surfaces of the work area shall be recleaned and additional clearance air monitoring performed.

13.3. *Work Area Reestablishment:* Reestablishment of the work area shall only occur following completion of cleanup procedures and after successful clearance air testing has been performed and documented to the satisfaction of the Owner.

13.3.1. Polyethylene barriers shall be removed from the walls and floors, maintaining decontamination enclosure systems and barriers over doors, windows, etc. and disposed of as asbestos-contaminated waste.

13.3.2. Visually inspect the work areas for any remaining visible residue. Evidence of contamination will necessitate additional cleaning requirements.

13.3.3. Additional air monitoring shall be performed if additional asbestos abatement and/or decontamination is necessary.

13.3.4. Reestablish HVAC, mechanical and electrical systems in proper working order as appropriate.

13.4. *Documentation:* Abatement related documentation including daily project logs, air monitoring documentation, waste manifest documentation and other applicable records must be maintained as a record of project performance. At the completion of the project, project documentation should be submitted to the Owner as a record of abatement activities.

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SECTION 4

Floor Tile and Abatement Abatement Work Plan

FLOOR TILE AND ADHESIVE ABATEMENT WORK PLAN

Store Renovation Activities
Kroger Store J-888
201 E. Bidwell Street, Taylorville, Illinois 62568

The purpose of this specification is to prescribe the means to safely and effectively remove of remaining asbestos-containing floor tile and adhesive at the subject Site in a manner which minimizes the potential for adverse impacts on human health and the environment. The scope of abatement activities addressed within this work plan consists of the removal and disposal of asbestos-containing floor tile and adhesive at remaining locations within the structure (subsequent to the completion of remedial action activities), cleaning and detailing of abatement areas, and disposal of asbestos-containing debris and materials generated during asbestos abatement activities.

The abatement methods used for the removal and disposal of floor tile and adhesives shall be evaluated by the asbestos abatement contractor (Contractor) on a per project basis to determine the most protective measures based upon existing conditions and may include a combination of "non-friable" removal methods and/or "friable" removal methods based upon existing conditions.

A Settlement Agreement was reached between the Resilient Floor Covering Institute and the Occupational Safety and Health Administration (OSHA) that demonstrated that certain "non-friable" removal methods may be employed in a manner that significantly reduces the potential for rendering flooring materials friable while minimizing the generation of airborne asbestos fibers. The procedures agreed to in the Settlement Agreement were further detailed in the Resilient Floor Covering Institute guidance document *Recommended Work Practices for Removal of Resilient Floor Coverings*. The data reviewed in this Settlement Agreement indicated that the effective implementation of these work practices consistently results in worker exposures below applicable occupational exposure limits.

The procedures identified within this Specification provide for the use of discretion by the Contractor's designated Competent Person to evaluate existing conditions to determine the most suitable method for abatement. In those situations where floor tile is observed to be significantly damaged, multiple layers of floor tile are present, or where additional adhesive materials (i.e. carpet or other adhesives) may be present, the use of non-friable removal methods may not be appropriate. However, in accordance with applicable federal, state and local regulations removal methods should be selected that would be the most protective of human health and the environment and therefore non-friable methods are often selected as the method of choice for operational building settings where the use of more aggressive (i.e. friable) methods may not be reasonable and/or appropriate. The content of this plan is intended to be followed in addition to the detailed guidance identified in the *Recommended Work Practices for Removal of Resilient Floor Coverings*. Where the contents of the two documents may vary, the most "stringent" requirements are intended and shall apply to planned abatement activities.

Abatement activities shall be conducted in accordance with applicable United States Environmental Protection Agency (USEPA), Occupational Safety and Health Administration (OSHA), Illinois Environmental Protection Agency (IEPA) and Illinois Department of Public Health (IDPH) regulations and all other standards and codes governing asbestos abatement and any other environmental work or trade work performed in conjunction with the abatement.

PART 1 GENERAL

1.1 SUMMARY

A. This specification covers the abatement of asbestos-containing floor tile and adhesives from the building structure as part of ongoing store renovation activities.

B. Unless otherwise noted, references to "Contractor" means "Asbestos Abatement Contractor".

C. All asbestos related work activities shall be performed in strict accordance with applicable United States Environmental Protection Agency (USEPA), Occupational Safety and Health Administration (OSHA), Illinois Environmental Protection Agency (IEPA), Illinois Department of Public Health (IDPH), and local regulations, as well as any other applicable codes and regulations that may apply.

D. Where compliance with two or more industry standards or sets of requirements is specified and overlapping of those different standards or requirements establishes different or conflicting minimums or levels of quality, the most stringent requirements, or "state of the art," is intended and will be enforced, unless specifically detailed language written into Contract Documents clearly indicates that a less stringent standard is permitted.

E. Personal exposure monitoring (OSHA sampling) as required by the Occupational Safety and Health Administration Asbestos Standard for the Construction Industry 29 CFR 1926.1101 shall be the responsibility of the Contractor. Any and all costs associated with sampling and analysis shall be included within the Contractor's proposal cost.

1.2 WORK INCLUDED

A. The Scope of Work shall include the provision of all labor, equipment, materials, insurance, and permits necessary to remove and dispose of asbestos-containing floor tile and adhesives at the Site. The Contractor, by submitting a Proposal for the work, represents itself as knowledgeable and expert in the performance of the work, and shall account for all expenses necessary to successfully complete the Scope of Work, whether specifically mentioned or not.

B. The Scope of Work includes but is not limited to the removal of floor tile and adhesives at the Site, including pre-cleaning work areas, moving contents, establishing regulated areas, isolating work areas, protecting adjacent areas, containment of regulated areas (as applicable), cleaning of work areas, and packaging and disposal of regulated materials necessary to complete the Scope of Work, whether specifically mentioned or not.

C. Any building materials, contents or components which are not scheduled for removal shall be protected from contamination. Critical barriers shall be installed over existing refrigeration units, freezers, shelving units, and other fixed objects within the abatement area regardless of the abatement method to be utilized for flooring abatement (i.e. friable vs. non-friable). If existing components or adjacent areas are contaminated by the Contractor, the Contactor shall pay all costs associated with the clean-up and/or disposal of contaminated materials.

D. The Contractor is responsible for restoring the work area and auxiliary areas utilized during the abatement to conditions equal to or better than original. Any damages caused during the performance of abatement activities shall be repaired by the Contractor (e.g. paint peeled off by barrier tape, nail holes, water damage, broken glass) at no additional expense to the Owner.

E. The work specified herein shall be performed by competent persons trained, knowledgeable and qualified in the techniques of abatement, handling and disposal of asbestos-containing and asbestos-contaminated materials, and the subsequent cleaning of contaminated areas in compliance with all applicable Federal, State, and Local regulations.

F. Project related documents as specified herein shall be submitted to the Owner or the Owner's designated Consultant (Consultant) prior to, during and at the completion of abatement activities to document compliance with project specifications and for inclusion in a final project completion report.

1.3 QUALITY ASSURANCE

A. Contractor Qualifications

1. The Contractor shall meet, at a minimum, the qualifications and licensure requirements of the Illinois Department of Public Health as detailed within the *Asbestos Abatement for Public and Private Schools and Commercial and Public Buildings in Illinois.*

2. Contractors shall ensure that they possess the technical qualifications, manpower,

experience, equipment, training and facilities to properly and safely perform the work in accordance with the Specifications prior to submitting a proposal for said work.

B. Applicable Standards and Guidelines

1. All work under this Contract shall be done in strict accordance with applicable Federal, State and Local regulations, standards and codes governing asbestos abatement and any other environmental work or trade work done in conjunction with the abatement.

2. The most recent edition of any relevant regulations, standards, documents or codes shall be in effect. Where conflict among the requirements of with these specifications exists, the most stringent requirements shall be utilized.

3. The following regulations shall be adhered to in addition to any other applicable standards:

   a. Illinois Department of Public Health (IDPH)

      1) Rules for Asbestos Abatement for Public and Private Schools and Commercial and Public Buildings in Illinois (77 Ill. Adm. Code 855)

   b. Occupational Safety and Health Administration (OSHA)

      1) Title 29 Code of Federal Regulations (CFR) Section 1926.1101 – Construction Standard for Asbestos
      2) Title 29 CFR Section 1910.134 General Industry Standard for Respiratory Protection
      3) Title 29 CFR Section 1910.20 Access to Employee Exposure and Medical Records
      4) Title 29 CFR Section 1910.1200 Hazard Communication
      5) Title 29 CFR Section 1926.62 Lead Exposure in Construction

   c. Environmental Protection Agency (EPA)

      1) Title 40 CFR Part 61 Subparts A and M (Revised Subpart B) – National Emission Standard for Hazardous Air Pollutants (NESHAP)
      2) Title 40 CFR Part 763 Subpart E, Asbestos Hazard Emergency Response Act (AHERA) Rules
      3) Title 40 CFR Part 763 Subpart E, Appendix C Asbestos Model Accreditation Plan (MAP): Interim Final Rule.

1.4 NOTIFICATION AND SUBMITTALS

A. Within ten (10) calendar days prior to the initiation of asbestos abatement activities, the Contractor shall submit the following items to the Owner/Consultant:

1. Worker and supervisor's licenses and other data sufficient to demonstrate compliance with specified requirements.

2. Copies of the appropriate insurance policies certifying that the Contractor is insured to perform asbestos and/or environmental abatement and has the duty to indemnify the Owner for such abatement.

3. A copy of the demolition/renovation/asbestos abatement notice submitted to the IEPA as required by, NESHAPS, 40 CFR 61, Subparts A and M and also as required by any and all appropriate federal, state, and local agencies responsible for the enforcement of asbestos regulations.

4. Documentation that arrangements for the transport and disposal of asbestos-containing or contaminated materials and supplies have been made. The name and location of the disposal site, a copy of handling procedures, and a list of protective equipment utilized for asbestos disposal at the landfill, prepared and signed by the Landfill Owner/Operator, shall be obtained and submitted.

5. Documentation from a physician that all employees or agents who may be exposed to airborne asbestos in excess of background levels has been medically monitored to determine if the employee is physically capable of working while wearing the require respiratory equipment without suffering adverse health effects. Documentation that personnel have received medical monitoring as required by OSHA 29 CFR 1926.1101 shall be submitted.

6. Documentation that Contractor's employees and agents who must enter the work area have passed respirator fit tests and have been assigned respirators which fit. This fit testing shall be in accordance with qualitative procedures as detailed in the OSHA Standard 29 CFR 1910.1025 Appendix D Qualitative Fit Test Protocol (1985).

B. At the completion of asbestos abatement activities, Contractor shall submit the following items to the Owner/Consultant:

1. Weekly job progress reports detailing abatement activities. Include review of progress with respect to previously established milestones and schedules, problems and action taken, injury reports, and equipment breakdown.

2. Results of personal exposure monitoring performed by the Contractor.

3. Copies of all transport manifests, trip tickets, and disposal receipts for all asbestos waste materials removed from the Work Area during the abatement process.

4. Copies of worksite entry logbooks with information on worker and visitor access.

5. Copies of worker documentation for all employees authorized to enter work areas.

6. Written certification by the Contractor that all work has been completed in conformance with all applicable Federal, State, and local asbestos regulations and that all asbestos-containing and contaminated material has been removed from the site and legally transported and disposed of at an approved and licensed waste disposal facility.

PART 2 - PRODUCTS

2.1 NOTIFICATION AND SUBMITTALS

A. Deliver all materials in the original packages, containers or bundles bearing the name of the manufacturer and the brand name (where applicable).

B. Store all materials subject to damage off the ground, away from wet or damp surfaces and under cover sufficient enough to prevent damage or contamination. Non-abatement equipment and materials shall be stored outside of the abatement area until abatement is completed.

C. All equipment and materials shall be completely clean before being brought on Site.

2.2 TOOLS AND EQUIPMENT

A. A sufficient quantity of negative pressure ventilation units equipped with HEPA filtration and operated in accordance with ANSI Z 9.2-79 (Local Exhaust Ventilation requirements) and EPA guidance document EPA 560/5-85-024 Guidance for Controlling Friable Asbestos-Containing Materials in Buildings Appendix J: Recommended Specifications and Operating Procedures For the Use of Negative Pressure Systems for Asbestos Abatement shall be utilized so as to provide one workplace air change every 15 minutes for each negative pressure containment.

Total required air flow shall be calculated as follows:

$$\text{Total ft}^3\text{/min} = \frac{\text{Vol. of work area}}{\text{15 min.}}$$

Total required number of units shall be calculated as follows:

$$\text{Total Units} = \frac{\text{Total ft}^3/\text{min}}{\text{Capacity of units}}$$

B. For non-friable (i.e. infrared head removal) activities, the Contractor shall provide HEPA air filtration within the abatement area as a proactive measure.

C. Respirators shall be NIOSH approved for use with asbestos, or other contaminants anticipated in the work.

D. Contractor is fully responsible for complying with OSHA rules for other Safety equipment such as hard hats, safety harnesses, eye protection, gloves, footwear, and any other safety devices used on the Site.

E. Airless sprayers shall have pumps capable of providing 125 pounds per square inch (psi) at the nozzle tip at a flow rate of 2 gallons per minute for spraying amended water.

2.3 MATERIALS

A. Contractor shall ensure that encapsulants and sealants used as primers, basecoats, or other materials are compatible with the respective existing or reinstallation materials and their manufacturers' warranties.

B. Polyethylene sheeting for all applications shall be 6-mil nominal thickness for floors and drop cloths, and 4-mil polyethylene sheeting for walls and ceilings. Polyethylene sheeting utilized for worker decontamination enclosures shall be opaque white or black in color.

C. Tape shall be 2" or 3" duct tape or other waterproof tape suitable for joining poly seams and attaching polyethylene sheeting to surfaces.

D. Spray adhesives shall be non-flammable and free of methylene chloride solvents.

E. Disposal bags shall be 6-mil nominal thickness, pre-printed with labels as required by applicable EPA and OSHA requirements with the Owner's name, date of the project, and shall include the following information:

DANGER
Contains Asbestos Fibers
May Cause Cancer
Causes Damage to Lungs
Do Not Breathe Dust
Avoid Creating Dust

F. Brushes utilized for removing loose asbestos-containing material shall have nylon or fiber bristles.

G. Disposable suits, hoods, and foot coverings shall be TYVEK or similar.

H. Solvents shall be compatible with any primers, mastics, adhesives, paints, coatings, or other surfacing materials to be installed following their use.

I. A sufficient supply of disposable mops, rags and sponges for work area decontamination shall be present at all times.

PART 3 - EXECUTION

3.1 WORK AREA ISOLATION

A. The Contractor shall establish a regulated work area in accordance with 29 CFR 1910.1001(e)(1) and (2).

B. Where lockable doors are not present, abatement work areas shall be separated from adjacent areas of the building with barrier tape.

C. At no time shall active abatement areas or negative pressure containments be accessible to the public.

D. Access to the work area shall be limited to the authorized personnel.

3.2 WORK AREA PREPARATION

A. Post caution signs meeting the specifications of OSHA 29 CFR 1926.1101 (k) (6) at any location and approaches to a location where airborne concentrations of asbestos may exceed ambient background levels. Signs shall be posted at a sufficient distance from the work area to permit an employee to read the sign and take the necessary protective measures to avoid exposure. Additional signs need to be posted following construction of workplace enclosure barriers.

B. Shut down and lock out electric power to power sources that may not be adequately protected during abatement. Ensure safe installation (including ground fault circuit interrupters) at the source for temporary power sources and equipment in compliance with all applicable electrical code requirements and OSHA requirements for temporary electrical systems.

C. Shut down and lock out all heating, ventilating, and air conditioning (HVAC) components that are in, supply or pass through abatement areas.

D. Seal all intake and exhaust vents in the work area with tape and 6-mil polyethylene. Also seal any seams in the system components that pass through the abatement area.

E. The Contractor shall ensure that appropriate sanitary facilities for abatement personnel are provided outside of the abatement area and maintain them in a clean and sanitary condition throughout the project.

F. The Owner will provide cold water for construction purposes where available. The Contractor may connect to the Owner's existing system where available.

G. Seal off all windows, doorways, elevator openings, corridor entrances, drains, ducts, grilles, grates, diffusers, and any other openings between the work area and uncontaminated areas outside of the work area with minimum 6-mil polyethylene sheeting and tape for all negative pressure enclosures.

H. Pre-clean all movable objects in the work area using a HEPA filtered vacuum and/or wet cleaning methods as appropriate. After cleaning, these objects shall be removed from the work area and carefully stored in an uncontaminated location.

I. Pre-clean all fixed objects and surfaces in the work area using HEPA filtered vacuums and/or wet cleaning techniques as appropriate. Do not use any methods that would raise dust such as dry sweeping or vacuuming with non-HEPA filtered equipment.

J. Install critical barriers over existing refrigeration units, freezers, shelving units, and other fixed objects within the abatement area regardless of the abatement method to be utilized for flooring abatement (i.e. friable vs. non-friable) and seal securely in place with tape.

K. Cover floors and walls of negative pressure enclosures with polyethylene sheeting as follows:

1. Cover walls and install barrier around all sides of the abatement area with one layer of 4-mil polyethylene sheeting
2. Install a temporary ceiling consisting of one additional layer of 4-mil polyethylene sheeting extending at least six (6) inches down the polyethylene wall barriers.
3. Plastic shall be sized to minimize seams. Seams shall be staggered and separated by a distance of at least 6 feet.
4. Wall and ceiling sheeting shall be secured adequately to prevent it from falling away as a result of negative pressure or abatement activities.
5. For non-friable abatement areas, the procedures noted above may be omitted with the exception of critical barriers shall be installed over fixed objects with one layer of polyethylene sheeting with a minimum 3' splash guard along walls and vertical surfaces.

L. Negative pressure shall be established within full containment enclosures at -0.02" H_2O.

M. Maintain emergency and fire exits from the Work Areas or establish alternative exits acceptable to the local fire department and applicable codes.

3.3 WORKER DECONTAMINATION ENCLOSURE SYSTEMS

A. Worker decontamination enclosure systems shall be provided at all locations where workers will enter or exit the Work Area.

B. Worker decontamination enclosure systems constructed at the work site shall utilize 6-mil opaque black or white polyethylene sheeting or other acceptable materials for privacy.

C. The worker decontamination enclosure system shall be constructed for all friable abatement activities with three (3) chambers including, at a minimum, a dirty room, shower room, and a clean room in accordance with 29 CFR 1926.1101.

D. Entry to and exit from decontamination enclosure system chambers shall be through curtained doorways consisting of three sheets of overlapping polyethylene sheeting. All sheets will be secured at the top. The first and third sheets will be secured at the side opposite the side from which the middle sheet is secured. All sheets shall have weights attached to the bottom to ensure that they straight and maintain a seal over the doorway when not in use.

E. Shower facilities shall be provided which comply with 29 CFR 1910.141 (d)(3). The shower room shall contain one or more showers as necessary to adequately accommodate workers. Each shower head shall be supplied with hot and cold water adjustable at the tap. The shower enclosure shall be constructed to insure against leakage of any kind. An adequate supply of soap, shampoo, and towels shall be supplied by the Contractor and available at all times. Shower water shall be drained, collected, and filtered through a system with at least 0.5-1.0 micron particle size capability. (Note: a system containing a series of several filters with progressively smaller pore sizes is recommended to avoid rapid clogging of filtration system by large particles).

F. The equipment room shall be used for storage of equipment and tools at the end of a shift after they have been decontaminated using a HEPA filtered vacuum and/or wet cleaning techniques as appropriate. Replacement filters (in sealed containers until used) for HEPA vacuums and negative pressure ventilation equipment, extra tools, containers of surfactant and other materials and equipment that may be required during abatement may also be stored here. A drum lined with a labeled 6-mil polyethylene bag for collection of disposable clothing shall be located in this room. Contaminated footwear (e.g. rubber boots, other reusable footwear) shall be stored in this area for reuse the following workday.

3.4 REMOTE DECONTAMINATION

A. Remove decontamination may be utilized for abatement methods that will not result in the disturbance of friable material. Decontamination enclosures shall comply with 29 CFR 1910.141(d)(3). The following procedures shall be utilized with a remote decontamination system:
   1. Workers shall don respiratory protection and two pairs of protective coveralls prior to entering the abatement area.
   2. Upon completion of removal and cleaning, the worker shall HEPA vacuum the outer suit, enter the airlock, remove the outer suit and dispose of it as asbestos-contaminated waste.
   3. Still wearing the inner suit and respiratory protection, the worker shall either proceed to another containment, don a second suite and enter, or proceed to the remote decontamination enclosure system.
   4. The remote decontamination enclosure system shall be wet cleaned after the completion of abatement.

3.5 WASTE CONTAINER PASS-OUT

A. Wherever possible, the waste container pass-out airlock shall be located where there is direct access from the work area to the outside of the building.

B. This airlock system shall consist of a container staging area and another airlock with access to outside the work area.

C. The waste container pass-out airlock shall be constructed in similar fashion to the worker decontamination enclosure system using similar materials and airlock and doorway designs.

D. This waste-container pass out and associated airlock system shall not be used to enter or exit the work area.

E. Waste-out shall be conducted on a daily basis at a minimum. All bagged waste shall be double bagged and sealed with duct tape "goose neck" ties or double wrapped and sealed with duct tape. The waste transporters will hand carry or use only the contractor's plastic gurnies for bagged or wrapped waste. The gurneys will not be overloaded, so as not to expose the polyethylene bags to punctures and/or tears. NOTE: a current fit Test Certificate will be required for users of half-mask respirators.

3.6 EMERGENCY EXITS

A. Emergency exits shall be established and clearly marked with duct tape arrows or other effective designations to permit easy location from anywhere within the abatement area. They shall be secured to prevent access from uncontaminated areas and still permit

emergency exiting. These exits shall be properly sealed with polyethylene sheeting which can be cut to permit egress if needed. These exits may be the worker decontamination enclosure, the waste pass-out airlock and/or other alternative exits satisfactory to fire officials.

3.7 MAINTENANCE OF BARRIERS AND DECONTAMINATION ENCLOSURE SYSTEMS

A. Following the completion of construction of all polyethylene barriers and decontamination system enclosures, inspect barriers to ensure that the barriers will remain intact and secured to walls and fixtures before beginning actual abatement activities.

B. All polyethylene barriers inside the work area, in the worker decontamination enclosure system, in the waste container pass-out airlock, and at partitions constructed to isolate the work area from occupied areas shall be inspected at least twice daily: prior to the start of each day's abatement activities, and subsequent to the finish of each day's abatement activities. Documentation of these inspections and observations shall be kept in the daily project log.

C. Damage and defects in the enclosure system are to be repaired immediately upon discovery.

D. At any time during the abatement activities after the barriers have been erected, if visible material is observed outside of the work area or if damage occurs to barriers, work shall immediately stop, repairs shall be made to the barriers, and debris/residue shall be cleaned up using appropriate HEPA vacuuming and wet cleaning procedures.

E. If air samples collected outside of the work area during abatement activities indicate airborne fiber concentrations greater than 0.01 f/cc or pre-measured background levels (whichever is lower), work shall immediately stop for inspection and repair of barriers. Cleanup of surfaces outside of the work area using HEPA vacuum and wet cleaning techniques may be necessary.

F. Install and initiate operation of negative pressure ventilation equipment as needed to provide a minimum of 4 work area volumes of air exchange per hour. Openings made in the enclosure system to accommodate these units shall be made airtight with tape and/or caulking as needed. The discharge of negative air exhaust ventilation must be to the outside of the building and shall not be exhausted into occupied areas. If more than one unit is installed, they should be turned on one at a time checking the integrity of wall barriers for secure attachment and need for additional reinforcement. Ensure that adequate power supply is available to satisfy the requirements of the ventilating units.

G. A negative air pressure differential of at least - 0.02 inches of water column, relative to outside ambient air pressure, shall be maintained at all times throughout the contained areas.

H. Instrumentation for measuring pressure differential shall be provided by the Contractor in accordance with OSHA Regulations 29 CFR 1926.1101.

3.8 COMMENCEMENT OF WORK

A. Commencement of work shall not occur until:
   1. Enclosure systems have been constructed and inspected.
   2. Negative pressure ventilation systems are functioning adequately.
   3. All pre-abatement submittals, notifications, postings and permits have been provided and are satisfactory to the Owner/Consultant.
   4. All equipment for abatement, clean-up, and disposal is on hand.
   5. All worker training certification is completed.

3.9 WORK AREA ENTRY AND EXIT

A. All workers and authorized personnel shall enter the work area through the worker decontamination enclosure system, where applicable.

B. All personnel entering or leaving the work area must sign the access log located in or near the clean room.

C. Before entering the work area, all personnel shall read and be familiar with all posted regulations, personnel protection requirements (including work area entry and exit procedures) and emergency procedures. A sign-off sheet shall be used to acknowledge that these have been reviewed and understood by all personnel prior to entry.

D. All personnel shall first proceed to the clean room, remove all street clothes and don appropriate respiratory protection and launderable and/or disposable coveralls, as well as head and foot coverings. Hard hats, gloves, etc. shall also be utilized if conditions so indicate. Clean respirators and protective clothing shall be provided and utilized by each person for each separate entry into the work area.

E. Personnel wearing designated protective equipment shall proceed from the clean room through the shower and equipment rooms to the main work area.

F. Before leaving the work area, all personnel shall remove gross contamination from the outside of respirators and protective clothing by brushing and/or wet wiping procedures. (Small HEPA vacuums with brush may be utilized for this purpose, however, larger machines may tear the suits). Each person shall clean the bottoms of their protective footwear in the walkoff pan just prior to entering the equipment room.

G. Personnel shall proceed to equipment room where they remove all protective equipment except respirators. Deposit disposable (and launderable) clothing into appropriately

labeled containers for disposal (and laundering).

H. Reusable, contaminated footwear shall be stored in the equipment room when not in use in the work area. Upon completion of abatement, the footwear shall be disposed of as asbestos contaminated waste. (Rubber boots may be decontaminated at the completion of the abatement for reuse).

I. Prior to removing the respirator, personnel will proceed to the shower room, and wash exposed face areas as well as the respirator under running water. The respirator is then removed, and a shampoo and shower is taken to remove any residual asbestos contamination. Various types of respirators will require slight modification of these procedures. A Type C respirator with HEPA disconnect protection may be disconnected in the equipment room and worn into the shower. A powered air-purifying respirator face piece will have to be disconnected from the filter/power pack assembly which is not waterproof, upon entering the shower. A dual cartridge respirator may be worn into the shower. Cartridges must be replaced for each new entry into the work area.

J. After showering and drying off, proceed to the clean room and don clean disposable [and/or launderable] clothing if there will be later re-entry of the work area or street clothes if it is the end of the work shift.

3.10 EQUIPMENT AND WASTE CONTAINER PASS-OUT

A. Asbestos contaminated waste that has been containerized shall be transported out of the work area through the waste container pass-out airlock.

B. Waste pass-out procedures shall utilize two teams of workers, an "inside" team and an "outside" team.

C. The inside team wearing appropriate protective clothing and respirators for inside the work, area shall clean the outside, including bottoms, of properly labeled containers (bags, drums, or wrapped components) using HEPA vacuums and wet wiping techniques and transport them into the waste container pass-out airlock. No worker from the inside team shall further exit the work area through this airlock.

D. The outside team, donning protective clothing and appropriately assigned respirators, shall enter the airlock from outside the work area, enclose the drums (bags, drums, or wrapped components) in clean, labeled, 6-mil polyethylene bags and remove them from the airlock to the outside. No worker from the outside team shall further enter the work area through this airlock.

E. If the equipment decontamination enclosure system does not terminate to the exterior of the building, the following procedures shall be followed:

F. Waste and equipment shall be placed in a cart lined with a minimum of one layer of 6-mil plastic sheeting. The cart shall not be overloaded, which may cause tipping. The top of the cart shall be covered with a minimum of one layer of 6-mil plastic sheeting. The plastic sheeting shall be secured.

G. The loaded cart shall be carefully taken to and unloaded in the enclosed waste storage unit.

H. The exits from this airlock shall be secured to prevent unauthorized entry.

I. Waste-out shall be conducted on a daily basis (at a minimum). All bagged waste shall be double bagged and sealed with duct tape "goose neck" ties.

3.11 TRAINING AND PERSONAL PROTECTION

A. Training

1. Prior to commencement of abatement activities, all personnel who will be required to enter the work area or handle containerized asbestos containing materials must have received adequate training in accordance with Part 4 of this document as well as any other applicable federal and/or local requirements.

2. Special on-site training on equipment and procedures unique to this job site shall be performed as necessary or required by the Contractor.

3. Training in emergency response and evacuation procedures shall be provided.

B. Respiratory Protection

1. All respiratory protection shall be provided to workers and maintained in accordance with the contractor's written respiratory protection program, which includes all items in OSHA 29 CFR 1910.134 (b) (1-11). This program shall be posted outside of the clean room of the worker decontamination enclosure system.

2. Workers shall be provided with individually identified (marked with waterproof designations) respirators.

3. Contractors shall use available historical data to perform an initial exposure assessment prior to the initiation of abatement activities. The minimum level of respiratory protection allowed during abatement activities shall be Powered Air Purifying Respirators unless and until air sampling and laboratory data support the use half-mask air purifying respirators which will then be the minimum allowable respiratory protection for the removal and cleanup phases of this project.

C. Fit Testing

1. Workers must perform positive and negative pressure fit tests each time a respirator is put on, whenever the respirator design so permits. Powered air-purifying respirators shall be tested for adequate flow as specified by the manufacturer.

2. Workers shall be given a qualitative fit test in accordance with procedures detailed in the OSHA Standard (29 CFR 1926.1101, Appendix C, Qualitative Fit Test Protocols) for all respirators to be used on this abatement project. An appropriately administered quantitative fit test may be substituted for the qualitative fit test. NOTE: All respirators used on this project must have the capacity to function safely in the negative pressure mode, so as to insure a level of respiratory protection, in the event of battery pack, AC power, or compressor failures.

3. Documentation of adequate respiratory fit testing must be provided to the Owner/Consultant as specified herein.

4. Additional respirators (minimum of 2 of each type) and training on their donning and use must be available at the work site for authorized visitors who may be required to enter the work area.

D. Protective Clothing

1. Disposable clothing including head, foot, and full body protection shall be provided in sufficient quantities and sizes for all workers and authorized visitors.

2. Hard hats, protective eyewear, gloves, rubber boots, and/or other footwear shall be provided as required for workers and authorized visitors. Safety shoes may be required for some activities.

3. Non-disposable footwear and/or clothing shall remain in the work area and shall be disposed of as contaminated material at the end of the project.

3.12 ABATEMENT PROCEDURES

A. Gross Removal and Decontamination Within Negative Pressure Enclosure

1. Clean and isolate the work area as specified herein.

2. Wet all asbestos containing material using equipment capable of providing a fine spray mist, in order to reduce airborne fiber concentrations when the material is disturbed. Saturate the material to the substrate, however, do not allow excessive water to accumulate in the work area. Keep all removed material wet enough to prevent fiber release until it can be containerized for disposal. Materials shall remain

adequately wet for the duration of abatement activities. Wetting procedures are not equally effective on all types of asbestos-containing materials, but shall nonetheless be used in all cases.

3. Asbestos containing flooring material shall be removed "intact' to the extent feasible and due care shall be taken to minimize breakage of floor tile. Floor tiles shall be removed in their entirety up until the last remaining row of floor tile to remain. Removal shall terminate before the edge of the polyethylene barrier walls to minimize the potential for damage to the existing barrier walls. Removed material shall be containerized before moving to a new location for continuance of work. Surrounding areas shall be periodically sprayed and maintained in a wet condition until visible material is cleaned up.

4. Containers (6-mil polyethylene bags or drums) shall be sealed when full. Bags shall not be overfilled. They shall be securely sealed to prevent accidental opening and leakage by tying the tops of the bags in an overhand knot or by taping in gooseneck fashion. Do not seal the bags with wire or cord. Bags shall be decontaminated on exterior surfaces by HEPA vacuuming and wet cleaning before being placed in clean drums or bags in the waste decontamination pass-out enclosure.

5. Large components removed intact may be wrapped in two layers of 6-mil polyethylene sheeting secured with tape for transport to the landfill.

6. Asbestos-containing waste with sharp-edged components (e.g. nails, screws, metal lath, tin sheeting) will tear polyethylene bags or sheeting, and thus must be placed in drums and/or burlap bags for disposal.

7. After completion of all floor tile removal activities, chemical solvent shall be applied to the floor surface to assist in the removal of adhesives. Adhesive materials shall be removed by using nylon brushes or low abrasive pads to manually agitate the surface to remove existing adhesives. Waste materials shall be bagged and containerized for disposal. Due care shall be maintained to ensure that all mastic, solvent and slurry materials have been removed from floor surfaces through wet brushing, sponging, or some equivalent method to remove all visible residue. In addition, care should be taken to minimize any seepage of solvents under flooring materials to remain.

8. Clean-up shall proceed in accordance with Section 3.5.

B. Non-Friable Floor Tile and Mastic Removal

1. Unless otherwise specified by the Owner, the Contractor shall be allowed to utilize non-friable methods for the removal of Vinyl Asbestos Floor Tile (VAT) that may be safety removed without rendering the material friable. The Contractor shall consider

material condition, substrates and logistical constraints in the assessment of the appropriateness of the application of non-friable removal procedures. In the event that abatement activities cannot be performed without the breakage of materials or forces that would otherwise render the material friable, the full requirements for gross removal activities contained in Part A of this section shall apply.

2. Non-friable materials must be handled, transported and disposed of in a way that prevents the material from becoming friable and releasing asbestos fibers. Materials must remain intact and in whole pieces throughout removal activities to be considered non-friable. The method of removal cannot shatter, crumble, pulverize or reduce the material to dust. Sanding, sawing, grinding, chipping, and the use of power tools are not allowed.

3. Prior to removal activities, place primary barriers over doorways, registers, refrigerators, freezers, shelves and other components within the space. Walls and adjacent surfaces shall be protected with a splash guard to prevent the staining of wall surfaces during mastic removal activities.

4. For floor tile, utilize an infrared heat machine or heat gun to heat up floor tiles and render the materials pliable. Use a putty knife or floor scraper to gently pry up tiles and place whole pieces in an appropriately labeled fiber drum or leak proof container for disposal.

5. For floor tile adhesive, apply an approved mastic removal solvent to surfaces where ACM mastic is present using a hand sprayer, mop or other application method. The Contractor shall ensure any penetrations in the floor shall be plugged or sealed to prevent solvents from migrating. The Contractor shall start at the furthest point from the waste disposal route to minimize the potential for tracking.

6. Allow the solvent to soak in for 5-10 minutes. Use a nylon brush to manually agitate the floor surface or a floor machine (operated at no greater than 175 RPM) equipped with a low abrasive floor pad to remove mastic from the substrate, ensuring that the floor is maintained wet during removal activities. Wipe up mastic with disposable towels until the surface is clear of any residual mastic or surface staining.

7. Push away the adhesive slurry from the subfloor with a squeegee to check for complete removal. Continue to use the floor machine in the area until the subfloor is suitably clean and free of mastic residues. Minor staining may remain in some situations depending upon the condition of the subfloor but physical residues must be adequately removed.

8. Use disposable mop heads, nylon brushes, disposable rags or hand-held piece of floor pads to detail areas requiring additional cleaning.

9. Wipe up mastic with disposable towels until the surface is clear of any residual mastic or surface staining.

10. Place commercially suitable water absorbent into the HEPA or disposal container until the adhesive slurry is absorbed. The absorbent material may also be placed on the floor to absorb the adhesive residue.

11. Wrap waste materials in polyethylene sheeting and/or place waste materials in an appropriately labeled leak tight container for disposal.

12. Rinse the floor area with clean water using a hand sprayer or mop. Utilize mops or disposable towers to dry floor surfaces.

13. Dispose of remaining cleaning materials and disposable PPE and transport waste materials to the ACM lined dumpster for disposal.

14. Ensure that solvents and adhesives are not tracked beyond the boundaries of the regulated area. Any visible staining of adjacent floor surface shall be assumed to be contaminated and shall be adequately cleaned.

15. Verify that floor surfaces have adequately dried prior to removal of barrier tape and protective barriers. Minimize walking on the wet surface until adequately dried.

3.13 CLEAN UP PROCEDURES

A. Remove and containerize all visible accumulations of asbestos containing material and asbestos contaminated debris utilizing rubber dust pans and rubber squeegees to move material around. Do not use metal shovels to pick up or move accumulated waste. Special care shall be taken to minimize damage to floor sheeting.

B. Wet clean all surfaces in the work area using rags, mops, and sponges as appropriate. To pick up excess water and gross wet debris, use a HEPA wet-dry vacuum.

C. Remove the cleaned outer layer of plastic sheeting from walls and floors. Windows, doors, HVAC systems vents and other openings shall remain sealed. The negative pressure ventilation units shall remain in continuous operation. Decontamination enclosure systems shall remain in place and be utilized.

D. The negative pressure ventilation units shall remain in continuous operation. Decontamination enclosure systems shall remain in place and be utilized.

E. After cleaning the work area, wait until all the surfaces become dry to allow fibers to settle and HEPA vacuum and wet clean all objects and surfaces in the work area again.

F. The Contactor shall ensure that all mastic removal and cleaning activities are performed in accordance with manufacturer recommendations and applicable regulatory requirements. The cleaning of concrete floors shall be performed utilizing a three phase cleaning process (initial, second and third clean).

G. Remove all containerized waste from the area and waste container pass-out airlock.

H. Decontaminate all tools and equipment and remove at the appropriate time in the cleaning sequence.

I. Inspect the work area for visible residue. If any accumulation of residue is observed, it will be assumed to be asbestos and the settling period/cleaning cycle repeated.

J. The work areas shall be cleaned until the Owner or the Owner's representative has determined that the results of his visual inspection are satisfactory. Clearance air testing will be passed when laboratory results indicate airborne fiber concentrations of less than or equal to 0.01 fibers per cubic centimeter (using phase contrast microscopy) or 70 structures per square millimeter (using transmission electron microscopy) at all sampling locations. Sample methodology and clearance criteria shall meet regulatory and specification requirements as identified herein. Additional cleaning cycles shall be provided, as necessary, at no cost to the Owner until these criteria have been met.

K. Following the satisfactory completion of clearance air monitoring, the remaining barriers may be removed and properly disposed of. A final visual inspection by the Owner or Owner's representative shall insure that no contamination remains in the work area. Unsatisfactory conditions may require additional cleaning and air monitoring which shall be performed at the Contractor's expense at no additional cost to the Owner.

L. All HEPA filtration units shall remain in operation until the containment has successfully achieved final clearance air monitoring.

3.14 AIR MONITORING AND ANALYSIS

A. General

1. The Contractor will be responsible for monitoring the workers' exposure to asbestos fibers as required by law. All monitoring for that purpose will comply with the requirements of the most recent standards promulgated to cover the activity. Monitoring results will be provided on a daily basis to the Owner or the Owner's representative.

2. The Contractor shall ensure that no employee is exposed to an airborne fiber concentration in excess of 1.0 fiber per cubic centimeter (f/cc) of air as averaged over a sampling period of thirty (30) minutes or is exposed to concentrations that

exceeds 0.1 f/cc when factoring in the protection factor of the provided respiratory protection.

3. Wherever possible, the Consultant will conduct air sampling prior to the abatement to establish the background concentration of airborne fibers.

4. Wherever possible, Consultant will conduct area monitoring during all phases of abatement process. Owner reserves the right to stop/cease abatement activities when the ambient air concentration of asbestos fibers outside the work area exceeds 0.01 f/cc or the background air quality until control measures are instituted to reduce the fiber concentrations to the background air quality or to 0.01 f/cc or less and until any contaminated area is cleaned using HEPA vacuum cleaner and/or wet cleaning methods.

B. Clearance Air Sampling

1. Following completion of clean-up operations, the Contractor shall notify the Owner that the work area is ready for clearance air sampling.

2. The air sampling will be conducted using sampling pumps calibrated at a flow rate of at least 6 and not more than 12 liters per minute using collection media and procedures in accordance with OSHA, IDPH and EPA approved final air clearance sampling and analysis methods.

3. The number of samples that are required and approximate locations where they shall be taken should be established by the Owner in conjunction with the designated Air Sampling Technician before abatement activity begins.

4. Aggressive sampling shall be performed with sufficient portable 20" fans circulating air in the work area to simulate actual use conditions. Negative pressure ventilation units will not suffice for this purpose, but will continue to operate during clearance air sampling.

5. If clearance air samples are analyzed by Phase Contrast Microscopy (PCM), all sample results at all inside abatement locations shall not exceed a concentration 0.01 f/cc. If clearance air samples are analyzed by Transmission Electron Microscopy (TEM), all sample results at all inside abatement locations shall not exceed a concentration of 70 structures per square millimeter (s/mm2).

6. Areas exceeding this level shall be re-cleaned by the Contractor at no additional cost to the Owner and retested at the Contractor's expense until satisfactory results are obtained.

3.15 DISPOSAL PROCEDURES

A. Waste Disposal

1. Temporary storage on-site shall be secured and shall be free of debris and lined with 6-mil polyethylene sheeting to prevent contamination from leaking or spilled containers. Floor sheeting shall be installed within the designated container first and extend up the side walls. Wall sheeting shall be overlapped and taped into place.

2. Temporary on-site storage container(s) shall be provided by Contractor and staged only within areas designated or approved by the Owner.

3. Waste volume in the temporary storage shall be reported daily to the Owner.

4. Waste materials shall be removed from the Work Area on a daily basis. All bagged waste shall be double bagged and sealed with duct tape "goose neck" ties. Transporters will use only the contractor's plastic gurneys for bagged waste. The gurneys will not be overloaded, so as not to expose the polyethylene bags to punctures and/or tears. At all times, all transporters of asbestos debris must have a half-mask negative air respirator with HEPA cartridge filters within concealed reach (eg. tied-off on the gurnies in opaque bags) at all times. NOTE: a current Fit Test Certificate will be required for users of half-mask respirators.

5. Any debris or residue observed on containers or surfaces outside of the work area resulting from clean-up or disposal activities shall be cleaned up immediately using HEPA filtered vacuum equipment and/or wet methods as appropriate.

6. Disposal must occur at an authorized site in accordance with the regulatory requirements of EPA NESHAPS, and any other applicable State and Local guidelines and regulations.

7. All dump receipts, trip tickets, transportation manifests or other documentation of disposal shall be delivered to the Owner for his records. A recommended recordkeeping format utilizes a chain-of-custody form which includes the names and addresses of the Generator (Owner), Contractor, pick-up site, and disposal site, the estimated quantity of asbestos waste, and the type of containers used. The form should be signed by the Generator, the Contractor, and the Disposal Site Operator, as the material changes hands. If a separate hauler is employed, his name, address, telephone number, and signature should also appear on the form.

B. Transportation to the Landfill

1. Once drums, bags, and wrapped components have been removed from the work area, they shall be loaded into an enclosed truck and locked for transport to the landfill.

2. When moving containers, utilize hand trucks, carts, and proper lifting techniques to avoid back injuries. Trucks with lift gates are helpful for raising drums during truck loading.

3. The enclosed cargo area of the truck shall be free of debris and lined with 6-mil polyethylene sheeting to prevent contamination from leaking or spilled containers. Floor sheeting shall be installed first and extend up the side walls. Wall sheeting shall be overlapped and taped into place.

4. Drums shall be placed on level surfaces in the cargo area and packed tightly together to prevent shifting and tipping. Large structural components shall be secured to prevent shifting and bags placed on top. Do not throw containers into truck cargo area.

5. Any debris or residue observed on containers or surfaces outside of the work area resulting from abatement, clean-up, or disposal activities shall be cleaned up immediately using HEPA filtered vacuum equipment and/or wet methods as appropriate.

6. If dumpsters are used for asbestos waste disposal or enclosed cargo area of a truck, they shall have metal doors or metal tops that can be closed and locked to prevent vandalism or other disturbances of bagged asbestos debris. Dumpsters and vehicles shall be locked at all times except when under the direct supervision of Contractor personnel during waste loading activities.

3.16 REESTABLISHMENT OF THE WORK AREA

A. Work Area Reestablishment

1. Reestablishment of the work area shall only occur following the completion of cleanup procedures and after successful clearance air testing has been performed and documented to the satisfaction of the Owner.

2. Polyethylene barriers shall be removed from walls and floors at this time, maintaining decontamination enclosure systems and barriers over doors, windows, etc.

3. The Contractor and Owner shall visually inspect the work area for any remaining visible residue. Evidence of contamination will necessitate additional cleaning

requirements.

4. Additional air monitoring shall be performed if additional clean-up is necessary.

5. Following satisfactory clearance of the work area, remaining polyethylene barriers shall be removed and disposed as asbestos contaminated waste.

6. At the discretion of the Contractor, mandatory requirements for personal protective equipment may be waived following the removal of all barriers.

7. Re-secure previously mounted objects to their former positions.

8. Relocate objects that were temporarily removed to their original positions.

9. Reestablish HVAC, mechanical and electrical systems in proper working order as appropriate.

10. Repair all areas of damage that occurred as a result of abatement activities.

11. At the completion of work activities, a final walkthrough punchlist shall be performed by the Owner and the Contractor. All items identified in the final walkthrough punchlist shall be completed to the satisfaction of the Owner prior to full demobilization from the site. The Owner reserves the right to withhold final payment for services rendered until final punchlist items have been successfully completed by the Contractor.

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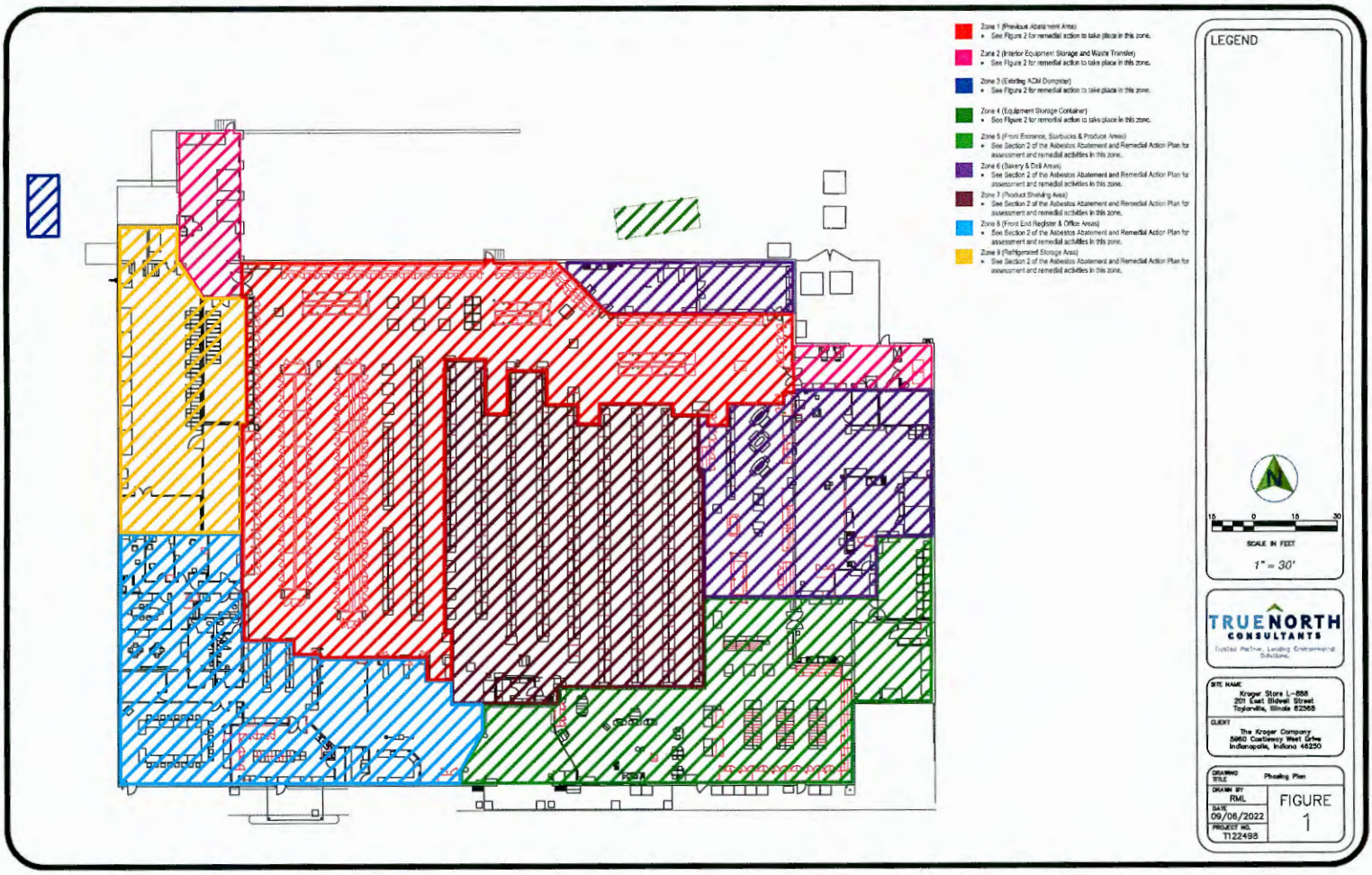
FIGURE 1

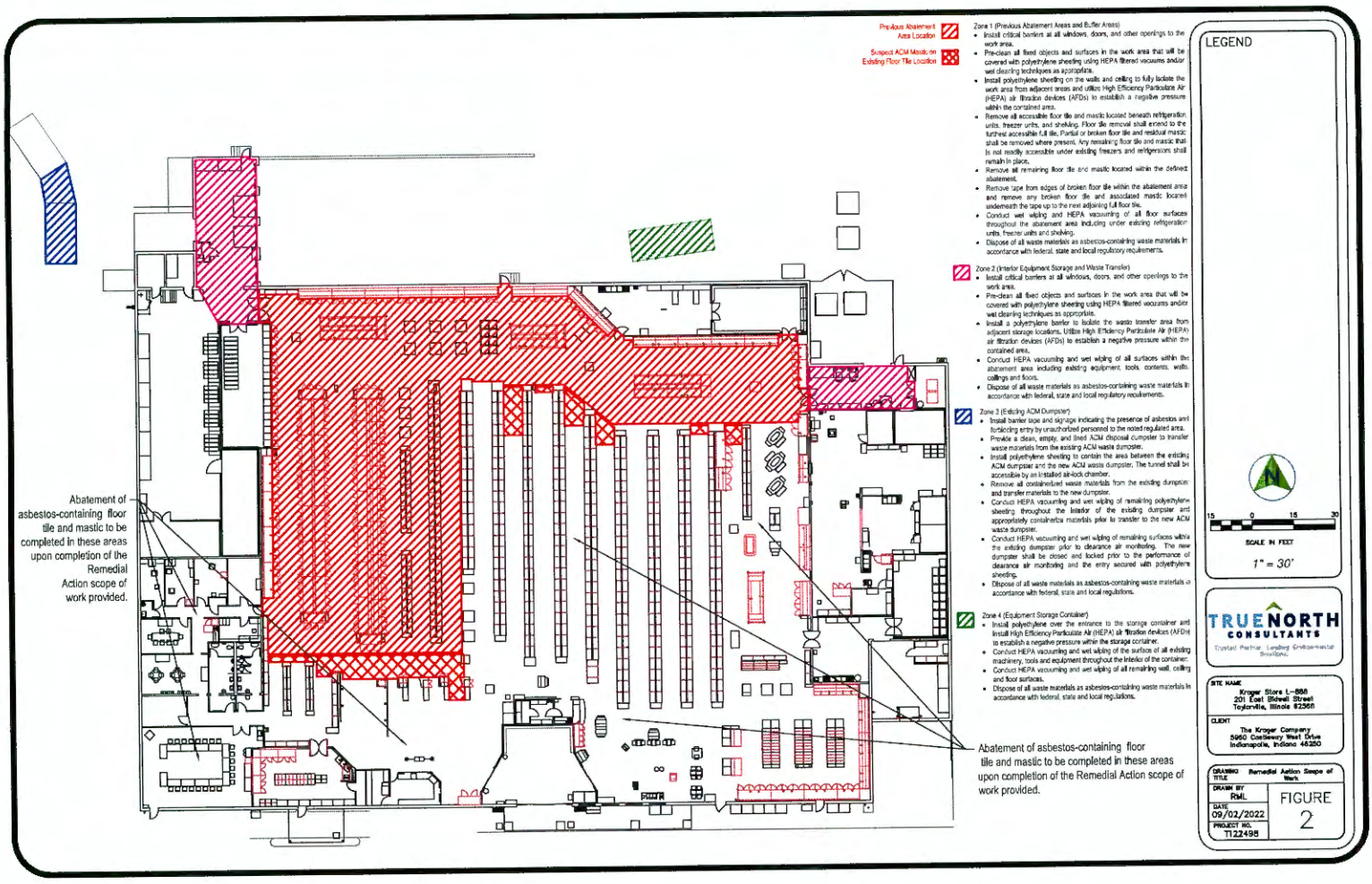
Asbestos Abatement and Remedial Action Work Zones


Zone 1 (Previous Abatement Area)
• See Figure 2 for remedial action to take place in this zone.
Zone 2 (Interior Equipment Storage and Waste Transfer)
• See Figure 2 for remedial action to take place in this zone.
Zone 3 (Existing ACM Dumpster)
• See Figure 2 for remedial action to take place in this zone.
Zone 4 (Equipment Storage Container)
• See Figure 2 for remedial action to take place in this zone.
Zone 5 (Front Entrance, Starbucks & Produce Areas)
• See Section 2 of the Asbestos Abatement and Remedial Action Plan for assessment and remedial activities in this zone.
Zone 6 (Bakery & Deli Areas)
• See Section 2 of the Asbestos Abatement and Remedial Action Plan for assessment and remedial activities in this zone.
Zone 7 (Product Shelving Area)
• See Section 2 of the Asbestos Abatement and Remedial Action Plan for assessment and remedial activities in this zone.
Zone 8 (Front End Register & Office Areas)
• See Section 2 of the Asbestos Abatement and Remedial Action Plan for assessment and remedial activities in this zone.
Zone 9 (Refrigerated Storage Area)
• See Section 2 of the Asbestos Abatement and Remedial Action Plan for assessment and remedial activities in this zone.
LEGEND
N
15 0 15 30
SCALE IN FEET
1" = 30'
TRUENORTH CONSULTANTS
Turning Patches, Leading Environmental Solutions
SITE NAME
Kroger Store L-888
201 East Illdevil Street
Taylorville, Illinois 62568
CLIENT
The Kroger Company
5860 Castleway West Drive
Indianapolis, Indiana 46250
DRAWING TITLE
Phasing Plan
DRAWN BY
RML
DATE
09/06/2022
PROJECT NO.
1122498
FIGURE
1

N

FIGURE 2

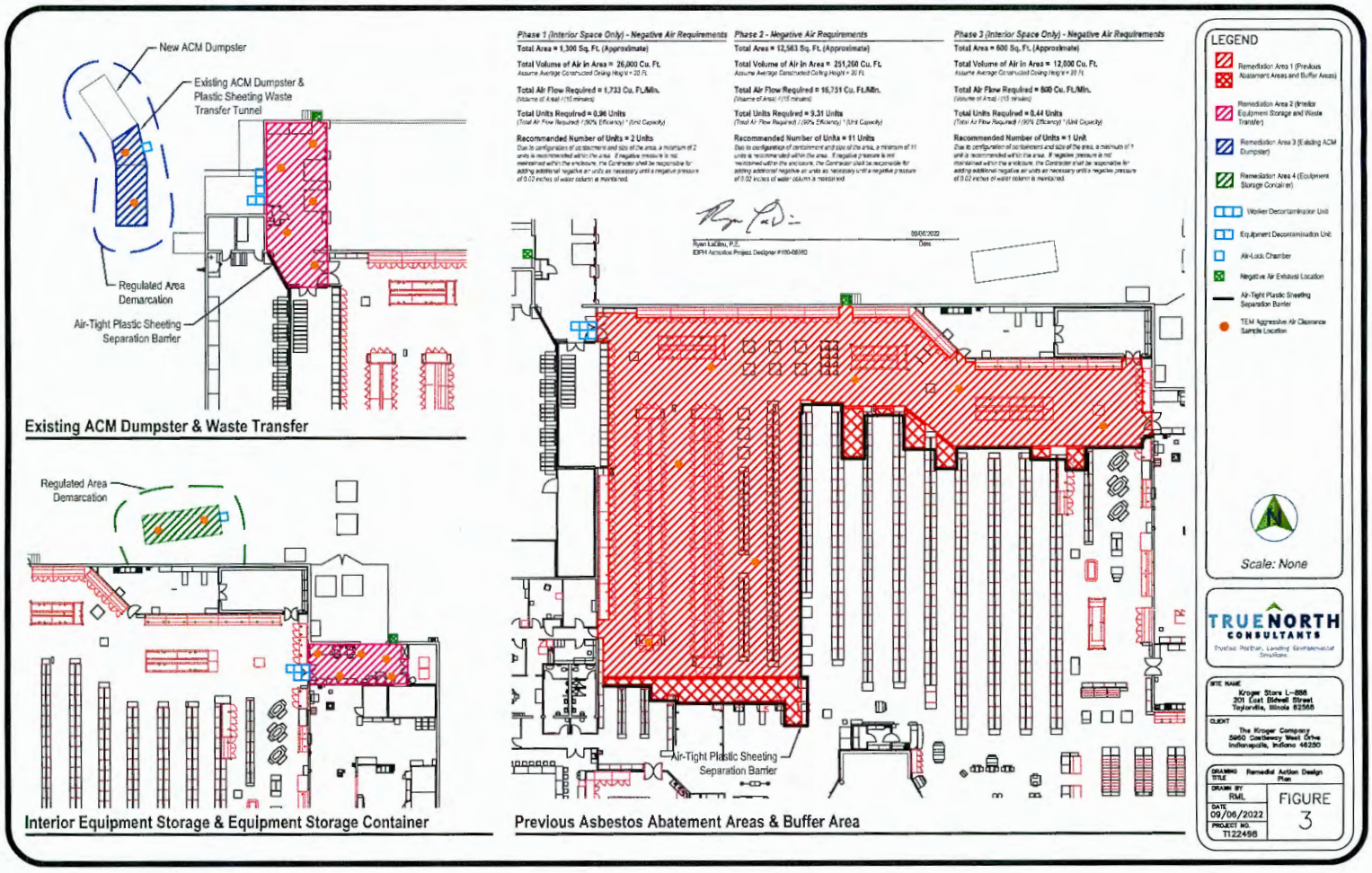
Remedial Action Scope of Work


Previous Abatement Area Location
Suspect ACM Mastic on Existing Floor Tile Location
Zone 1 (Previous Abatement Areas and Buffer Areas)
• Install critical barriers at all windows, doors, and other openings to the work area.
• Pre-clean all fixed objects and surfaces in the work area that will be covered with polyethylene sheeting using HEPA filtered vacuums and/or wet cleaning techniques as appropriate.
• Install polyethylene sheeting on the walls and ceiling to fully isolate the work area from adjacent areas and utilize High Efficiency Particulate Air (HEPA) air filtration devices (AFDs) to establish a negative pressure within the contained area.
• Remove all accessible floor tile and mastic located beneath refrigeration units, freezer units, and shelving. Floor tile removal shall extend to the furthest accessible full tile. Partial or broken floor tile and residual mastic shall be removed where present. Any remaining floor tile and mastic that is not readily accessible under existing freezers and refrigerators shall remain in place.
• Remove all remaining floor tile and mastic located within the defined abatement.
• Remove tape from edges of broken floor tile within the abatement area and remove any broken floor tile and associated mastic located underneath the tape up to the next adjoining full floor tile.
• Conduct wet wiping and HEPA vacuuming of all floor surfaces throughout the abatement area including under existing refrigeration units, freezer units and shelving.
• Dispose of all waste materials as asbestos-containing waste materials in accordance with federal, state and local regulatory requirements.
Zone 2 (Interior Equipment Storage and Waste Transfer)
• Install critical barriers at all windows, doors, and other openings to the work area.
• Pre-clean all fixed objects and surfaces in the work area that will be covered with polyethylene sheeting using HEPA filtered vacuums and/or wet cleaning techniques as appropriate.
• Install a polyethylene barrier to isolate the waste transfer area from adjacent storage locations. Utilize High Efficiency Particulate Air (HEPA) air filtration devices (AFDs) to establish a negative pressure within the contained area.
• Conduct HEPA vacuuming and wet wiping of all surfaces within the abatement area including existing equipment, tools, contents, walls, ceilings and floors.
• Dispose of all waste materials as asbestos-containing waste materials in accordance with federal, state and local regulatory requirements.
Zone 3 (Existing ACM Dumpster)
• Install barrier tape and signage indicating the presence of asbestos and forbidding entry by unauthorized personnel to the noted regulated area.
• Provide a clean, empty, and lined ACM disposal dumpster to transfer waste materials from the existing ACM waste dumpster.
• Install polyethylene sheeting to contain the area between the existing ACM dumpster and the new ACM waste dumpster. The tunnel shall be accessible by an installed air-lock chamber.
• Remove all containerized waste materials from the existing dumpster and transfer materials to the new dumpster.
• Conduct HEPA vacuuming and wet wiping of remaining polyethylene sheeting throughout the interior of the existing dumpster and appropriately containerize materials prior to transfer to the new ACM waste dumpster.
• Conduct HEPA vacuuming and wet wiping of remaining surfaces within the existing dumpster prior to clearance air monitoring. The new dumpster shall be closed and locked prior to the performance of clearance air monitoring and the entry secured with polyethylene sheeting.
• Dispose of all waste materials as asbestos-containing waste materials in accordance with federal, state and local regulations.
Zone 4 (Equipment Storage Container)
• Install polyethylene over the entrance to the storage container and install High Efficiency Particulate Air (HEPA) air filtration devices (AFDs) to establish a negative pressure within the storage container.
• Conduct HEPA vacuuming and wet wiping of the surface of all existing machinery, tools and equipment throughout the interior of the container.
• Conduct HEPA vacuuming and wet wiping of all remaining wall, ceiling and floor surfaces.
• Dispose of all waste materials as asbestos-containing waste materials in accordance with federal, state and local regulations.
Abatement of asbestos-containing floor tile and mastic to be completed in these areas upon completion of the Remedial Action scope of work provided.
Abatement of asbestos-containing floor tile and mastic to be completed in these areas upon completion of the Remedial Action scope of work provided.
FRONT
LEGEND
15 0 15 30
SCALE IN FEET
1" = 30'
TRUE NORTH CONSULTANTS
Trusted Partner, Leading Environmental Solutions
SITE NAME
Kroger Store L-888
201 East Bidwell Street
Folsom, Illinois 62568
CLIENT
The Kroger Company
5960 Castleway West Drive
Indianapolis, Indiana 46250
DRAWING TITLE Remedial Action Scope of Work
DRAWN BY RML
DATE 09/02/2022
PROJECT NO. T122498
FIGURE 2

N

FIGURE 3

Remedial Action Design Plan


New ACM Dumpster
Existing ACM Dumpster & Plastic Sheeting Waste Transfer Tunnel
Regulated Area Demarcation
Air-Tight Plastic Sheeting Separation Barrier
Existing ACM Dumpster & Waste Transfer
Regulated Area Demarcation
Interior Equipment Storage & Equipment Storage Container
Phase 1 (Interior Space Only) - Negative Air Requirements
Total Area = 1,300 Sq. Ft. (Approximate)
Total Volume of Air in Area = 26,000 Cu. Ft.
Assume Average Constructed Ceiling Height = 20 Ft.
Total Air Flow Required = 1,733 Cu. Ft./Min.
(Volume of Area) / (15 minutes)
Total Units Required = 0.96 Units
(Total Air Flow Required) / (90% Efficiency) * (Unit Capacity)
Recommended Number of Units = 2 Units
Due to configuration of containment and size of the area, a minimum of 2 units is recommended within the area. If negative pressure is not maintained within the enclosure, the Contractor shall be responsible for adding additional negative air units as necessary until a negative pressure of 0.02 inches of water column is maintained.
Phase 2 - Negative Air Requirements
Total Area = 12,563 Sq. Ft. (Approximate)
Total Volume of Air in Area = 251,260 Cu. Ft.
Assume Average Constructed Ceiling Height = 20 Ft.
Total Air Flow Required = 16,751 Cu. Ft./Min.
(Volume of Area) / (15 minutes)
Total Units Required = 9.31 Units
(Total Air Flow Required) / (90% Efficiency) * (Unit Capacity)
Recommended Number of Units = 11 Units
Due to configuration of containment and size of the area, a minimum of 11 units is recommended within the area. If negative pressure is not maintained within the enclosure, the Contractor shall be responsible for adding additional negative air units as necessary until a negative pressure of 0.02 inches of water column is maintained.
Phase 3 (Interior Space Only) - Negative Air Requirements
Total Area = 600 Sq. Ft. (Approximate)
Total Volume of Air in Area = 12,000 Cu. Ft.
Assume Average Constructed Ceiling Height = 20 Ft.
Total Air Flow Required = 800 Cu. Ft./Min.
(Volume of Area) / (15 minutes)
Total Units Required = 0.44 Units
(Total Air Flow Required) / (90% Efficiency) * (Unit Capacity)
Recommended Number of Units = 1 Unit
Due to configuration of containment and size of the area, a minimum of 1 unit is recommended within the area. If negative pressure is not maintained within the enclosure, the Contractor shall be responsible for adding additional negative air units as necessary until a negative pressure of 0.02 inches of water column is maintained.
09/06/2022
Ryan LaBleu, P.E.
IDPH Asbestos Project Designer #100-08980
Date
Air-Tight Plastic Sheeting Separation Barrier
Previous Asbestos Abatement Areas & Buffer Area
LEGEND
Remediation Area 1 (Previous Abatement Areas and Buffer Areas)
Remediation Area 2 (Interior Equipment Storage and Waste Transfer)
Remediation Area 3 (Existing ACM Dumpster)
Remediation Area 4 (Equipment Storage Container)
Worker Decontamination Unit
Equipment Decontamination Unit
Air-Lock Chamber
Negative Air Exhaust Location
Air-Tight Plastic Sheeting Separation Barrier
TEM Aggressive Air Clearance Sample Location
Scale: None
TRUENORTH CONSULTANTS
Practical Problem Solving Environmental Solutions
SITE NAME
Kroger Store I--888
201 East Bidwell Street
Taylorville, Illinois 62568
CLIENT
The Kroger Company
5960 Castleway West Drive
Indianapolis, Indiana 46250
DRAWING TITLE
Remedial Action Design Plan
DRAWN BY
RML
DATE
09/06/2022
PROJECT NO.
T122498
FIGURE
3